

**EFL LEARNERS' USE OF NON-FACTIVE
COGNITIVE VERB COMPLEMENTATION: A
CROSS-SECTIONAL INVESTIGATION**

Doktora Tezi

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Eskişehir 2019

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PhD DISSERTATION
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March 2019

This Doctoral Dissertation is a part of the Research project funded by Scientific and Technological Research Council of Turkey (TÜBİTAK), Social and Human Sciences Research Grant Group (SOBAG-1001) with the grant no: 118K130

JÜRİ VE ENSTİTÜ ONAYI

Sibel SÖĞÜT'ün "EFL Learners' Use of Non-factive Cognitive Verb Complementation: A Cross-Sectional Investigation" başlıklı tezi 01.03.2019 tarihinde aşağıdaki jüri tarafından değerlendirilerek "Anadolu Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliği"nin ilgili maddeleri uyarınca Yabancı Diller Eğitimi Anabilim Dalı İngilizce Öğretmenliği Programında, Doktora tezi olarak kabul edilmiştir.

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ÖZET

EYLEM YANULAMLAMASI ÜZERİNE KESİTSEL BİR ARAŞTIRMA: İNGİLİZCEYİ YABANCI DİL OLARAK ÖĞRENEN ÖĞRENCİLERİN OLGU DIŞI BİLİŞ EYLEMLERİNİ KULLANIM DURUMLARI

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Danışman: Prof. Dr. İlknur KEÇİK

Bu çalışma, İngilizceyi yabancı dil olarak öğrenen öğrencilerin olgu dışı biliş eylemlerinin (*düşün-, inan-, zannet-, varsay-*) yanulamama örüntülerini ve ilgili eylem anlamlarını kullanım durumlarını inceleyerek öğrencilerin bu eylemleri ne kadar bildiklerine ve nasıl ürettiklerine ışık tutmayı amaçlamaktadır. Bu amaç doğrultusunda, öğrencilerin eylemleri tanıma ve üretim düzleminde başarı durumlarını incelemek amacıyla nicel veri analiz yöntemleri kullanılmıştır. Öğrencilerin yeğledikleri eylem yanulamama örüntülerini ve ilgili eylem anlamlarını incelemek için nitel analiz yöntemleri kullanılmıştır. Araştırmanın amaçları kapsamında, Çağdaş Amerikan İngilizcesi Derlemi temel alınarak tanıma ve üretim düzlemlerini ölçmeyi amaçlayan cümle yazma, cümle tamamlama testi, dilbilgisellik değerlendirme testi ve boşluk doldurma testleri geliştirilmiştir ve bu testler veri toplama aracı olarak kullanılmıştır. Öğrencilerin testlere verdikleri yanıtlar, kullandıkları eylemlerin anlamsal ve sözdizimsel özellikleri bakımından incelenmiştir. Bu incelemede, İngilizce İstem Sözlüğü'nde yer alan yapı ve anlam örüntüleri temel alınarak sınıflandırmalar yapılmıştır. Araştırmanın sonucunda öğrencilerin birtakım eylem yanulamama örüntülerini ve eylem anlamlarını diğerlerine göre daha çok tercih ederken bazı örüntüleri dilde sık kullanılmasına karşın kullanmaktan kaçındıkları saptanmıştır. Ayrıca, öğrencilerin hem farklı sınıflar hem de farklı sözcük düzeyleri arasında eylem yanulamama örüntüleri ve anlamlarını kullanımlarındaki başarı düzeyleri bakımından bütün testlerde farklılaştıkları saptanmıştır. Bunlar ışığında, öğrencilerin cümle tamamlama ve cümle yazma testleri incelendiğinde, bazı hatalı ve sorunlu kullanımları; yanlış eylem yanulamama örüntüsü seçimi, örüntü-anlam uyumsuzluğu, dolaylı soru sorma sorunları ve bazı anlam ve yapılarının olası anadili etkisiyle hatalı kullanımları şeklinde sıralanabilir.

Anahtar Sözcükler: İngilizceyi yabancı dil olarak öğrenen öğrenciler, Biliş eylemleri, Eylem yanulamaması, Eylem anlamları, Tanıma ve üretim düzlemleri.

ABSTRACT

EFL LEARNERS' USE OF NON-FACTIVE COGNITIVE VERB COMPLEMENTATION: A CROSS-SECTIONAL INVESTIGATION

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The main purpose of this study was to examine EFL learners' use of non-factive cognitive verb (*think, believe, assume, suppose*) complementation patterns and their related verb senses, and to shed light on learners' competence at receptive level and performance at productive level. To investigate the achievement level of learners at recognition and production levels, quantitative data analyses were conducted. In order to examine the preferences of the learners regarding verb complementation patterns and their related verb senses, qualitative data analyses were conducted. In line with the objectives of the current study, four types of tasks (Sentence Production, Sentence Completion, Fill-in the Blanks, Grammaticality Judgment Tasks), which were developed by using Corpus of Contemporary American English (COCA), were used as data collection instruments. Semantic and syntactic properties of verbs were analyzed through examining learner responses to the tasks. Valency Dictionary of English (Herbst et.al, 2004) was used in deciding on and identifying the syntactic and semantic properties of the cognitive verbs. Based on the results of the study, learners were found to choose a number of patterns and verb meanings over the others. Differences across participants from different word levels and years of study in terms of their scores were identified in all tasks. Considering learners' responses to sentence completion and Sentence Production Tasks, it was possible to say that common unacceptable and problematic occurrences were erroneous complementation patterns, the wrong choice of [Prep N] complementation pattern, inappropriate use of indirect questions after the verbs, pattern-meaning mismatch, and possible literal translation from their L1.

Keywords: EFL learners, Cognitive verbs, Verb complementation patterns, Verb senses, Recognition and production levels.

ACKNOWLEDGMENTS

This dissertation is a major milestone in my academic career and this demanding process would not have been completed without inspiration and continuous support of a number of people in my life. I would like to thank these people for being a part of this journey.

First and foremost, I would like to thank my thesis advisor Prof. Dr. İlknur Keçik at Anadolu University. The door to her world was always open whenever I had a question in my mind about any of my research or writing. She guided me through the road to my academic career with her academically and emotionally strong personality. Her guidance and her commitment towards the study had a significant contribution in shaping many steps in this thesis. Thanks to her, I also had the opportunity to have invaluable experience about research projects.

I would also like to express thanks to my dissertation committee Prof. Dr. Ümit Deniz Turan, Prof. Dr. Yavuz Akbulut, Prof. Dr. Gülsev Pakkan, and Assist. Prof. Dr. Elif Arıca Akkök for their invaluable feedback and suggestions. Words fail to express my gratitude to them for their comprehensive feedback and supportive comments about this study.

I would also like to express my gratitude to TUBITAK (Türkiye Bilimsel ve Teknolojik Araştırma Kurumu) for their financial support during my doctoral education. I want to thank each member of English Language Teaching Department at Anadolu University. I will always feel privileged to be a member of this community for over more than seven years during my MA and PhD studies.

I am particularly grateful for the assistance given by Dilek Aydın, Dilek Çalışkan, Ela Akgün Özbek, Esin Dünder, Gonca Subaşı, İlknur Civan, Meral Çapar, Mine Dikdere, Murat Gölgeci, Müge Kanatlar, Neslihan Aydemir, Selma Kara, Seval Çakır, Yücel Öz, and Zuhal Kıyık during the data collection procedure of the study. Most of the phases described in this thesis would not have been completed without the close collaboration of my colleagues.

I am also grateful to Prof. Dr. Zulal Balpınar, Prof. Dr. Fatma Hülya Özcan, and Prof. Dr. Belgin Aydın for their professional guidance about academia and practice teaching in my early career.

Specifically, I would like to thank Ayla Balcı, Charles Sant, and Lucas Sinclair for revising the tasks and providing detailed feedback for each task item. I am grateful to Bethany Kaitlyn Lucille Broberg for being an inter-rater in the evaluation of learner responses to test items.

In this dissertation, Elif Mine Kaptan and Muhammed İleri made enormous contribution by writing down each response in the tasks on an Excel worksheet. My research would have been impossible without the participation and support of first and fourth year EFL learners majoring at English Language Teaching Department at Anadolu University during 2017-2018 fall term.

I would like to express my deepest and sincerest gratitude to Nur Gündoğan, who taught me French. I am profoundly grateful to Gotan Project whose Tango albums boosted my motivation during the long study hours. I would like to thank my friends, Tuncay Karalık and Yalın Uğurlu, for their moral support.

A special acknowledgement goes to my office mate of many years: Serap Atasever Belli. She has been a source of motivation with her intellectual background and a source of positive energy with her smiling face. My special thanks go to her for being my inter-rater during the qualitative analysis of the study and for being a coffee mate.

İlknur Civan and Dilek Aydın Ateş also contributed a lot with their emotional support. My journey in academia would have been rough without their good sense of humour. I owe my indebt gratitude to Hatice Bodakçı and Fatma Dilek Tel for supporting and encouraging me with their ever-lasting positive energy during all phases of academia.

Last but not least, my deep and sincere gratitude to my family for their continuous and unparalleled love, help and support. I am grateful to my sister, Esma Şamlı, to my nieces Merve and Amine, for always being there for me as a source of happiness. I am forever indebted to my parents, Ayten and Ramazan Söğüt, for giving me the opportunities. They selflessly encouraged me to explore new directions in life. This journey would not have been possible if not for them, and I dedicate this milestone to them. I would like to express my deepest appreciations to my brothers, Recep and Musa Söğüt for boosting my motivation and providing moral support with their sense of humour. Their ever-lasting emotional support makes me feel more powerful.

Sibel SÖĞÜT

Eskişehir 2019

06/03/2019

ETİK İLKE VE KURALLARA UYGUNLUK BEYANNAMESİ

Bu tezin bana ait, özgün bir çalışma olduğunu; çalışmamın hazırlık, veri toplama, analiz ve bilgilerin sunumu olmak üzere tüm aşamalarında bilimsel etik ilke ve kurallara uygun davrandığımı; bu çalışma kapsamında elde edilen tüm veri ve bilgiler için kaynak gösterdiğimi ve bu kaynaklara kaynakçada yer verdiğimi; bu çalışmamın Anadolu Üniversitesi tarafından kullanılan “Turnitin programı”yla tarandığını ve hiçbir şekilde “intihal içermediğini” beyan ederim. Herhangi bir zamanda, çalışmamla ilgili yaptığım bu beyana aykırı bir durumun saptanması durumunda, ortaya çıkacak tüm ahlaki ve hukuki sonuçları kabul ettiğimi bildiririm.

Sibel SÖĞÜT

06/03/2019

STATEMENT OF COMPLIANCE WITH ETHICAL PRINCIPLES AND RULES

I hereby truthfully declare that this thesis is an original work prepared by me; that I have behaved in accordance with the scientific ethical principles and rules throughout the stages of preparation, data collection, analysis and presentation of my work; that I have cited the sources of all the data and information that could be obtained within the scope of this study, and included these sources in the references section; and that this study has been scanned for plagiarism with “Turnitin programı” used by Anadolu University, and that “it does not have any plagiarism” whatsoever. I also declare that, if a case contrary to my declaration is detected in my work at any time, I hereby express my consent to all the ethical and legal consequences that are involved.

Sibel SÖĞÜT

TABLE OF CONTENTS

	<u>Page</u>
BAŞLIK SAYFASI	i
JÜRİ VE ENSTİTÜ ONAYI.....	i
ÖZET	iii
ABSTRACT.....	iv
ACKNOWLEDGMENTS	v
ETİK İLKE VE KURALLARA UYGUNLUK BEYANNAMESİ.....	vii
STATEMENT OF COMPLIANCE WITH ETHICAL PRINCIPLES AND RULES	viii
TABLE OF CONTENTS	ix
LIST OF TABLES	xii
LIST OF FIGURES	xiii
LIST OF ABBREVIATIONS	xiv
1. INTRODUCTION	1
1.1. Background to the Study.....	1
1.2. Statement of the Problem.....	4
1.3. Significance of the Study	12
1.4. Scope of the Study.....	14
1.5. Research Questions.....	15
1.6. Definition of Terms.....	15
2. Review of Literature.....	17
2.1. Introduction.....	17
2.2. Verb classification.....	17
2.1.1. Cognitive verbs.....	20
2.3. Verb Valency	22
2.4. Research studies on verb valency in native language.....	24
2.5. Research studies on verb valency in learner language.....	30
3. METHODOLOGY	38
3.1. Introduction.....	38
3.2. Research Design	38
3.3. Participants.....	39

	<u>Page</u>
3.4. Data collection instruments.....	40
3.4.1 Choice of verbs and verb senses	40
3.4.2. Data gathering instruments	41
3.4.2.1. <i>Tasks focusing on the learners’ competence at recognition level...</i>	44
3.4.2.2. <i>Tasks focusing on the learners’ performance at production level..</i>	45
3.5. Data Collection Procedure	46
3.5.1. Pilot study	46
3.5.2. Administering Vocabulary Levels Test.....	47
3.5.3. Administering data collection tasks	49
3.6. Data Analysis Procedure	50
3.6.1. Quantitative data analysis procedure	50
3.6.2. Qualitative data analysis procedure.....	51
3.7. Reliability and validity evidence of the study.....	54
3.7.1. Item analyses	54
3.7.2. Inter-rater reliability analyses	55
4. RESULTS	59
4.1. Introduction.....	59
4.2. Learners’ achievement level at recognition and production tasks.....	60
4.3. Overall findings with regard to the learners’ use of cognitive verb complementation patterns and related verb senses	64
4.3.1. Learners’ choice of verb senses and verb complementation Patterns of the verb <i>think</i>	65
4.3.2. Learners’ choice of verb senses and verb complementation patterns of the verb <i>believe</i>	70
4.3.3. Learners’ choice of verb senses and verb complementation patterns of the verb <i>assume</i>	74
4.3.4. Learners’ choice of verb senses and verb complementation patterns of the verb <i>suppose</i>	78
5. DISCUSSION AND CONCLUSION	81
5.1. Introduction.....	81
5.2. Discussion of the Results	81
5.3. Conclusion	90

	<u>Page</u>
5.3.1. Summary of the study	90
5.3.2. Pedagogical implications	92
5.3.3. Suggestions for further research	96
REFERENCES.....	99
APPENDICES	
CURRICULUM VITAE	

LIST OF TABLES

	<u>Page</u>
Table 3.1. The results of the Vocabulary Levels Test	48
Table 3.2. Points allocated to per item in each test	51
Table 3.3. Categorization of verb complementation patterns	52
Table 3.4. Labels used in tagging the instances in sentence production and sentence completion tasks	53
Table 3.5. Kappa statistic strength of agreement	57
Table 4.1. The comparison among 1st and 4th year students based on their receptive and productive tasks.....	61
Table 4.2. The comparison among the learners from different vocabulary levels based on their receptive and productive tasks.....	62
Table 4.3. Comparison of receptive and productive tasks	63
Table 4.4. Frequencies and percentages of cognitive verbs in sentence production task.....	64
Table 4.5. Syntactic analysis of the responses for the verb ‘think’ in Sentence Completion Task	66
Table 4.6. Syntactic analysis of the responses for the verb ‘believe’ in Sentence Completion Task	71
Table 4.7. Syntactic analysis of the responses for the verb ‘assume’ in Sentence Completion Task	75
Table 4.8. Syntactic analysis of the responses for the verb ‘suppose’ in Sentence Completion Task.....	79
Table 5.1. Developmental sequence for English word order, including English negation, according to Processability Theory.....	87
Table 6.1. Example verb senses provided in Valency Dictionary of English for the verb <i>think</i>	94

LIST OF FIGURES

	<u>Page</u>
Figure 2.1. Scale of degree of reliability.....	25
Figure 3.1. Embedded Design (The figure is a part of the design retrieved from Creswell and Clark, 2007)	39
Figure 3.2. Verb entry information for the verb think in the Valency Dictionary of English (Herbst et al.,2004, p. 869)	40
Figure 3.3. Schema of the multiple data collection sources used in the study.....	42
Figure 3.4. The steps followed during the development of data collection instruments.....	43
Figure 3.5. Data gathering instruments.....	44
Figure 3.6. Order of administering the data collection tools.....	49
Figure 3.7. Research design flow chart.....	58
Figure 4.1. Distribution of mean scores across year of study.....	60
Figure 4.2. Distribution of mean scores across vocabulary levels.....	62
Figure 4.3. Learners' use of the verb "think" in Sentence Completion Task.....	65
Figure 4.4. Learners' use of the verb "believe" in Sentence Completion Task.....	70
Figure 4.5. Learners' use of the verb "assume" in Sentence Completion Task.....	75
Figure 4.6. Learners' use of the verb "suppose" in Sentence Completion Task.....	78

LIST OF ABBREVIATIONS

ACAD	: Academic Register
BNC	: British National Corpus
COCA	: Corpus of Contemporary American English
CL	: Clause
C-verbs	: Cognitive Verbs
DO	: Direct Object
EAP	: English for Academic Purposes
EFL	: English as a Foreign Language
ESL	: English as a Second Language
FBT	: Fill-in the Blanks Task
GJT	: Grammaticality Judgment Task
ICLE	: International Corpus of Learner English
ID NO	: Identity Number
ID	: Item Discrimination
IF	: Item Facility
INF	: Infinitive
KR20	: Kuder and Richardson Formula 20
LOCNESS	: Louvain Corpus of Native English Essays
SC	: Sentential Complement
SCT	: Sentence Completion Task
SLA	: Second Language Acquisition
SPOK	: Spoken Register
SPT	: Sentence Production Task
MAG	: Magazine Register
MICASE	: Michigan Corpus of Spoken Academic English
NP	: Noun Phrase
VLТ	: Vocabulary Levels Test

CHAPTER 1

1. INTRODUCTION

1.1. Background to the Study

Valency theory was outlined by Tesnière in the 1950s as primarily a syntactic theory and the notion of valency is generally linked with Tesnière's (1959) dependency grammar. Valency has not only been specified as a theory, but also been applied as an approach for linguistic description (Götz-Votteler, 2007). Significant contributions have been made to the description of the theory by scholars with the emergence of contemporary data sources (e.g. electronic corpora), research studies from different theoretical aspects (e.g. generative grammar, lexical functional grammar, etc.) have been conducted (e.g. Bresnan, 1982; Bolinger, 1968; Givon, 1980; Lehmann, 1988; Ransom, 1986; Wierzbicka, 1988). Comprehensive valency dictionaries (e.g. Valency Dictionary of English, Wordnet, Framenet) were developed through the analyses of large body of texts and they provided information related to verb complementation patterns and their related verb meanings. A common ground is shared in the acceptance of the utility of some kind of semantic description besides syntactic information in a valency model (Götz-Votteler, 2007, p. 38). According to the Valency Dictionary of English, the semantic analysis of valency complements addresses two questions: "firstly, the meanings of the complements, especially the difference or parallels in meaning between various complements of the same word; secondly, which lexical items can (or cannot) occur as a particular complement" (p. xxix).

In recent years, there has been a theoretical enrichment of the research studies on the semantics of verb complementation and on typologically-oriented research on complementation (e.g. Horie, 1993; Dixon, 1995; Horie & Comrie, 2000). Form-meaning relations and relations between the constituents of sentence are discussed within different theoretical frameworks. Based on the research studies on valency, syntactic argument structures of verbs are predictable from its semantic structures (Pinker, 2013) and grammatical distinctions are motivated by semantic distinctions (Wierzbicka, 1988). In this regard, verb valency has been the subject of inquiry within various aspects. Verb valency is defined as "the number of complements a verb takes" (Herbst, Heath, Roe, & Götz, 2004, xxiv). Another definition, which is also adopted within the scope of the current study, is proposed by Briscoe (2001) and this definition views valency as

“subsuming (syntactic) subcategorization and realization, argument structure, selectional preferences on arguments, and linking and/or mapping rules which relate the syntactic and semantic levels of representation” (p. 2).

Within the domain of the theoretical notion of valency, it is worth to indicate that the phenomenon of valency is one part of the unpredictable, unsystematic aspects of language (Herbst, 2007). A number of pioneering work has been conducted within a general context of foreign language learning and foreign language teaching because of its variant and complex nature (Herbst, 2007). In relation to its variant nature, it is argued that a number of systematic correlations exist between the semantic structure of complement-taking verbs and the syntactic structure of their complements (Givón, 1980, p. 333) and there are complex variations. For example, these variations include the transitivity of the verb (i.e. transitive, ditransitive, etc.), gerundial constructions denoting generality and actuality and infinitival constructions implying specificity and potentiality (Yoon, 2016). There are some cases in which speakers/writers can choose between two or more complement constructions whereas there are cases in which these choices are restricted. For example, the verb *admit* is used with both finite and non-finite types and allows five complementation types as gerundial, infinitival, that clause, zero complement clause constructions among which speakers/writers need to choose among these complementation patterns (Cuyckens & D’hoedt, 2015).

The aforementioned variations in verb complementation choice and nature of complementation patterns create a challenge for language learners. The nature of complementation is itself a potential challenge for language learners as the English language offers a great variety of semantically similar complement patterns (Martinez-Garcia, 2010). Besides, “complementation is too irregular to be totally rule-governed” (Faulhaber, 2011, p. 331). Verb characteristics such as irregularity and complexity of patterns, their polysemy, permission to more than one complementation pattern, and verb alternations are possible factors causing problems for learners (Cuyckens & D’hoedt, 2015). Verb valency is an error-prone area for learners and the analysis of valency patterns is crucial in terms of foreign language teaching, learning (Herbst & Uhrig, 2010) as distinguishing the meaning of verbal complements is a challenge for non-native speakers (Kitikanan, 2011). In the relevant literature, the most common errors language learners make are the choice of prepositional complement, the choice of clause complement, and the choice between noun phrase and prepositional complement (Roe,

2007). Additionally, making a distinction between to-infinitival and gerundial complementation (Yoon, 2016) is another erroneous use. Learners' inadequate knowledge on the transitivity of the verb (Hubbard & Hix, 1988) is one of the reasons of the aforementioned erroneous use.

In addition to these problems, high frequency verbs tend to be problematic for foreign language learners and they are characterized by high degree of polysemy (Viberg, 1999). For example, *I think* has been assigned the status of a polysemic construction (Aijmer, 1997) and it has several senses like cogitation, mental activity, intention, reported speech (inner speech), opinion (Verdaguer, 2010). Verb senses and verb polysemy are basic components of knowing the semantic and syntactic behaviors of the verbs as “knowing a verb means how to use it in comprehending and producing language is to know what categories of syntactic arguments it can allow and the semantic constraints on its possible arguments” (Uçkun, 2012, p. 360). Since the topic is problematic for grammarians, language learners cannot reach sources easily to enrich their knowledge on the topic. More specifically, the topic is problematic for grammarians in that they have difficulty in explaining verbal complementation, or they may ignore it assuming that it is unteachable, very complex and messy (Bourke, 2007) Therefore, it is necessary to shed light on these problematic aspects in learner language.

Within the domain of the present study, verbs are the main foci of this study as “verbs are harder to remember, more broadly defined, more prone to be altered in meaning when conflict of meaning occurs, less stable in translation between languages, and slower to be acquired by children than nouns” (Gentner, 1981, p. 161). The most frequent cognitive verbs are chosen as markedness may be used as a different approach to a descriptive/pedagogical treatment of this area (Westney, 1994, p. 91). In the same vein, frequency is used as a criterion as “the words that are relatively frequent in the language are also those taught to and used by foreign learners” (Herbst, et.al, 2004, p. xli). For example, complementation with the infinitive is unmarked compared to the –ing form (Westney, 1994), infinitive acquired earlier in first language (Brown, 1973). It was also indicated that this order is observed in research studies in second language acquisition (Mazurkewich, 1988). Thus, the use of –ING form is treated special and requires special learning as they may create greater learning problems (Westney, 1994, p. 92). Another rationale for examining cognitive verbs is that these verbs denoting “the speaker’s psychological disposition” (Fetzer, 2008, p. 4) have been widely examined in

terms of their functions in written and spoken language, however, complementation patterns of these verbs have been focused relatively less.

Considering the fact that the nature and use of information regarding the syntactic arguments that a verb can take is crucial to language comprehension and production (Hare, McRae & Elman, 2003) and as it is the verbs the widest variety of subcategorization errors occur (Hubbard & Hix, 1988), examining the learner language is crucial in terms of having an insight into their verb complementation preferences, semantic and syntactic choices in their interlanguage. In the light of the aforementioned problems and needs, the scope of the present study is to examine the verbal complementation patterns of cognitive verbs - *think, believe, assume, suppose* - employed by Turkish EFL learners. For the present study, the most frequent cognitive verbs are chosen and their complementation patterns are investigated through different sources such as sentence production, sentence completion, fill-in the blanks and Grammaticality Judgment Tasks.

1.2. Statement of the Problem

Learning a foreign language requires being competent in semantic and syntactic aspects of that language. Lexical knowledge constitutes an indispensable component of learning a foreign language. Knowing the meaning of vocabulary items as well as their collocations, lexical chunks, semantic and syntactic features and constraints are essential for idiomatic and fluent communication in language. This knowledge is perceived as a prerequisite that learners should possess in order to develop their overall communicative competence at receptive and productive levels. In this regard, Gass and Selinker (2001) state that “lexical errors constitute the most serious and disruptive obstacles to communication” (p. 372).

The verb is in many ways the central component of a sentence (Mckay, 1980). Verb is the fundamental component of the sentence that unites the sentence syntactically and semantically rather than the noun (Nilsen & Nilsen, 1975, p. 87). It is worth emphasizing that verb is the most difficult part for almost any language (Palmer, 2014). One of the common findings revealed within the scope of research studies considering the acquisition and learning aspects of verbs is that verbs are cognitively more demanding than nouns (Gentner, 1981, 2006; Mandler, 1996). The importance of the verb is related to the verb’s selection of a construction and verb’s determination of whether the predicate

can include gerund or infinitive or the feature of the subject (Palmer, 2014). In terms of the importance of verb, Gentner (2006) emphasizes four possible semantic-conceptual explanations proposed for why verbs are acquired late compared to nouns. These explanations are “maturational limitations, difficulty in detecting the conceptual component of verbs, difficulty in learning which semantic components enter into verbs and how they combine, and order of information” (p. 552). Thus, focusing on verbs and their syntactic and semantic properties has crucial importance in terms of providing further evidence in learning teaching/learning process. In the acquisition aspect, Gentner (1981) also emphasizes that it takes children longer to acquire verb meanings than noun meanings. This acquisition order appears to hold cross-linguistically, even after verbs enter the vocabulary, errors in verb usage persist for a very long time (ibid., p.163).

In addition to the aforementioned importance of verbs in language, language learning requires learning how to operate verbal forms and each language differs from each other in terms of the structure and pattern of the verbs (Palmer, 2014). Thus, English language learners with different native language background have challenges in learning these patterns and structures. According to Gass and Selinker (2008), “native speakers know which verbs require object and subject type whereas non-native speakers have difficulty in subcategorization as it is an area of difficulty in input processing” (p. 456). In accordance with the problematic aspects of the issue, English language learners encounter a number of problems regarding the use of verbs at both syntactic and semantic level. More specifically, the complex relationship between a verb’s meaning and its syntactic subcategorization poses a challenge for language learners and meaning of the verb changes when taking either a direct object (DO) or a sentential complement (SC) as an argument (Uçkun, 2012).

Verb characteristics such as irregularity and complexity of patterns, their polysemy, permission to more than one complementation pattern, and verb alternations are possible factors causing problems for learners. Specifically, Cuyckens and D’hoedt (2015) argue that some verbs have alternations in that verbs such as *remember*, *regret* and *admit* may combine with more than one complementation type. This variation in the nature of verbs make it difficult for learners to choose freely one pattern, since they are categorically defined (ibid, p. 77-78). There are also some verbs allowing interchangeable use and a variety of verbal complementation patterns, which they describe as non-categorical and probabilistic. They emphasize that *admit* is one of the verbs which allow

both categorical and non-categorical variation. Furthermore, verbs are complex as they often co-occur with complement clauses (Gleitman, 1990; Naigles, 2000; Nixon, 2005) and verbs with similar meanings may actually take different syntactic frames (Owen Van Horne & Lin, 2011). These varieties are possible sources of challenges for especially non-native learners of English.

In addition to the aforementioned views, Altenberg and Granger (2001) suggest that learners have difficulties in using *make*, which is a frequently occurring verb in language, even at advanced proficiency level. They indicate that these verbs are encountered quite early at instructional programs and they tend to be neglected at later stages. Having mentioned about the neglected aspects of use, “complementation patterns play an intricate role in the organization of any language” and “English language has a variety of semantically similar complementation patterns, which create challenges for English language learners” (Martinez-Garcia, 2010, p. 5). As for the semantic similarities, polysemous verbs are also problematic for learners. Considering the fact that knowing a word and using it correctly includes recognising their polysemy, semantic and syntactic properties and restrictions, distinguishing the meaning variations (Lennon, 1996), these varieties are possible challenge-creating aspects for foreign language learners.

Apart from the aforementioned polysemy problem and variation case, some verbs may undergo a number of semantic and syntactic changes. In their analysis of argument structures of mental processes verbs, Tao (2003) indicates that the argument structure of *remember* and *forget* is characterized by a variety of complementation patterns. One of the most crucial findings of this study is that *remember* has undergone a process of grammaticalization and has been used as a discourse particle indicating epistemic stance rather than as a cognitive verb expressing memory (Tao, 2003).

Scholars have conducted research studies focusing on identification of the problems learners encounter during language learning process considering the verb use. Related research studies show that low and intermediate learners of English as a Second Language (ESL) did not seem to know the restrictions which membership in a certain semantic class imposes on a verb’s clause structure (Ard & Gass, 1987). Specifically, Roe (2007) outlined the most common problematic areas with respect to the verb complementation use such as “the choice of prepositional complement, the choice of clause complement, and the choice between noun phrase and prepositional complement (p. 221). At this point, even advanced learners sound non-idiomatic (Celce-Murcia &

Larsen-Freeman, 1999; Hunston, 2002) and pattern use is perhaps the greatest source of a sense of non-idiomaticity in English because of the learners' imperfect control over the patterns (Hunston, 2002, p. 173).

Examining these problematic aspects is crucial as verb complementation is the key aspect in sentence production and insufficient knowledge of this aspect cause a number of problems in learners' spoken and written products. There is well-documented evidence of production errors with the morpho-syntax of verb classes exists (e.g. Adjémian, 1983; Balcom, 1997; Yip, 1994; Zobl, 1989). In terms of the underlying reason for the occurrence of these errors, Balcom (1997), Yip (1994), and Zobl (1989) have also suggested that learners make such errors because of an interaction between the morphosyntax of English verb classes and universal principles. For example, Zobl (1989) documented that even very advanced learners have difficulty with ergative verbs, which involve certain fine and subtle semantic distinctions. Additionally, Yip (1994) conducted a study with learners from different L1 backgrounds such as Spanish, Hebrew, Korean, Chinese, German, etc., and administered a Grammaticality Judgment Task consisting of ergatives. They revealed that even advanced learners judged good ergatives as clearly ungrammatical and "extended passive rules to ergatives" (p. 129). In relation to the aforementioned universal principles, they further discuss that "learners' treatment of ergatives as if they were passives may be seen as a reflection of the typological organization of English, in which grammatical relations are based on the nominative-accusative system" (Yip, 1994, p.129). Considering the aforementioned difficulties experienced by the learners, verbs seem to pose a logical problem of acquisition in that "positive evidence (input) alone is in principle insufficient to resolve the difficulty" (Yip, 1994, p. 136).

In this regard, Granger and Paquot (2009) emphasize that insufficient knowledge of verbs commonly used in academic written discourse is a challenge for learners as it prevents them from expressing their thoughts and expressing themselves in the expected style. With respect to the common problems faced by learners, McKay (1980) indicated that verb usage errors are among the writing problems faced by intermediate and advanced ESL. These errors can be grouped into three categories as follows:

- syntactic errors (i.e. using an infinitive after a verb which only takes gerund)

- semantic errors (i.e. selecting an inanimate subject in a context that demands an animate subject)
- pragmatic errors (i.e. using a verb with less strength or formality than the situation warrants).

They further argue that these errors may be the inappropriate use of resources such as collocation dictionaries and thesauruses while searching for the suitable verb for a context. Another problem is that these sources are inadequate in providing the necessary information about how to use them and how these words are commonly used by native speaker.

Because of the aforementioned views related to the problematic uses of language learners and challenge-creating nature of verbs, having an understanding of the nature and use of information about the syntactic arguments a verb can take is crucial for sentence comprehension and production (Hare, McRae & Elman, 2003). In addition to the challenges for learners, complementation is also problematic for grammarians in that they have difficulty in explaining verbal complementation, or they may ignore it assuming that it is unteachable, very complex and messy (Bourke, 2007). It is also supposed that verbal complementation is “one of the areas of English grammar that is best acquired without overt instruction (ibid., p. 35), which may not always be the case. Because it is suggested that learners confronted with a target language sentence, which they do not understand first, can use explicit knowledge of syntactic structure to locate the source of their difficulty (Little, 1994, p.104). Even if rules regarding verb complementation patterns are presented to the learners, the most salient and unmarked patterns tend to be presented. In this regard, it is indicated that ESL/EFL grammars are much more selective in their treatment of complement clauses, focusing on only the most important distinctions (Biber & Xeppen, 1998, p. 147). Many aspects of use such as the common structural types of complement clauses, their distribution in speech or writing, the factors affecting complementation choice are ignored (ibid. 147). These points should be taken into consideration in order to shed a light on the use of complementation patterns in native language and their appearance in the learner language.

Another problematic aspect of the verbs is that they are high frequency language items in language and they are ignored especially at the advanced levels based on the assumption that the properties of these verbs are already learned/taught. These verbs tend to be problematic for foreign language learners and they are characterized by high degree

of polysemy (Viberg, 1999). In this regard, Viberg (1999) lists the characteristics of typologically unmarked lexical items. According to him, typologically unmarked lexical items tend to

- be lexicalized in a greater number of languages and to be implemented by more marked elements,
- be more frequent in individual languages,
- be lexicalized in a simpler way,
- be more polysemous and be dominant in hierarchies of polysemy,
- have more irregular inflection (automatized inflected forms),
- give rise to grammatical markers,
- show more possibilities syntactically,
- show more possibilities in word formation,
- be stylistically (or diatypically) neutral and have a wide collocational range (p. 350).

Verbs are among these typologically unmarked lexical items and they pose a number of challenges because of their semantic and syntactic properties. For example, *I think* has been assigned the status of a polysemic construction (Aijmer, 1997) and it has several senses cogitation, mental activity, intention, reported speech (inner speech), opinion (Verdaguer, 2010). *Think* is the most commonly used cognitive verb with the most general meaning (Rips & Conrad, 1989) and verbs denoting *know*, *understand*, *suppose*, *guess*, etc. that are closely related to *think* are often found to “have grammaticalized into epistemic markers” (Rhee, 2001, p. 201). These properties of verbs such as their polysemy, senses and syntactic variations create challenges for language learners. Because, knowing a word requires having an understanding of word characteristics such as its collocations, semantic and syntactic features. In this regard, Lennon (1996) indicates that

depth and breadth of knowledge which learners have to develop in order to consistently use a word correctly is considerable, and includes distinguishing between 'core' and 'peripheral' meanings, recognising polysemy, collocational restrictions and possibilities/ probabilities, syntactic environments, exclusions and taboo uses, register and stylistic levels (p.25).

Considering the fact that knowing a word, as Richards (1976) also points out, includes knowing the probability of encountering the word (collocation), along with knowing its register characteristics, syntactic behavior, underlying form and derivations, association with other words, and semantic value short, focusing on the properties of verbs is fundamental. In parallel to the aforementioned view knowing a word includes knowing how to use a verb involves knowing its combinatory properties with other words possible

syntactic complements it permits (Trueswell, Tanenhaus, & Kello, 1993) and the semantic constraints on its possible arguments (McRae, Ferretti, & Amyote, 1997).

With regard to the presentation of high frequency verbs, it is emphasized that teaching at the advanced level should aim to increase both the word store and enlarge advanced learners' incomplete or 'skeleton entries' in terms of the high frequency verbs (Lennon, 1996). Because "it is the verb that establishes the relationship between semantics (meaning) and syntax (structure), and again it is the verb that determines the number and order (or position) of the obligatory sentence constituents according to the pragmatic function of the sentence (Can, 2009, p. 2832), teaching verbs is supposed to be an important aspect of language instruction. This point is important as impoverished input may be one factor which contributes to the failure of most learners to master the L2 (Bley - Vroman, 1989). In this regard, L2 learners have to figure out the correct lexico-syntactic properties of verbs on the basis of a few exemplars (Juffs, 1998). This neglected aspect undoubtedly causes a number of problems among language learners. For example, Altenberg and Granger (2001) emphasize that these patterns are quite complex and "learners are at a risk of having only a very crude knowledge of their grammatical and lexical patterning" (p. 190). In parallel to the aforementioned view on the neglected aspects, Biber and Xeppen (1998) argue that several aspects of use are disregarded and most ESL/EFL grammars have a sequential principle in their present advanced topics such as complement clauses. Furthermore, even if they are presented, "different types of complements are treated separately with little or no discussion of how to choose among them" (ibid, p. 147). More specifically, in the Turkish context, university students majoring at English Language Teaching Department take the Contextual Grammar course, their coursebook is Grammar Dimension: Form Meaning and Use (Frodesen, Eyring & 1995). In this course, the learners are presented with the list of the very common complementation patterns with no details about the variations in terms of their syntactic appearance and semantic choices. For example, within the scope of the course, the learners are provided with an overview of noun complements, noun complements taking that clauses, overview of gerund and infinitive and their use in perfective, progressive and passive form. Within the scope of this course, they are expected to identify the functions of gerund and infinitives in a sentence, to use a variety of gerund and infinitive structures correctly, to distinguish gerunds from infinitives, and to distinguish between actuality and potentiality. They are also provided with a number of sample sentences;

however, the learners are not provided the semantic and syntactic variations in-depth, the interface between semantics and syntax, and how to distinguish between them. Thus, considering the fact that these patterns are complex structures, focusing on the verb complementation patterns has crucial importance to have a broader understanding over this topic in the foreign language learners' interlanguage from a developmental and cross-sectional perspective.

Scholars argue that valency is also characteristic of other word classes such as nouns, adjectives, and verbs present the most complex, variant and interesting valence-changing operations (Haspelmath & Müller-Bardey, 2004). In parallel to this view, verb complementation and its complex variant nature cause difficulties for L2 learners in terms of their acquisition (Vercellotti & Jong, 2013). The rationale in focusing on the use of verb complementation patterns is that verbs form the nucleus of sentences and majority of the errors are related to verb subcategorization (Hubbard & Hix, 1988, p. 89). Another reason is that these verbs are high frequency verbs and learners are commonly exposed to them during their language learning processes. In Second Language Acquisition (SLA) research, these verbs are suitable candidates for investigation because they are not usually dealt with in depth in EFL/ESL vocabulary learning and teaching (Liu & Shaw, 2001). More specifically, high frequency verbs are apparently monosemic while they are pragmatically polysemic and "their meanings are obscured or confused with contextual, inferential meanings" (Carter, 1987, p. 138). Their nature is variant and anomalistic, for example, *think* denotes cogitation, mental activity, intention, reported speech (inner speech), opinion (Verdaguer, 2010). Another significant point about these verbs is that they go through a process of grammaticalization and gain novel meanings and functions. For example, *I think* has grammaticalized into an epistemic parenthetical, rather than its "original function of subject plus verb introducing a complement clause" (Tagliamonte & Smith, 2005, p. 304). In order to shed light on the appearance of this grammaticalization process in the use of the verbs in interlanguage, the current study is believed to create a novel aspect in terms of its scope.

In parallel to the aforementioned views on the semantics and syntax intersection, the rationale in conducting a content analysis is to reveal context specific norms (Gahl, Jurafsky, & Roland, 2004) as the differences may have different sources such as discourse and semantic influences (Roland & Jurafsky, 1998). The rationale in identifying verb senses is that "verb sense and discourse type play an important role in the frequencies

observed in different experimental and corpus based sources of verb subcategorization frequencies” (p. 1128). Another rationale in identifying verb sense and syntactic properties of the verbs is that verb senses correlate the syntactic patterns (Aarts & Aarts, 1995) and learning of semantics is in part aided by syntactic cueing (Gleitman, 1990), and verb valency has benefits from this semantic-syntax intersection. For this reason, the analysis of the use of these verbs in the learner language, both semantic and syntactic properties of the verbs are taken into consideration. The current study aims at examining to what degree the learners are aware of these properties and shedding light on their recognition and production of the verbs in terms of competence and performance levels.

1.3. Significance of the Study

The current study contributes to the relevant literature by shedding a light on the appearance of verb complementation patterns of EFL learners’ interlanguage from a developmental aspect. The present study is believed to provide valuable insight into their interlanguage as both their recognition at competence level and their production at performance level are covered. One of the lacking point in the previous research studies is they are restricted to the analysis of these patterns by using either the recognition aspect or production aspect. Another lacking point is that the analyses focus on syntactic and semantic aspects separately, a more comprehensive analysis is needed in order to figure out the syntax-semantics interface in the learner language. With regard to that issue, Gass and Selinker (1994) state that the major task of second language lexical research is “to discover what second language learners know about the lexicon of second language” (p. 272). As Ellis (1986) stated,

Second language acquisition refers to all aspects of language that the language learner needs to master. However, the focus has been on how L2 learners acquire grammatical sub-systems, such as negatives or interrogatives, or grammatical morphemes such as the plural {s} or the definite and indefinite articles. (p. 5).

As Ellis (1986) indicated, research has tended to ignore other levels of language and neglect other grammatical properties such as semantic and syntactic features of the language items. Therefore, this study aims to fill this gap by providing an in-depth picture of learner language in terms of their use of cognitive verb complementation patterns and verb sense. Filling such a gap has crucial importance as the nature, variability and complexity of verb complementation patterns induce fundamental problems and challenges for the language learners. Studies on native language shed light on the use of

specific verb complementation patterns in both spoken and written language and there are relatively fewer studies compared to the ones conducted in learner language especially in the Turkish setting.

In addition to the rarity of the studies, the process of learning and using the language in an EFL setting is subject to boundaries as the learners' source of language is limited to classroom materials and teachers. The learners are presented with rules in isolation and they are expected to internalize them and reuse in language production. More specifically, the learners are "presented with grammatical wholes and must analyze them into their component units, syntactic and semantic" (Croft, 2000, 118) in the process of learning and (re)using language. Verb complementation cannot be understood in isolation: "every usage event comes with a unique constellation of factors pulling linguistic choices one way or another" (De Smet, 2013, p. 8). For this reason, the current study is significant as it combines syntactic and semantic properties of cognitive verbs and sheds light on the appearance of these verbs in learner language.

Semantic and syntactic properties of verbs are complex patterns, which are difficult to define. In this regard, for example, English *think* has a broad semantic coverage with different sub-senses, it has fuzzy boundaries and it has several senses apart from expressing mental activity or cogitation (Verdaguer, 2010). It is also argued that all the world's languages would appear to have at least one word referring to general mental activity unavailable to external observation, such as English *think*" (Fortescue, 2001, p. 15). The present study is crucial in terms of providing valuable insights into the appearance of these complex language items in learner language.

The meaning of polysemous verbs is clearly related to their complementation patterns (Levin, 1993) and the interface between syntax and semantics allows a coherent and systematic account of the differences in word meaning. Thus, the present study mainly focusing on the correspondence between verb sense and verb complementation pattern has crucial importance having an insight on their use and preference in interlanguage. Focusing on verb complementation patterns and their related verb senses used by prospective English language teachers may provide both a description of the appearance of these patterns in their products and the possible erroneous uses, and of the developmental process across different levels.

Another significance of the study is that examining the learner language is crucial as interlanguage is a system of its own and this system is "not a deficit system, that is a

language filled with random errors, but a system of its own with its own structure” (Gass & Selinker, 2008, p. 14). In this system, there are various elements and some of these elements do not exist in native language and the target language (ibid.). Investigating these elements is needed as the learners regularly compare what they produce in interlanguage with a perceived target, setting up interlingual identifications (Selinker, 1992). Considering this basic assumption of second language acquisition research, exploring the structures in learner language is crucial to decipher learner preferences from a developmental perspective.

Last but not least, the outcomes of the present study may be used by the scholars and teachers in English Language Teaching Programs. The data collection tools developed within the scope of the study will contribute to the relevant literature both for the use of academic purposes and pedagogical objectives. Researchers may make use of the tasks to explore the use of cognitive verbs by the learners from different L1 background or proficiency levels. Teachers along with the learners may also use these tools to explore a number of tendencies and problematic uses, they may devise supportive activities and instructional plan may be updated accordingly.

1.4. Scope of the Study

Within the scope of the current study, verbal complementation patterns of cognitive verbs - *think, believe, assume, suppose* - employed by Turkish EFL learners were investigated. These verbs are chosen based on Givón’s (1973) classification of cognition verbs. He divides cognition verbs (C-verbs) into three subgroups such as factive, neg-factive and non-factive. Factive C-verbs are *know, remember, forget, see, hear, guess, resent, suspect, understand, be happy, regret, be aware, learn, realize, discover, notice, find out*. Neg-Factive C-verbs: *pretend*, non-factive C-verbs: *decide, agree, hope, be afraid, think, doubt, be sure, believe, feel, fear, assume, suppose, dream, imagine* (p. 893).

Within the scope of this study, the most frequent non-factive C-verbs, which are *think, believe, assume, suppose*, are chosen. In the light of this scope, the aim of the present study is examining the verb complementation patterns of non-factive cognitive verbs used by 1st and 4th year Turkish EFL learners at different levels focusing on both their recognition and production of these verbs.

1.5. Research Questions

In the light of the aforementioned purposes, the following research question is addressed within the scope of the current study:

- 1) Is there a significant difference among the task achievement levels of the learners at different classes and vocabulary levels?
 - a. Is there a significant difference among recognition and production task achievement of the learners at different class levels?
 - b. Is there a significant difference among recognition and production task achievement of the learners at different vocabulary levels?
- 2) What are the preferences of the learners regarding verb complementation patterns and their related verb senses?

1.6. Definition of Terms

Valency theory was outlined by Tesniere in the 1950s as a syntactic theory and it has also been used for linguistic description (Götz-Votteler, 2007). In most languages, verbs share similar characteristics at the very basic level and they differ in the number of complementation patterns such as noun phrases, prepositional phrases they require (Allerton, 1995). This view explains the basic idea of valency. Apart from this definition, Matthews (2007) describes valency as “a property of lexical units in relation to constructions, and it is specifically of units assigned to subcategories” (p. 11). According to Herbst, Heath, Roe and Götz (2004), “the basic assumption of valency theory is that the verb occupies a central position in the sentence because the verb determines how many other elements have to occur in order to form a grammatical sentence” (p. xxiv). Herbst et. al. (2004) further argues:

The number of complements a verb takes constitutes its valency. Since it is the valency of the verb that largely determines the structure of the sentence, the verb is given a central status in the sentence hierarchy and the complements are seen as being dependent upon the governing verb” (p. xxiv).

In a more recent study, a definition for complementation is proposed by Pesonen (2014):

A complement is something that cannot be left out in order for the meaning of a particular part-of-speech to be completed. The study of complementation is interested in the relationship between a particular part-of-speech that functions as the head of the sentence and the complement that follows (p.10).

According to Noonan (1985), “complementation is basically a matter of matching a particular complement type to a particular complement-taking predicate” (p. 88). This matching differs among the verbs as they vary in their permission of these particular complement types. The scope of verb complementation is expanded by the works of scholars such as Noonan (1985) and Wierzbicka (1988), who examined it from functional-typological perspectives. Within the scope of this thesis, the following definition proposed by Briscoe (2001) was used as it is used in a relatively comprehensive way and it covers both syntactic and semantic aspects of valency:

I use the term valency in an extended sense as a relatively theory-neutral term to refer to lexical information concerning a predicate’s realization as a single or multiword expression (such as a phrasal verb), the number and type of arguments that a particular predicate requires, and the mapping from these syntactic arguments to a semantic representation of predicate-argument structure which also encodes the semantic selectional preferences on these arguments. Thus, I use the term valency (frame) to subsume (syntactic) subcategorization and realization, argument structure, selectional preferences on arguments, and linking and/or mapping rules which relate the syntactic and semantic levels of representation (p. 2).

According to Aarts et al (2006), verb complementation is a term that should be used with some caution. In relation to the term, Matthews (1981, p. 142-143) notes that there is considerable variance in how this notion is applied. In transformational generative grammar, verb complements are obligatory constituents following verbs. In more descriptively-oriented grammars verb complements are given a more semantically based characterisation as elements that are ‘required to complete the meaning of the verb’ (Quirk et al. 1985, p. 65). In the present study, the terms verb valency and verb complementation were used because of their comprehensive definition proposed by Briscoe (2001) and their relation on semantic and syntactic interface.

CHAPTER 2

2. Review of Literature

2.1. Introduction

In this chapter, an overview of information regarding verb classification, cognitive verbs, and verb valency are provided respectively. Additionally, research studies conducted on verb valency in native language, and in learner language are elaborated and discussed by providing examples from the literature.

2.2. Verb Classification

In language, “verbs form the nucleus of sentences and it is with verbs that the widest variety of subcategorization errors occur” (Hubbard & Hix, 1988, p. 89). Verb is the main determinant of sentence meaning (Healy & Miller, 1971, p. 95). With respect to its roles language production and comprehension, “the nature and use of information regarding the syntactic arguments that a verb can take is crucial to language comprehension and production” (Hare et. al., 2003, p. 281).

Characteristics of the verbs have been widely discussed and one of the most diverse views on the analysis of verbs is the classification of verbs. In English, scholars have proposed a number of verb classification models (e.g. Aikhenvald, 2006; Biber et. al. 1999; Dixon, 2006; Faulhaber, 2011; Givón, 1973; Huddleston & Pullum, 2002; Levin, 1993; Quirk et. al, 1985;). For example, Levin (1993) classified the verbs semantically and their main assumption is that verbs with similar meanings and grammatical behavior overlap. They classified verbs based on their syntactic and semantic behavior considering the fact that syntactic behavior of verbs is semantically determined. Their main argument is:

If the distinctive behavior of verb classes with respect to diathesis alternations arises from their meaning, any class of verbs whose members pattern together with respect to diathesis alternations should be a semantically coherent class: its members should share at least some aspect of meaning (p. 14).

Based on the aforementioned argument, Levin (1993) identified verb classes such as verbs of putting, verbs of removing, verbs of sending and carrying, verbs of perception, verbs of communication, verbs of social interaction, etc. In addition to this classification, Palmer (2014) classifies them as private verbs referring to mental activities (*think*,

imagine, hope, plan, forget, believe), and verbs referring to sensations (*smell, see, hear, taste, feel*). Besides, Hinkel (2004) classifies verbs into the following five categories: activity verbs (*make, use, give*), reporting verbs (*suggest, discuss, argue, propose*), mental/emotive verbs (*know, think, see*), linking verbs (*appear, become, keep, prove*) and logico-semantic relationship verbs (*contrast, follow, cause, illustrate*).

In the literature, Dixon (1992) classified verbs semantically as verbs of motion (e.g. *bring, come, go, meet*) speaking (e.g. *ask, call, say*), attention (e.g. *find, hear, look*), rest (e.g. *leave, live, put*), wanting (e.g. *expect, want*), beginning (e.g. *begin, start*), thinking (*know, think*), giving (*give, pay*). More recently, Dixon (2006) classified verbs as primary verbs and secondary verbs. Primary verbs are divided into two categories: Primary-A types (verbs of motion, affect, giving) and Primary- B types (verbs of attention, thinking, liking, speaking). Secondary types are realized as complement-taking verbs (such as *want, make, let, help*, etc.). Dixon (2006) further classified Primary-B verbs as:

- Fact complement clauses are often found with Primary-B verbs such as ‘*think (of/about/over)*’, ‘*imagine*’, ‘*dream (of/about)*’, ‘*assume*’, ‘*remember*’, ‘*forget*’, ‘*know*’, ‘*understand*’, ‘*believe*’, ‘*recognize*’, ‘*discover*’, ‘*say*’, ‘*inform*’, and ‘*report*’; and with Secondary verbs such as ‘*not*’, ‘*can*’, and ‘*wish*’.
- Activity complement clauses are often used with Primary-B verbs such as ‘*see*’, ‘*hear*’, ‘*like*’, ‘*fear*’, ‘*enjoy*’, and ‘*describe*’. Also with Secondary verbs such as ‘*begin*’ and ‘*continue*’.
- Potential complement clauses tend to be used with Primary-B verbs such as ‘*promise*’, ‘*threaten*’, ‘*order*’, and ‘*persuade*’. And with such Secondary items as ‘*should*’, ‘*try*’, ‘*want*’, and ‘*make*’ (p.43).

Sharing some common ground assumptions with the aforementioned classification, Aikhenvald’s (2006) distinguished verbs as Primary A (all arguments must be NPs or pronouns) and Primary B verbs (all arguments can be NPs or pronouns, one argument can be a complement clause). They argue “Primary –B verbs are the prototypical complement-taking verbs in every language” (p. 10), these verbs are attention, thinking, liking, speaking. Among these verbs, thinking verbs include *think, consider, imagine, dream, assume, suppose, remember, forget, know, understand, believe, suspect*.

In addition to these classifications, Huddleston and Pullum (2002) identified four classes of verbs:

- a) verbs of cognition, emotion, attitude (e.g. *believe, fear, remember, think, know, regret*, etc.),
- b) verbs of perception and sensation (e.g. *see, hear, feel, taste*, etc.),
- c) verbs of hurting (e.g. *ache, hurt, itch*, etc.),
- d) verbs of stance (e.g. *stand, lie, sit*, etc.).

As they indicate, these verbs constitute a comprehensive and important class of stative verbs, and these verbs “occur in the simple present with imperfective meaning” (Huddleston & Pullum, 2002, p. 170) and in progressive form.

Verbs are also classified as activity verbs, communication verbs, mental verbs, causative verbs, verbs of simple occurrence, verbs of existence or relationship, and aspectual verbs (Biber, Johanson, Leech, Conrad, & Finegan 1999, p. 360). They subdivided the mental verbs as cognitive meaning (e.g. *think, know*), emotional meanings (e.g. *love, want*), verbs of perception (e.g. *see, taste*), receipt of communication (e.g. *read, hear*). In addition to the aforementioned classifications, Quirk, Greenbaum, Leech and Svartvik (1985) classified verbs as primary verbs and modal auxiliary verbs. They classify verbs semantically as verbs of intellectual states, emotional/attitudinal states, states of perception, states of bodily sensation. Intellectual states are verbs such as *know, believe, think, suppose*, etc. and they are followed a nominal clause as object. States of emotion or attitude are verbs such as *intend, wish, want, like*, etc. and they are especially followed by clausal complementation. States of perception are verbs such as *see, hear, feel, taste* and states of bodily sensation verbs such as *hurt, ache, itch*, etc. According to Altenberg and Granger (2001), “the verbs can be subcategorized into three main semantic categories: relational (*seem, appear, become*), mental (*think, realize, understand*) and actional (*work, pay, change*)” (p. 183).

Verbs are also classified based on Halliday’s (1994) taxonomy of general processes of human experience. Based on this model, Scheibman (2002) classified main verb types as verbs of cognition (e.g. *know, think, remember*), corporeal verbs (e.g. *eat, drink, sleep*), existential verbs (e.g. *be, have, happen*), material verbs (e.g. *do, go, take*), verbs of perception (e.g. *look, hear, find*), perception/relational (e.g. *look, smell, sound*), possessive/relational (e.g. *have, get*), relational (e.g. *be, get, become*), verbal verbs (e.g. *say, talk, ask*).

As another classification, Givón (1973) suggests two main classes such as cognition verbs (e.g. *know, pretend, believe*) and modality verb (e.g. *manage, fail, plan*),

and characterized the relationship between these verbs as implication and presupposition. In the following years, Givón (2001) further classified private and public verbs into a single perception-cognition-utterance verbs class. They argue that these verbs may be classified into two groups: verbs that carry a purely epistemic modality, i.e. “code various shades of truth, knowledge, belief or certainty; and those that carry a deontic modality, i.e. code preference or valuation” (p.155). In relation to these aspects, they propose the following classification and suggest that factive verbs mostly denote epistemic meaning whereas non-factive verbs may denote either:

- a) Epistemic: *think, doubt, believe, guess, suspect, assume, be sure, decide, hear, feel, say, claim, ask, agree, suppose, wonder, deny, (expect)*
- b) Deontic: *wish, hope, be afraid, demand, (expect)* (p. 155).

In this study, Givón’s (1973) classification is taken as basis since cognition verbs are analysed in terms of verb complementation patterns and their related verb meaning rather than epistemic and deontic perspective.

In the next section, an in-depth information regarding cognitive verbs is explained.

2.1.1. Cognitive verbs

Cognitive verbs are assigned different labels and named differently such as private verbs (Biber, 1988), belief predicates (Papafragou, Cassidy & Gleitman, 2007), psychological verbs and psychological predicates (Leech, 1983), mental act or state (Vendler, 1972). Cognitive verbs denote “the speaker’s psychological disposition” (Fetzer, 2008a, p. 4), and these verbs indicate, “subjectively qualified information is made explicit, thus attributing an intersubjective dimension to the private domain” (Fetzer, 2008a, p. 4). According to Leech (1983), these verbs “correspond to assertive predicates” and “introduce a reported proposition as an argument” (p. 211). Scholars argue that these verbs differ in their semantic-conceptual properties and they are not easily identified from context even by adults who understand their meanings (Papafragou, et al., 2007, p. 126).

Cognitive verbs have been investigated with respect to their semantic properties and they are found to have a variety of functions in written and spoken language. According to Fetzer (2008), communicators employ a number of cognitive verbs, such as *think, believe, suspect, suppose, feel, guess* and *assume*, in a strategic manner. There has been a large body of study focusing on the forms (Fetzer, 2008; Givón, 1993) and functions of these cognitive verbs (Aijmer, 1997; Fetzer, 2008; Fetzer & Johansson;

2010; Fetzer, 2014; Karkkainen, 2003; Simon-Vandenberg, 2000; Traugott, 1995; Verhagen, 2005). In addition to their forms and functions, a number of linguists have focused on cognitive verbs from the semantic and discursive perspectives. In this regard, Fetzer (2008) indicates that cognitive verbs are found to be assigned the role of “subjectification expressing the speaker’s attitude towards proposition and force” (p. 1) from a semantic point of view; they are employed as “the status of multifunctional devices expressing different types and different degrees of commitment” (p.1) from a discursive perspective. In terms of their sophisticated function, Fetzer and Johansson (2010) indicated

The category of cognitive verb is based on the semantics of its members focusing on the verb’s private domain of reference, which may denote the speaker’s psychological disposition or the psychological disposition of other discourse identities or other objects of talk (p. 243).

In the relevant literature, the first scholar proposing the term ‘parenthetical verbs’ was philosopher Urmson in 1952. According to Urmson (1952), apart from the verbs reporting and describing things, describing single events or a complicated set of events, there is a class of verbs including *believe*, *know*, *deduce*, *guess*, *suppose*, etc., and these verbs help “the understanding and assessment of what is said rather than being a part of what is said” (p. 496). As they state, parenthetical verbs have not “any descriptive sense but rather function as signals guiding the hearer to a proper appreciation of the statement in its context, social, logical, or evidential” (p. 495). *Think*, *believe* and *know* are found to have a special relationship within the class of cognitive verbs in English because of the interplay of evidentiality and epistemicity (Capelli, 2008). In terms of the epistemicity of cognitive verbs, Givón (1980) indicates that cognition verbs in English, on the epistemic-certainty range, allow a variation between a more nominal complement and a more sentential one. They further provide the following examples in order to shed light on epistemic-certainty range:

- (1) He knew of her coming (always factive)
- (2) He knew that she came (sometimes non-factive)
- (3) He thought of her coming (more certain or even factive)
- (4) He thought that she came (less certain, and non-factive)
- (5) He suspected her coming (more certain or even factive)
- (6) He suspected that she came (less certain, less factive) (p. 376).

Besides, Givón (1973) argues that cognitive verbs cover most verb-senses cognition, knowledge, perception, belief. They classify cognition verbs into three sub-groups: factive, neg-factive, non-factive:

Factive: *know, remember, forget, see, hear, guess, resent, suspect, understand, be happy, regret, be aware, learn, realize, discover, notice, find out.*

Neg-factive: *pretend*

Non-factive: *decide, agree, hope, be afraid, think, doubt, be sure, believe, feel, fear, assume, suppose, dream, imagine* (p. 893).

Within the scope of the current study, frequently occurring non-factive cognitive verbs such as *think, believe, assume, and suppose* are examined.

2.3. Verb Valency

Role of verb in language is crucial in terms of its syntactic, semantic properties and in terms of its role in processing state by the learners. This role has been highlighted and attracted a great deal of attention by the grammarians, researchers, teachers, and learners. The reason behind this growing interest seem to be the complex nature and variant characteristics of the verbs. Among these characteristics, one of the crucial aspects is the valency pattern of verbs, which are generally seen in the semantic and syntactic interface. An in-depth analysis reveals that these terms have differences in terms of their reference to semantic and syntactic aspects of verb. For example, subcategorization refers to “the syntactic arguments of a verb, that is, the syntactic phrase types which occur obligatorily or with high probability for any given verb” (Lippincott, Rimell, Verspoor, & Korhonen, 2013, p. 213). Argument structure of the verb refers to the syntactic elements whose presence in the clause can be attributed to the specific requirements of some other syntactic element (a predicate such as the verb) (Taylor, 1993). In the present study, the terms verb valency and verb complementation are used as these terms convey both semantic and syntactic properties of the verbs.

With regard to the semantics-syntax interface in describing the properties of verbs, Taylor (1993) argues that there is a need to “offer semantic explanations of syntactic facts” and majority of complement taking verbs choose more than one complementation pattern, thus “the choice of one complement type rather than another goes with sometimes very subtle semantic differences in the resulting sentences” (p. 207). For example, Levin (1993) proposed a comprehensive verb classification based on the semantically determined syntactic behavior of verbs. Based on the verb behaviors, they

proposed classes such as learn verbs: *acquire, learn, memorize, read, study*, stimulus subject perception verbs: *feel, look, smell, sound*, etc.

In the same vein, Van Valin and Wilkins (1993) emphasize that semantic representation of a verb predicts the type of complements in a verb and “lexical entry of a verb contain only semantic information, which, in conjunction with language universal and specific morpho-syntactic principles, will automatically determine its argument structure and syntactic properties” (513). More recently, Pinker (2013) offers a view on the interface of semantic and syntactic aspects: “argument structures for a verb can be represented in a variety of ways, so long as there is a precise association between symbols that refer to grammatical entities and symbols that refer to the verb’s semantic or logical arguments” (p. 35). He further indicates, “syntactic argument structures of verbs are predictable from their semantic structures, via the application of linking rules” (p. 73). It means “when the verb’s meaning changes, its argument structure changes” (ibid: 74). Additionally, a verb’s syntactic privileges can predict the semantic profile of verb (Papafragou, et.al. 2007).

A more general view in terms of the role of meaning is indicated by Wierzbicka (1988):

Grammar is not semantically arbitrary. On the contrary, grammatical distinctions are motivated (in the synchronic sense) by semantic distinctions; every grammatical construction is a vehicle of a certain semantic structure; and this is its *raison d’être*, and the criterion determining its range of use (p. 3).

They further argue that there are some cases in which speakers can choose between two or more complement constructions as it is the case in ‘*start + to*’ and ‘*start + -ing*’, whereas there are cases these choices are not allowed ‘*finish + to*’ and ‘*finish + -ing*’. The common point in these choices is “that the syntactic possibilities are determined by the underlying semantic structures (that is by the intended meaning)” (Wierzbicka, 1988, p. 4).

In parallel to the aforementioned views, scholars argue that the patterns that language users cannot freely choose between one or another are categorically defined, whereas both alternative patterns are freely interchangeable, are non-categorical and probabilistic (Cuyckens & D’hoedt, 2015) as shown in the following examples. In these examples, the speakers/writers cannot freely choose between one pattern or another as it is categorically defined in example (1) while the speakers/writers can use both constructions interchangeably as it is non-categorical in example (2):

(1) a. I remember asking him what his greatest fear was. (COCA: NEWS)

b. Hunters should remember to ask for permission prior to hunting on private land (COCA: NEWS).

(2) a. Do you regret spending the money well on things that made you happier? (COCA: SPOK)

b. We regret that we were not aware of those earlier statements. (COCA: SPOK)

In addition to the aforementioned relationship between syntax and semantics in verb complementation constructions, scholars bring an alternative view by arguing and analyzing complementation within the aspect of construction grammar, which may shed a light on the integration of not only semantic principles but also the functional and sociolinguistic factors (DeSemet, 2013). A constructional framework in the area of complementation brings:

...different ways in which semantic motivation may manifest itself, the polysemy witnessed in the use of specific complement types, the semantic changes in specific predicate-complement constructions, semiproductive nature of some predicate complement constructions, and the unexpected syntax and semantics of some complement-taking predicates (p.41).

He further suggests the regularities contained in a construction grammar are not just form-meaning pairings, they also include regular associations between form-meaning pairings and social context of use. From the learning aspect, Yoon (2016) points out language learning in constructionist view as “to combine semantically compatible constructions of different complexity and size appropriately by accumulating implicit and explicit knowledge on associations among constructions and their strength” (p. 198).

2.4. Research Studies on Verb Valency in Native Language

Several research studies have been conducted in verb complementation in both native language and learner language. The studies conducted in native language focus on individual verbs such as *think* (Aijmer, 1997; Fetzer & Johannson, 2010; Gomez, 2004; Simon-Vanderbergen, 2000; Taiwo, 2016), *make* (Altanberg & Granger, 2001), *help* (Mair, 2002; Rodhenburg, 2006), *try* (Hommerberg & Tottie, 2007; Kjellmer, 2000), *admit* (Cyckens & D’hoedt, 2015), *remember* (Tao, 2001; Mair, 2006), *decide* (Hunston, 2003) and verb pairs such as *find* and *want* (Aarts & Aarts, 1995), *begin* and *start* (Mair, 2002) *waste* and *spend* (Rickman, 2015), *think* and *believe* in English, *penser* and *croire* in French (Fetzer & Johannson, 2010), *look* and *see* (Gruber, 1967), *like* and *love*

(DeSemet & Cuyckens, 2005), *remember* and *forget* (Tao, 2003), *think* and *pensar* (in Spanish) (Verdaguer, 2010), *know*, *think*, *believe* (Cappelli, 2008) (see Appendix A for the summary of research studies conducted in native language).

Research studies conducted in native language focusing on cognitive verbs mainly focus on the syntactic and semantic properties of these verbs. For example, Aijmer (1997) analyzed the subtypes of *I think* in terms of its syntactic, semantic, prosodic, and functional properties by using London Lund Corpus of Spoken English. She also discusses the correspondences between *I think* and related epistemic modal elements in English and in Swedish in a corpus of authentic translations. She focuses on the polysemic structure of *think* and emphasizes that *think* has a number of different meanings such as ‘believe’, ‘cogitate’, and ‘intend’ and expresses epistemic modality as a pragmatic element. As for other functions of *I think*, expressive function is also mentioned. When it is expressive, its function is to express the speaker’s emotions whereas in its fact indicating or objective style, the speaker refers to themselves or to their beliefs (Aijmer, 1997). *I believe* does not only express a subjective attitude but also conveys that the speaker’s incomplete or non-specific evidence. Reliability of knowledge is the underlying dimension of these verbs and a scale of high and low degree of reliability has been proposed by Aijmer (1997). This scale conveys the degree of commitment to the truth of proposition (shown in Figure 2.1).

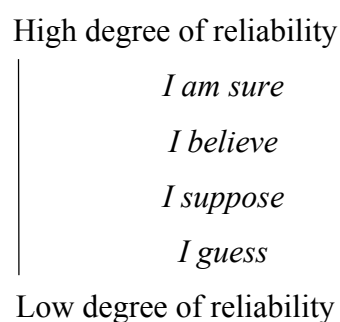


Figure 2. 1. *Scale of degree of reliability*

In the similar vein, Chafe (1986) points out that *I think* belongs to “a system of epistemic modality which is closely related to evidentiality, the domain of linguistics elements expressing various attitudes to knowledge” (p. 262). Similarly, cognitive verbs pertain to “a parenthetical expressing epistemic commitment” (Fetzer, 2008, p. 338). In their comparative study, Fetzer and Johansson (2010) focused on the investigation of the

frequency, distribution and function of 1st person self-references with the cognitive verbs *think* and *believe*, and *penser* and *croire* in British English and French argumentative discourse. They revealed that these verbs are assigned the role of parentheticals and they fulfil “an important function in the negotiation of validity of arguments by signifying intersubjective positioning and allowing for intersubjective manoeuvring” (p. 261). Another important finding in their study is that these verbs show a preference for the discourse connective *and/et* in the co-occurrences.

In spoken discourse, Gomez (2004) examined the use of *I think* in terms of semantic and syntactic aspects in Michigan Corpus of Spoken Academic English (MICASE). With respect to the syntactic patterns, they revealed that *I think* + *that* and *I think* + $\emptyset$ are the main complementation patterns. As for their semantic functions, they found out the following functions of these structures:

- showing politeness when the speaker explains what s/he wants to do or wants other people to do, or accepting or refusing an offer;
- vagueness in order to sound less direct; and
- hesitation when the speaker is not sure of what to say or how to say it (p. 80).

In a different genre compared to the aforementioned research studies, Taiwo (2016) investigated the use of cognitive verb *think* in Nigerian job and career online discussion groups. They found out that *I think* predominantly occurs in the initial position and without an object or complementizer *that* and *I don't think* is preferred to *I think* + negative combination. As for its main function, this structure is used to offer advice and draw conclusions. *I think* has also been the subject of inquiry in Simon-Vanderbergen (2000)'s study. Uses and functions of *I think* in political interviews and casual conversations were analysed. They revealed that regardless of its context, *I think* expresses the speaker's personal angle by making the statement subjective. This result is attributed to the personalised and rhetorical characteristics of the genre of political interviews. Furthermore, she emphasized that *I think* has a complex of meanings which cannot simply be labelled ‘uncertainty’ or ‘lack of commitment’, rather, its functions include signalling a tentative attitude or authoritative deliberation.

In a corpus-based study, Tao (2003) examined the use of *remember* and *forget* in three spoken English corpora which happen to be the Cambridge University Press/Cornell University Corpus, the Santa Barbara Corpus of Spoken American English, and the Corpus of Spoken Professional American-English. The main findings of the study in

terms of the complementation patterns of these verbs are that *remember* and *forget* take no complement, zero objects and noun phrases in a large number of instances and these verbs occur in flexible positions with a preference for certain types of subjects and tense forms. Regarding their functions, these verbs are found to undergo changes toward becoming a discourse particle in spoken English and they become pragmatically strengthened patterns in their specific co-occurrences such as '*forget it*', '*don't forget to*'.

In a comparative study, Verdaguer (2010) focused on the examination of mental state verbs *think* and *pensar* (in Spanish) by figuring out the relationship between the lexical and syntactic patterns and semantic and pragmatic functions. She used two corpora which happens to be British National Corpus (BNC) and the Corpus de Referencia del Espanol Actual. The results of the study show that there are two main meanings of *think* considered to be the two end of a continuum with fuzzy boundaries. These meanings are cogitation and opinion; the reported thought shows the transition between one meaning and the other. The Spanish *pensar* does not have a broad coverage compared to *think* in English.

Using a different data collection instrument, Cappelli (2008) examined the use of *know*, *believe* and *think* in elicited data, which is a questionnaire given to 60 native speakers of English. Based on the informants' responses, the results of the study showed that when *think* is construed in its prototypical cognitive attitude meaning and it conveys the epistemic evaluation of the speaker, and in this case, *know* always functions as its antonym. This contrast is created at the level of epistemic information lexicalized. Additionally, it was revealed that most informants did actually provide negative forms of the verbs as their opposite (e. g., *think/don't think*, *believe/don't believe*, *know/don't know*) and thus, *think*, *believe* and *know* obviously can be contrasted with their negative forms.

In their comparative study, Fetzer and Johansson (2010) focused on the examination of the frequency, distribution and function of 1st person self-references with the cognitive verbs *think* and *believe*, and *penser* and *croire* in British English and French argumentative discourse comprising British and French political interviews. The results of the study showed that these 1st person self-references to be assigned not only a subjectivising function, but also one of expressing intersubjectivity. Furthermore, depending on their co-occurrences with discourse connectives they may boost or attenuate the pragmatic force of the contribution which they qualify.

Some of the research studies emphasize the changing aspects of these verbs and focus on grammaticalization, which is defined as “the language change that is concerned with such questions as how lexical items and constructions come in certain linguistic contexts to serve grammatical functions or how grammatical items develop new grammatical functions” (Hopper & Traugott, 2003: 1). For example, *remember* has undergone grammaticalization: in addition to its use to express memory, it has become a discourse particle indicating epistemic stance, is used as a metalinguistic device regulating interaction (Tao, 2003). In parallel to the view emphasized in the notion of grammaticalization, DeSemet (2013) argues “the English system of complementation has been undergoing change” (p.1). For example, Egan (2008) argues that “the English non-finite system of complementation is still evolving” and that “this evolution is reflected in synchronic variation” (p. 90). Another example for this change is that verbs of cognition grammaticalize into evidential, desiderative, ability, habitual and temporal markers (Rhee, 2001). Another specific example in the changing patterns of complements is the use of *help* with bare infinitive constructions. In Mair’s (1995) study, *help* preceding bare infinitival complements is found to undergo a process of grammaticalization in the British newspaper language over the past thirty years. It was revealed that in the past to-infinitive was predominantly used with non-finite complementation whereas bare infinitive is dominantly used with non-finite complements, there found to be a spread of bare infinitive complements in British English.

In the literature, examining the necessity of the possible correlation between verb sense and syntactic patterns has also been highlighted. For example, Aarts and Aarts (1995:179) found out that *find* has five main verb senses such as discover by chance, succeed in obtaining, whereas *want* has three senses such as volitional (*desire*), non-volitional (*need, require*), and projected volition (*I advise you*). These senses were found to correlate the syntactic patterns: ditransitive *find* means ‘discover by searching’, complex transitive *find* means ‘regard as, look upon’, whereas there is no correlation between verb sense and its complementation pattern in the use of *want*. Verb sense in complementation studies is crucial as verb sense and discourse type have a determining role in the frequencies found between different experimental and corpus based findings (Roland & Jurafsky, 1998).

With regard to transitivity, verb complementation has been also analyzed from a syntactic point of view based on a structural approach. For example, Quirk and Greenbaum (1973) outlined the verbs as follows:

- a. intransitive verbs where no complementation occurs
- b. complementation of copular verbs
- c. complementation of monotransitive verbs
- d. complementation by a finite clause
- e. complementation by nonfinite clauses
- f. complementation by complex-transitive verbs
- g. complementation by ditransitive verbs (p. 343).

In addition to the aforementioned approaches, there found to be differences in the verb subcategorization frames between spoken and written English (Roland & Jurafsky, 1998). Different corpora such as Penn Treebank, Brown Corpus (Gahl, Jurafsky, & Roland, 2004), Switchboard corpus, Wall Street Journal Corpus, British National Corpus (Egan, 2008), Touchstone Applied Science Associates Corpus (Gahl, 2004) and different data collection tools such as sentence production (Connine, Ferreira, Jones, Clifton, & Frazier, 1984), sentence completion (Garnsey, Pearlmutter, Myers & Lotocky, 1997, Truswell et. al., 1993) are used within the scope of these studies. Roland and Jurafsky (1998) indicated that subcategorization patterns differ among the corpus frequencies and experimental measures.

In addition to the corpus-based studies, there are large projects and databases on the description of verbs such as FrameNet, Verbnet and Wordnet. Framenet (Baker & Sato, 2003) is a lexical database of English that is both human- and machine-readable, based on annotating examples of how words are used in actual texts and it provides the combinatorial properties of a core set of the English vocabulary. Verbnet (Schuler, 2005) is the largest online verb lexicon describing thematic roles, selectional restrictions on the arguments and frames consisting of syntactic and semantic description of verbs. Wordnet (Miller, Beckwith, Fellbaum, Gross & Miller, 1990) provides a hierarchical network of verbs according to their meaning and semantic properties, it is mostly used to determine the distance between conceptual categories of words, particularly in the analysis of verb polysemy.

In addition to the aforementioned research studies, there are larger projects specifically focusing on identifying verb complementation patterns of verbs. Valency

dictionary is a highly specialized and comprehensive description of verb complementation patterns in English by Herbst et. al. (2004: viii).

- the valency patterns in which a word or, more precisely, a word in a particular sense, occurs
- what a word means when used in a particular pattern, i.e. its meaning
- which other words can occur in these patterns, i.e. its collocational range and semantic roles
- how patterns differ in meaning, collocational range or frequency.

This study focusing on learner language takes Valency Dictionary of English as one of the basis of analyses.

2.5. Research Studies on Verb Valency in Learner Language

Research studies in the relevant literature focusing on learner language suggest that the nature, variability and complexity of verb complementation patterns pose fundamental problems and challenges for language learners. In addition to the studies focusing on investigation of verb complementation from native language aspect, this topic has also been examined from the language learners' aspects in terms of learner characteristics, errors, and problems (e.g. Altenberg & Granger, 2001; Biber & Xeppen, 1998; Bourke, 2007; Duffley & Tremblay, 1994; Hubbard & Hix, 1988; Kang, 2009; Roe, 2007) (see Appendix A for the summary of research studies conducted in learner language). For example, Biber and Xepen (1998) investigated complement clauses in Longman Learners' Corpus and they compared the learners whose native languages are French, Spanish, Chinese and Japanese with native corpus. In Longman Learner Corpus, there are 177 texts by French learners, 438 by Spanish, 139 by Chinese, and 237 by Japanese learners of English. As a result of the study, they found out that *that* clauses and *to*-clauses are much more frequently used by all learner groups compared to native register. Another important finding is that the patterns of use in the learner essays are very similar to those found in native conversation and fiction, but strikingly different from those found in native academic prose. Roe (2007) examined valency errors of learners of English and German and outlined the most common problematic areas:

- the choice of prepositional complement
- the choice of clause complement
- the choice between noun phrase and prepositional complement (p. 221).

These errors and differences may have various reasons such as L1 transfer, having a lack of knowledge about the verb, its semantic and syntactic features. Another researcher focusing on verb errors of learner is Lennon (1996) who analyzed the errors that advanced German learners of English as a foreign language made in lexical verb choice of frequently used verbs such as *put*, *go*, *recognize* and *take*. The findings of the study revealed that 13% of the errors committed were in verb choice. It is clear that the learners have problems in the choice and application of verb complementation and “the vital role of valency in learners’ errors is not to be questioned” (Roe, 2007, p. 223). From the learners’ perspective, the usage of the verb complementation structure by a group of English as a Second Language (ESL) learners from different L1 backgrounds in free production oral data was examined (Vercellotti & Jong, 2013). They found out that the most common error is the lack of grammatical markings *to* and *-ing* and the main source of errors are implied to be the task difficulty and the variability of input with matrix verb allowing both gerund and *to* infinitive constructions (ibid.).

In their analysis of verb subcategorization errors in ESL writers, Hubbard (1988) lists common types of lexical subcategorization errors with verbs: transitives used as intransitives, intransitives used as transitives, incorrect passive of transitive verb, stative verbs in the progressive, fixed particle moved, dative movement errors, intrusive *be*, gerund complement for infinitive, infinitive for gerund, infinitive marker on naked infinitives, tensed *that*-complement for untensed, preposition missing, preposition added, and incorrect preposition. In addition to not having the knowledge of subcategorization frame of the related verb, the students may have other reasons in not appropriately using subcategorization frames such as not understanding the construction, construction’s relative rarity, late introduction of the construction in the syllabus (Hubbard & Hix, 1988).

In the written language, Granger and Paquot (2009) examined the use of lexical verbs in L2 learners’ academic writing compared to both expert and novice native writing, compared International Corpus of Learner English (ICLE) and academic sub-parts of MicroConcord corpus collection and the baby British National Corpus. They found out that EFL learners significantly underuse the majority of academic verbs such as *like*, *include*, *report* or *relate* expressing rhetorical functions at the heart of academic writing. Instead, these learners are inclined to use conversational verbs such as *think* or *like*, which are characteristic of informal speech. Another finding is that when the learners use academic verbs, they tend to restrict themselves to a very limited range of patterns and

EFL learners have much wider range of difficulties compared to novice native writers. An important finding parallel to the scope of the present study is that *think* and *believe* are also among the top 100 verbs found in ICLE and ACAD and these verbs are overused while *assume* is underused in ICLE.

Another specific topic investigated within the domain of verbal complementation is the distinction between *to*-infinitival and gerundial complementation. One of the common findings of these studies is that infinitives are easier to acquire compared to gerunds. Biber et.al (1999) argue that *to*-infinitival complementation allows for specific readings whereas gerund constructions are used to express general events. Bolinger (1968) principle suggests that *to*-infinitive constructions denote potentiality and concept whereas gerund constructions denote reification and concept. At even advanced levels, semantically similar complement patterns pose a challenge for the learners in terms of their distinctions and their employment in speech and writing.

In the relevant literature, the semantic difference between *to*-infinitive and gerund clauses has been widely discussed. While *to*-infinitive clauses denote specificity, and imply potentiality, gerund clauses denote generality and imply actuality (Yoon, 2016). The choice between these complementation patterns pose a number of difficulties for the learners because of some reasons such as their absence in EFL textbooks, classroom instructions, in learners' L1, and structural and semantic restrictions of the verb (Martinez-Garcia & Wulff, 2012; Yoon, 2016). In a recent study, Korean EFL learners' use of *to*-infinitival and gerundial verb complementation in their argumentative essays has been investigated (Yoon, 2016). It was revealed that Korean EFL learners are good at choosing complementation construction, the direction and strength of verb-construction association, however the data found to be lacking of idiomaticity in collostructional implications. It was also found out that Korean EFL learners could not use specific verbs (e.g. *prefer* and *begin*) with context-appropriate complementation patterns compared to the native data.

One of the common findings of the studies focusing on high frequency verbs is that these verbs pose challenges to the language learners. It is suggested that verb-choice error is only the tip of the iceberg of these learners' problems with the correct usage of high-frequency verbs (Lennon, 1996). In the relevant literature, research studies also support the view that nature, variability and complexity of verb complementation patterns induce challenges for language learners, more specifically, high frequency verbs pose

problems to language learners. For example, Altenberg and Granger (2001) investigated the use of *make* among EFL learners by focusing on two corpus samples from the International Corpus of Learner English database. The samples consist of essays written by advanced French-speaking learners of English and Swedish learners. In order to compare the essays written by non-native learners, they used the essays written by native-speaker American students based on Louvain Corpus of Native English Essays (LOCNESS). 17,000 words of essay writing by advanced French-speaking learners of English is the non-native corpus. As a result of their study, they found out that learners at advanced proficiency level have difficulties in using this verb. More specifically, Swedish learners overuse adjective and verb structures whereas French-speaking learners exhibit a consistent underuse of causative *make*, especially noun and adjective structures. In parallel to the aforementioned research study, Liu and Shaw (2001) examines the uses of the high frequency verb *make* in the essays of Chinese and native speakers of English. The subjects are students from 5 different Taiwanese colleges or universities. 222,168 words, consisting of 409 essays written on various expository topics as students' homework was used as the primary data whereas 270,961 words, consisting of 23 dissertations in social science written by NSE undergraduates were used as the baseline data. They found out that Chinese speakers overproduce *make* in their essays and the most commonly occurring verb noun collocations are *make noise*, *make a decision*. Additionally, Chinese speakers tend to use a verbal complement after *make* in patterns like *make me become rich/make her feel happy*. As for the verb senses, *make* has also been used in different senses, the most commonly used sense is do something and cause a state/situation. As a further suggestion, Liu and Shaw (2001) emphasized that higher level learners such as the subjects in the current study may need explicit teaching of common verbs despite their assumption of having little problems with this type of frequent verbs.

From the acquisition aspect, a number of research studies focus on how children and young learners acquire certain linguistic aspects. For example, Golinkoff, Jacquet, Hirsh-Pasek and Nandakumar, (2006) conducted a study on a sample of 49 children in order to identify the factors that determine the acquisition of verbs. They identified five major factors affecting the acquisition of verbs. These factors are the variety of syntactic frames in which a verb is used, repetition, multiple exemplars and corrective feedback, actions with goals/results, and pragmatic cues. In addition to these factors, studies

focusing on the acquisition aspect of verbs suggest that the relative frequency with which a complementizer verb occurs in a complement clause construction predicts children's ability to remember and repeat that construction like adults (Kidd, Lieven & Tomasello, 2006). In an ESL setting, Carrell (1984), compared advanced and high-intermediate students as well as a control group of native speakers in order to shed light on their inferences on implicative and factive verbs. They revealed that drawing of inferences is easier for semantically positive predicates (*remember-bother-be thoughtful-be considerate*) than for semantically negative predicates (forget, neglect, be thoughtless, be inconsiderate) for each group of subjects (p. 15).

In another line of research, Juffs (1998) examined the frequency of verbs and their syntactic requirements in ESL learners' textbooks and 71,933 words that were used as the data base. They found out that ESL materials may underrepresent some of the verb classes that are known to cause learners difficulty. They further suggest that learners from Romance L1 backgrounds will need to learn that inceptives are not morphologically marked; speakers of East Asian L1s will benefit from input with more causative uses of a variety of verbs, but especially the alternators and psych verbs. In parallel to the view that the materials used for language teaching should cover appropriate amount of semantic and syntactic properties of verbs, Nation (1990) lists seven criteria for deciding whether to include a word in materials or not. These criteria are: frequency, range, language needs, availability and familiarity, coverage, regularity, ease of learning or learning burden.

Another study combining different data collection tools focuses on the acquisition of verb senses. In their research study, Saeed and Fareh (2011) investigated the Arab EFL learners' acquisition of verb senses of *feel, look, smell, sound, taste* by administering recognition, production and Grammaticality Judgment Tasks. 30 randomly selected senior English major university students participated in the study. The findings of the study indicate that university Arab learners of English encounter a tangible difficulty in attaining an adequate mastery level in the process of learning certain sets of English vocabulary. The overall performance of the learners at the recognition level was higher than that in the production level.

In a different setting focusing on the developmental perspective of complementation, Vercellotti and Packer (2016) investigated structural complexity by identifying the clause types produced by English for Academic Purposes (EAP) learners

in free production monologues across three instruction levels. 66 L2 learners participated in the study. They found out that the learners produced increasingly complex language as measured by subordination, and that the clause types employed to complexify the speeches changed across instruction levels. The results of their study showed that adverbial clauses were the most common subordinate clause at the lowest proficiency level whereas non-finite clauses are the most common dependent clause type at the high-intermediate level. They further suggested that there is a developmental order for clause types in English for Academic Purposes context: adverbial, non-finite, relative, complement-taking predicate clause.

In the English as a Foreign Language setting, Kang (2009) investigated the effects of form-focused instructions on the learning of English verb complementation by Korean EFL learners. Two types of form-focused instructions were implemented in this study; negative feedback with one session of explicit rule presentation and input enhancement with three sessions of meaning-oriented rule search exercise. The findings revealed that the experimental groups showed better learning when compared to the control group in terms of both receptive and productive knowledge of the target structure. The findings also indicated that two types of form-focused instructions implemented in the study have advantages in facilitating learning of the target structure.

In the Turkish context, Can (2009) focused on the acquisition of ergatives by Turkish learners of English. 50 Turkish speaking learners of English participated in the study. He found out that ergative verbs pose challenges for the learners and that proficiency levels of the participants have increased in seven years, but paired ergative verbs have remained the most problematic subclass of intransitives. Another study conducted in Turkish setting focuses on the subcategorization probabilities. In her study, Uçkun (2012) examined verb subcategorization probabilities using Sentence Completion Tasks (i.e. off-line productions), both in the presence and absence of context. Thirty-eight Turkish third year undergraduates studying in the department of English Language and Literature participated in the Norming study. The aim was to figure out the learners' awareness of subcategorization probabilities for verbs. As a result of the study, it was found out that sentential complement arguments were dominant whereas direct object arguments in L2 learners' productions were underused. The researcher replicated this study in the learners' native language and found out that native-like preferences for sentential complements and direct object subcategorization frames were revealed.

Considering the main method of analysis in the aforementioned studies on both native and learner language, research studies also analyse valency from syntactic aspects whereas some of them treat it as a matter of semantic relations between the verb and its complementation patterns. In this regard, Bourke (2007) suggested three approaches in the description of verbal complementation:

- a. Considering it as a lexical matter and as collocations.
- b. Considering it as a structural approach based on the notion of transitivity
- c. Considering it within the domain of the semantic properties of verbs.

Apart from these approaches in the description of verb complementation, there are three levels of analysis in valency patterns:

- a. concerned with semantic roles and processes,
 - b. valency structures (i.e. with complements required by a verb)
 - c. surface structures like dummy subjects or transformations of active into passive clauses.
- (Allerton, 1982, p. 40-48).

Considering the aforementioned studies on learner language, there is still a need to examine language improvement of the L2 learners having different L1 backgrounds, which is necessary to bring forth further explanations to learner interlanguage universal tendencies. Besides, majority of the studies either focus on semantic properties or syntactic variations of the verbs; and a comprehensive study focusing on verb complementation patterns in learner language is needed investigate the learners' use of verb complementation patterns and their related verb senses. Previous research focusing on verb complementation suggested that there may be different reasons in erroneous L1 transfer, lack of knowledge of the verb, its semantic and syntactic features, not understanding the construction, construction's relative rarity, late introduction of the construction in the syllabus (Hubbard & Hix, 1988). The current study is believed to provide an insight into the discussion of the learners' use of complementation patterns in terms of their errors and other underlying aspects.

Within the domain of the study, the main focus is the investigation of the appearance of verbs in learner language and the rationale in focusing on verbs rather than other components of the sentence is the fact that verb occupies a central position in the sentence because the verb determines how many other elements have to occur in order to form a grammatical sentence (Herbst et. al, 2004). Therefore, the analysis of verb properties is of crucial importance. In addition to the aforementioned rationale, there is a need to "offer semantic explanations of syntactic facts" (Taylor, 1993, p. 207), and "syntactic

argument structures of verbs are predictable from their semantic structures” (Pinker, 2013, p. 73). In terms of this syntax-semantic interface, Juffs (1998) point out that learning semantics–syntax correspondences will require sufficient input in all verb classes for the syntactic environments in which the verbs may occur. They further emphasize that the relationship between a verb’s meaning and its syntactic frame is a good candidate for an instructional intervention. In the same vein, grammatical distinctions are motivated by semantic distinctions and every grammatical construction is a vehicle of a certain semantic structure (Wierzbicka, 1988). Grammar defined as the abstract formal system of language and pragmatics defined as the principles of language use are emphasized to be complementary and “we cannot understand the nature of language without studying both these domains and the interaction between them” (Leech, 1983, p. 4). The current study can make a contribution to both syntactic and semantic aspects of chosen non-factive cognitive verbs within context.

CHAPTER 3

3. METHODOLOGY

3.1. Introduction

The main purpose of the present study is to investigate the use of cognitive verb complementation patterns and related verb senses by the learners at receptive and productive levels. With regard to this aim, this chapter presents information about the research design of the study, participants, data collection instruments, data collection and data analyses procedures, and reliability and validity evidence of the study.

3.2. Research Design

Within the scope of the study, both qualitative and quantitative data were collected. The qualitative data consist of the learners' responses to sentence production and Sentence Completion Tasks whereas quantitative data consist of learner responses to sentence completion, sentence production, fill-in the blanks and Grammaticality Judgment Tasks. In the quantitative analyses, learner responses to each task were analysed and each test was evaluated on a basis of 100 points. In order to increase inter-rater reliability, 30% of the responses were evaluated by another researcher.

The design of the study is embedded mixed methods design. The rationale in using mixed methods design is that when well designed, mixing qualitative and quantitative methods provides "value to a research effort above and beyond that is accomplished by using a single method alone" (Clark, et.al., 2008, p. 385). Scholars suggest that there are four major types of mixed methods design: the triangulation design, the embedded design, the explanatory design, and the exploratory design (Creswell, 2014). Embedded designs are used when a researcher needs to answer two different research questions that require quantitative and qualitative data (Clark, Creswell, Green, Shope, 2008). The main rationale in using embedded mixed methods research design is that one type of data provides supportive role on the other type of data in the embedded design (Creswell, 2003).

In this study, the Sentence Production Task was used as the supplementary data source to Sentence Completion, Grammaticality Judgment and Fill-in the Blanks Tasks. Learner responses to each task were examined and quantitative results were supported by qualitative findings and overall results were interpreted. The phases followed in embedded design are shown in the figure below:

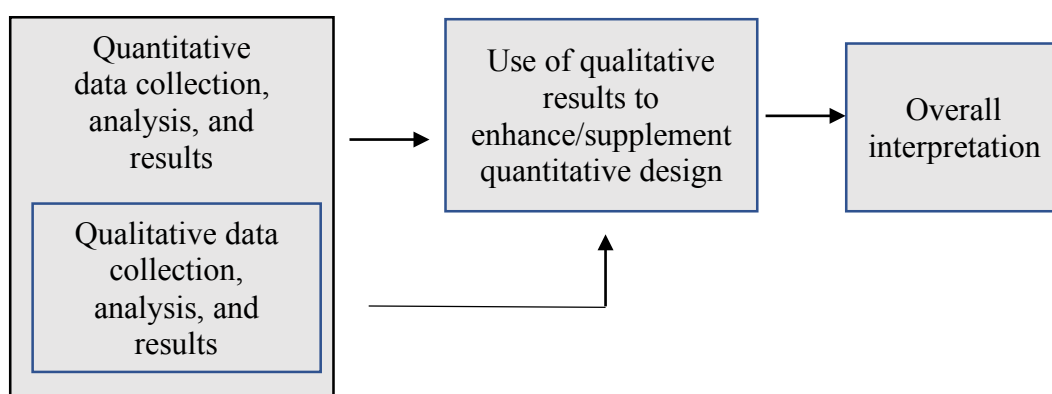


Figure 3.1. *Embedded design (The figure is a part of the design retrieved from Creswell and Clark, 2007)*

3.3. Participants

The participants of the study consist of two groups of Turkish EFL learners majoring at English Language Teaching Department in their first and fourth year at Anadolu University – a state university in Turkey. A total of 182 learners participated in the study. There are 84 students from 1st year and 98 from 4th year. The rationale in choosing these participants from first and fourth year students is to have an understanding of their use of complementation patterns through a developmental and cross-sectional perspective. In other words, the aim is to explore the differences and similarities between the students who just attend the program and the ones who take both content and methods courses through a fourth-year period. The learners have diverse characteristics in terms of their educational background and language levels. The learners take the Contextual Grammar Course in their first year and they are provided with lists of different verb classes and their most salient complementation pattern, and the learners are guided to memorize them by the instructors.

Within the scope of this study, the participants of the study are chosen through purposeful sampling method. At the beginning of the data collection procedure, consent form was distributed to the students and it was on the voluntary basis (see the sample consent form in Appendix B). In order to equalize and homogenize the participants, Vocabulary Levels Test (VLT) revised by Schmitt, Schmitt and Clapham (2001) was utilized.

3.4. Data Collection Instruments

3.4.1 Choice of verbs and verb senses

Non-factive cognitive verbs are chosen within the scope of the current study based on the frequency criteria. Within the scope of this study, the most frequent cognitive verbs are chosen because as Herbst et.al. (2004) indicates, “frequency seems a suitable criterion because it can be expected that the words that are relatively frequent in the language are also those taught to and used by foreign learners” (p. xli). In the Contemporary Corpus of American English (COCA), consisting of 520 millions of words of text, *think* (730.315 occurrences), *believe* (168.842 occurrences), *assume* (20.782 occurrences), *suppose* (18.201 occurrences) are found to be quite commonly occurring and they are unmarked in English. The frequency criterion is also applied in deciding on the inherent verb complementation patterns and verb senses. The basic criterion used to choose a context for one of the tasks was the default preferences of a verbs’ in terms of its complementation patterns and related verb senses. More specifically, the choice of verb for certain patterns and verb senses was checked in the Valency Dictionary of English. In the figure below, it is seen that complementation patterns used with *think* are [that-CL]- (>30%) and [about Np/V-ingp/about wh-CLP/wh to-INFp]- (frequent), [of Np/V-ingp / of wh-CLP/wh to-INFp]- (frequent). Thus, this formal description of complements, their verb senses, and frequencies were taken into consideration in designing the tasks.

D3	+ (that)-CL_{P,th} (> 30 %) C I <i>think</i> you have the right to use the road and you don't need to pay for it. = I <i>think</i> that's a good point. = I don't <i>think</i> that that is entirely true. = One would have <i>thought</i> that they would have got something which was probably a little bit more compatible. = It is <i>thought</i> that the balance of power will be held by the Liberal Party.
D4	+ wh-CL/wh A I've never <i>thought</i> why I like something or why I don't like something. = I was just <i>thinking</i> how awful it must have been. C I can't <i>think</i> why.
D5	+ about Np/V-ingp / about wh-CLP/wh to-INFp (frequent) A I was just <i>thinking</i> about that. = I never really <i>think</i> about creativity. = You don't <i>think</i> about how much you are actually paying for the things you buy. = Just <i>think</i> about where you were and where you are now. = The Churches now have to <i>think</i> about how to create a new basis for support. B I wouldn't even <i>think</i> about lying to you.
D6	+ of Np/V-ingp / of wh-CLP/wh to-INFp (frequent) A He <i>thought</i> of how he'd kissed her. B I've searched everybody that I can <i>think</i> of. = Can't <i>think</i> of a concrete example. = I can't really <i>think</i> of a way round it, you know. = How can you <i>think</i> of winning a national championship when you do that sort of thing? = We had to <i>think</i> of how to sort this out.

Figure 3.2. Verb entry information for the verb *think* in the Valency Dictionary of English (Herbst et al., 2004, p. 869)

Based on the aforementioned criterion, the contexts were carefully selected by taking verb senses and verb complementation patterns into consideration. At this point, the basic

purpose was to provide variety in their choice of semantic and syntactic properties. For example, the test item in A requires the learner to use [to INF] as the verb complementation pattern whereas the test item in B requires the learner to notice the preposition *of*, and fill-in the blank with the verb *think*, taking the context into consideration.

- A. It is necessary to pay attention to the equivalence of the courses while making agreements with new universities. If it is not possible, these agreements should not be done. The Erasmus programme is thought _____.
- B. In sum, these studies suggest the benefits of teaching students to translate great stories into brain movies that play in the theater of the mind's eye. As teacher Kelly Diane Rose notes, " Kids love watching movies. When they _____ of reading as the process of making brain movies, they become more motivated and read more, which is key to becoming a better reader".

3.4.2. Data gathering instruments

The main data collection instruments used within the scope of the current study are Sentence Production Task, Sentence Completion Task, Fill-in the Blanks Task and Grammaticality Judgment Task. Sentence production and Sentence Completion Tasks aim to shed a light on the learners' language production and performance levels. Besides, Fill-in the Blanks Task and Grammaticality Judgment Task aims at focusing on learners' language recognition at competence levels. Grammaticality Judgment Task asks participants to evaluate plausibility of the sentences based on personal intuitions (Darteni, 2017), and they can serve as an insightful addition to production data (Schulz, 2011, p. 326). In Sentence Production Task, the learners were provided with context-independent task and they had the freedom to choose the complementation patterns and their related verb senses. In Sentence Completion Task, semi-freely produced data were revealed as the learners were expected to take contextual clues into consideration in completing the rest of the sentences. In Fill-in the Blanks Task, context was provided and verb complementation patterns were given. In this task, the learners were expected to figure out the appropriate verb. In the present study, multiple data collection sources were used as supportive sources to each other. The purpose of using multiple data collection tools is to decipher both the learners' reception and production levels as shown in Figure 3.3.

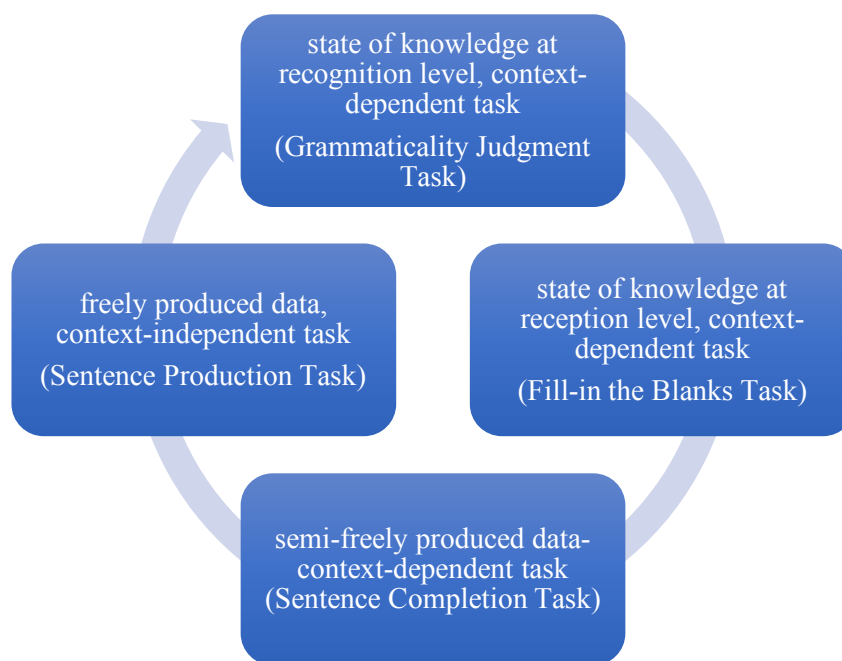


Figure 3.3. *Schema of the multiple data collection sources used in the study*

The rationale in using multiple data collection tools is to decrease the influence of the type of the task. With regard to the necessity of combining different data collection sources in the investigation of verb subcategorization, Roland and Jurafsky (1998) emphasize that there are significant differences between the verb subcategorization frequencies revealed from experimental methods and corpus methods. One way of eliminating the possible effect(s) of the type of task on learner production is to utilize a variety of data collection sources such as sentence production and Sentence Completion Tasks (Schwarte, 1982). Therefore, the learners' reception and production of verb complementation patterns and verb senses by triangulating the data and using multiple data collection sources were investigated.

Sentence Completion, Sentence Production, Fill-in the Blanks, and Grammaticality Judgment Tasks were developed by the researcher by using the Corpus of Contemporary American English (COCA). Before developing these tools, verb senses of cognitive verbs (*think, believe, assume, suppose*) and verb complementation patterns were checked from the Valency Dictionary of English (Herbst, et.al., 2004), which is a comprehensive dictionary providing both verb complementation patterns and main verb senses of the verbs and from VerbNet (Schuler, 2005), which is an online verb lexicon providing the thematic roles, selectional restrictions on the arguments and frames

consisting of a syntactic and semantic description. Through checking these sources, the researcher identified basic verb senses and verb complementation pattern variations for each verb. After revealing these variations, the researcher searched for each verb on Corpus of Contemporary American English considering these variations.

The stages followed during the development of data collection tools are as follows:

- (1) Keywords (*think, believe, assume, suppose*) were entered to the search line of COCA and texts are extracted from different registers. All text types such as spoken, academic, newspaper, fiction, and magazine were involved and wider contexts for each verb were copied to a word document to design the tools.
- (2) All the contexts were analyzed by the researcher and items for the tasks were developed.
- (3) Native speaker and expert opinion were consulted and necessary changes were made on the tasks. These changes included clarification and elaboration of the instructions, omission of complex contexts, addition of simpler contexts, which provide contextual clues in the surrounding text.

The stages followed during the development of data collection tools are summarized in Figure 3.4 below:

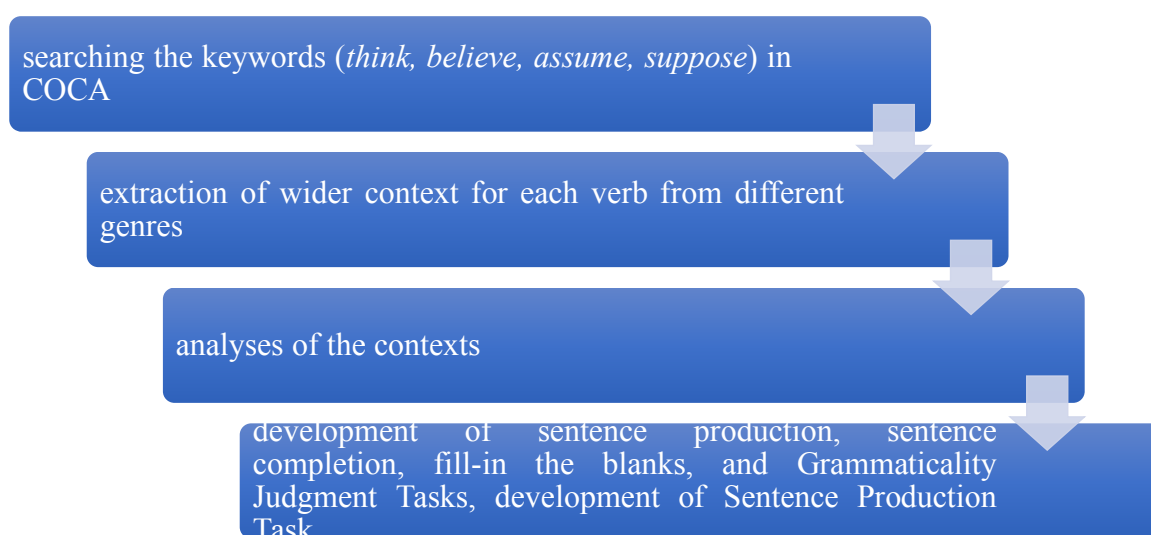


Figure 3.4. The steps followed during the development of data collection instruments

The following tasks are prepared as data gathering instruments. The aims for using each data collection instrument and the research question addressed for each data collection tool are summarised in Figure 3.5:

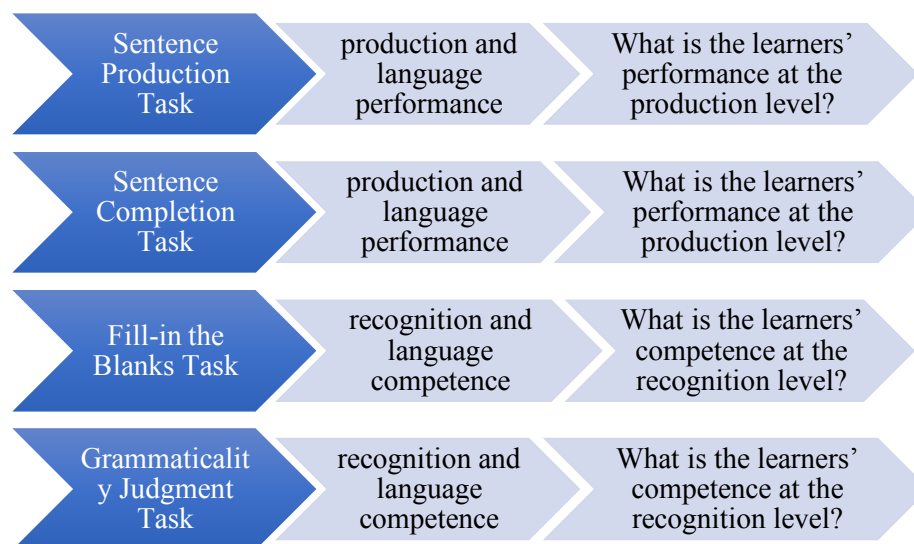


Figure 3.5. Data gathering instruments

3.4.2.1. Tasks focusing on the learners' competence at recognition level

Within the domain of the present study, Fill-in the Blanks and Grammaticality Judgment Tasks were developed to examine the learners' competence at recognition level. These tasks were developed based on the wider contexts retrieved from the Corpus of Contemporary American English. To start with, Fill-in the Blanks Task consists of 10 items, the learners were given *think, pretend, assume, believe, regret, suppose, affect, and compare* in the box and they were asked choose the appropriate verb and to fill-in the blanks in the context.

Example Item: One example of exploratory writing occurs when teachers ask probing questions to review previously taught content and ask students to _____ about responses and then share their responses with classmates. A second example is posing questions so students reflect on key points presented during a short lecture followed by their _____ explaining their understanding of these concepts in writing. (FBT-Item 3).

In the above-mentioned example, the learners were expected to take both the contextual information and the preposition *about* into consideration and fill-in the gap with *think*.

In addition to this task, a Grammaticality Judgment Task consisting of 20 items was developed. In this task, the learners were asked to evaluate the sentences in terms of their appropriateness and the options sounds good, not sure, and sounds bad are given.

Example Item:

Did you ever think why are these people doing this?

() sounds good () not sure () sounds bad

As exemplified above, learners are expected to notice that cancelling inversion is needed in the indirect questions formed with the verb (See Appendix E for Fill-in the Blanks and Grammaticality Judgment Tasks).

3.4.2.2. Tasks focusing on the learners' performance at production level

Within the scope of this study Sentence Production and Sentence Completion Tasks are developed in order to shed light on the learners' performance at production level and to identify their preferences in terms of verb complementation patterns and their related verb meaning. With this aim in mind, the learners were provided with this context independent task to reveal their tendencies. In this regard, the learners were asked to write down two sentences for *think*, *believe*, *assume*, and *suppose* and write down the meaning of the verb in each sentence they formed in Sentence Production Task. In total, the learners were expected to write down eight sentences and eight verb meanings. There would be two sentences and their related verb meanings for each verb in Sentence Production Task as exemplified below:

Think

Sentence I: _____.

Verb meaning: _____.

In addition to this task, a Sentence Completion Task consisting of 20 items was developed. This task was developed based on the wider contexts retrieved from the Corpus of Contemporary American English. The learners were provided with this context-dependent task to reveal their tendencies. The learners were asked to complete the sentences with their own word(s) taking the context into consideration.

Example Item: However, our particular focus was on how these discussions supported student learning. The question of whether students were learning was never at issue. We assume_____. The question is: What are they learning? (SCT- Item 9).

As exemplified above, the verbs were given and the learners were expected to complete rest of the sentence by considering the contextual clues and selectional restrictions of the verb in Sentence Completion Task (See Appendix E for Sentence Production and Sentence Completion Tasks).

3.5. Data Collection Procedure

3.5.1. Pilot study

Pilot study of the tasks developed within the scope of the study was carried out as piloting enables the researcher to observe the types of responses elicited from the learners, to have an insight into the reliability of the task, to predict the time allocated to the tasks, to gain an understanding over the poorly performing items and to revise the items in order to improve consistency (Carr, 2011). After the data collection instrument were developed, the researcher conducted a pilot study in 2016-2017 spring term. Piloting of the data collection instruments was carried out with 42 participants (in total) from 1st and 4th year students. It was observed that the tests approximately take 45-60 minutes. Another contribution of the pilot study was that it provided an insight into the test items. Poorly performing items were identified and eliminated. A further benefit was the revision of the test instructions. Additionally, for Sentence Completion, Fill-in the Blanks and Grammaticality Judgment Tasks, item facility and item discrimination analyses were conducted. Kuder and Richardson Formula 20 (KR20) for internal consistency and reliability of the data collection tools was calculated. It was revealed that KR20 for Sentence Completion Task is .84 whereas it is .64 for Fill-in the Blanks Task (See Appendix H). Some items with item discrimination indices less than .20 were omitted, new items were added, some items were revised and simplified. In the example below, the learners showed a tendency to choose other cognitive verbs and distractors. Among the responses of the learners, as *reveal* was also acceptable in this context, this item and *reveal* as a distractor were omitted and a clearer and better meaning revealing item was added in Fill-in the Blanks Task.

Omitted Item: On this subtest, it is reasonable to _____ that as the number of words and complex elements increases in the items, the demand on working memory also increases.

For example, *affect* and *compare* were added to the Fill-in the Blanks Task as a distractor verb while *reveal* was eliminated. In the Grammaticality Judgment Task, four items were omitted and new items were added based on the values obtained in item analyses. One omitted and one added item in Grammaticality Judgment Task are exemplified below:

Omitted Item: If the medication is controlling craving to some extent, this person will be able to pay more attention to the counseling instead of thinking where is the next bar.

Added Item: Did you ever think why are these people doing this?

3.5.2. Administering vocabulary levels test

In the initial stage of the data collection procedure, Vocabulary Levels Test was administered in order to group the participants. The test focused on assessing the learners' receptive knowledge of meaning at different levels. As Laufer and Nation (1999) suggests, the main idea behind VLT is that it is useful to view the vocabulary of English as it consists of a series of levels based on frequency of occurrence. VLT is a commonly used instruments for different purposes such as for diagnosis (e.g. identifying lexical weaknesses of the learners), for placement (grouping students into ability groups based on their vocabulary knowledge) (Schmitt et al., 2001) and VLT taps the very basic and initial stages of form-meaning link learning (Kremmel & Schmitt, 2017). This test was originally developed by Paul Nation in the 1980s and revised by Schmitt, Schmitt and Clapham in 2001. The revised version of the test is used within the scope of the study. The reason is that the revised version was validated through a study with 801 EFL learners from different countries and reliability of the test was high (0.92) and the items were found to distinguish between better and weaker students well (Schmitt et al., 2001).

There are also many other studies attempting to validate or find the reliability of the test or even revise it (e.g. Ishii & Schmitt, 2009; Laufer, Elder, Hill & Congdon, 2004; Laufer & Goldstein, 2004; Schmitt et al. 2001; Xing & Fulcher, 2007). The test consists of five parts: 2,000, 3,000, 5,000, 10,000, and Academic word level. Each level contains 30 items. In this test, the participants were asked to match correctly three out of the six words on the left with the appropriate definitions on the right as shown in the example below:

1	business		
2	clock	<u>6</u>	part of a house
3	horse	<u>3</u>	animal with four legs
4	pencil	<u>4</u>	something used for writing
5	shoe		
6	wall		

One point is allocated for each correct answer and the participants get maximum 30 points in each frequency level. The learners obtaining a score of 24 or above at each level are regarded as having the mastery of that word level. In other words, the cutting point for the acquired level is 24 and if a participant matches 24 items correctly (80 %), they are supposed to reach the level (Xing & Fulcher, 2007).

As Schmitt (2000) indicates, the option words all have different meaning senses and it measures threshold meaning knowledge of the target words. Additionally, the test

is useful for placement purposes, and diagnosing vocabulary gaps as the test gives estimates of vocabulary size at five levels. The test is freely available for research and pedagogical purposes and the test is retrieved from the website: <https://www.lexutor.ca/tests/> (See Appendix F for the Vocabulary Levels Test). In the first phase of the data collection procedure, the researcher administered the Vocabulary Levels Test in order to group the participants. The rationale behind using this test for grouping the participants is triple:

- a) First and fourth year students have non-homogeneous characteristics (based on our personal experiences and observation, it is seen that there seem to be first year students with better language skills than fourth year students).
- b) VLT is a commonly used instrument utilized for diagnosis and for placing students into ability groups based on their vocabulary knowledge (Schmitt et al., 2001; Huhta, Alderson, Nieminen & Ullakonoja, 2011).
- c) As the test used within the scope of this study provides estimates of vocabulary size at five levels (which happen to be 2000, 3000, 5000, academic, 10,000 word levels), it is useful for placement purposes (Schmitt, 2000). Vocabulary tests are also used to help place students in the proper class levels (ibid.).
- d) As the vocabulary tests cover a large number of items at one time from different frequency bands, they are reliable decision-making diagnostic and placement tools (Laufer & Nation, 1999).

In the initial stage of the data collection procedure, VLT was administered in order to group the participants. 154 participants from 1st year and 178 participants from 4th year were involved in the process (332 in total). The results of the VLT were analysed and it was found out that there are 53 participants at 2000-word level, 56 participants at Academic word level, 127 participants at 3000-word level, and 77 participants at 5000-word level. The results of the Vocabulary Levels Test are provided in the table below:

Table 3.1. *The results of the Vocabulary Levels Test*

	1st year	%	4th year	%	Total
2000	27	18.4	26	15.3	53
ACAD	20	13.6	36	21.3	56
3000	60	41	67	39.6	127
5000	38	26	39	23	77
10000	1	0.6	1	0.5	2
Total	146		169		315

Based on the results of Vocabulary Levels Test, it was revealed that 1st and 4th year students did not show much variation and they were non-homogenous in terms of their vocabulary levels. Their scores in the main study were compared both with regard to their year of study and word levels.

3.5.3. Administering data collection tasks

The data collection procedure was carried out by following the steps below:

- Administering Sentence Production Task
- Administering Sentence Completion Task
- Administering Fill-in the Blanks Task
- Administering Grammaticality Judgment Task.

The rationale in following such a step is minimising the possible effect of language exposure on the learners' responses. The tasks were administered in one week in the following order presented in Figure 3.6. Administration of the tests took about sixty minutes.

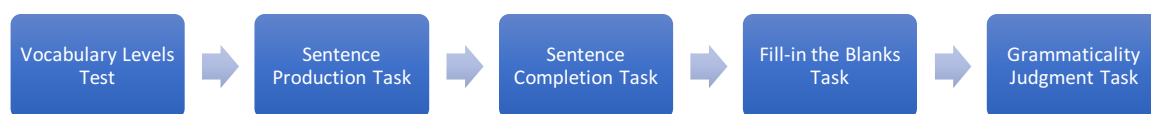


Figure 3.6. *Order of administering the data collection tools.*

As mentioned in the previous chapter, Vocabulary Levels Test was administered in order to group the participants. The results of VLT indicated that 1st and 4th year students do not have diverse characteristics in terms of their scores from VLT. 5 groups from 1st and 4th year students are randomly selected in order to administer Sentence Production, Sentence Completion, Fill-in the Blanks and Grammaticality Judgment Tasks.

In the following step, Sentence Production, Sentence Completion, Fill-in the Blanks and Grammaticality Judgment Tasks were administered within a class hour. The researcher provided an ID for each participants' copy of the task (ID provides information about their year, group and order in the attendance list) and the participants were instructed not to write their names (in order not to make them feel being evaluated).

In addition, the researcher elaborated the instructions at the beginning of the tasks. In the following step, the researcher matched their VLT, Sentence Production, Sentence Completion, Fill-in the Blanks and Grammaticality Judgment Tasks with the help of this ID. This enabled the researcher to elaborate and discuss the results of the tasks based on the results of each participants' VLT score and year of study.

3.6. Data Analysis Procedure

3.6.1. Quantitative data analysis procedure

After the data collection procedure, in the data analysis process, each test was evaluated on a basis of 100 points and the following criteria were used in the scoring of the items in Sentence Production Task (16 items):

- a) a point of 6,25 was allocated if learner correctly forms the sentence (8 items).
- b) a point of 6,25 was allocated if the learner writes down the verb meaning correctly (8 items).
- c) a point of zero was allocated to the incorrect response(s). Incorrect responses include the choice of irrelevant complementation pattern and the use of verb senses that are not among the meanings of the verb, the use nouns rather than verbs (e.g. *my assumptions were correct*).

For the evaluation of the sentence completion (20 items) and Grammaticality Judgment Tasks (20 items), the following criteria were used in the scoring of the items:

- a) a point of 5 was allocated if learner correctly completes.
- b) a point of 5 was allocated if learner correctly judges the sentence.
- c) a point of zero was allocated to the incorrect response(s).

As for the evaluation of the Fill-in the Blanks Task (10 items), the following criteria was used in the scoring of the items:

- a) a point of 10 was allocated if learner correctly fills-in the blanks with the appropriate verb.
- b) a point of zero was allocated given to the incorrect response(s) based on the key provided in Appendix E.

Table 3.2. *Points allocated to each item across tasks*

Type of the test	Number of the Items	Scores Allocated per item	Total Score
Sentence Production Task	16 items	6,25 points	100
Sentence Completion Task	20 items	5 points	100
Fill-in the Blanks Task	10 items	10 points	100
Grammaticality Judgment Task	20 items	5 points	100

After the scores for each data collection instrument were calculated, in order to see the effect of year of study on the total test score of students, MANOVA was run based on the scores they got in each task. In other words, MANOVA was conducted in order to reveal whether there is a difference across different groups in terms of their scores on dependent variables (i.e., sentence production, sentence completion, fill-in the blanks, Grammaticality Judgment Task) or not.

3.6.2. Qualitative data analysis procedure

Within the scope of the study, the purpose of qualitative data analysis is to find out the semantic and syntactic variation(s) in their interlanguage, and elaborate the quantitative findings in the light of the results revealed in this part. In this regard, the first step of qualitative data analysis procedure was identifying their meaning: verb senses were identified by analysing each verb in its own context and this analysis enabled us to see whether verb senses correlate with syntactic patterns and to figure out the variation of use. The close relationship and interaction between structure and meaning also makes a good case for studies in learner vocabulary to interrelate grammatical and semantic aspects of word use (Liu, 2001). For example, *think* has different verb senses such as ‘*consider, remember, engage in thought, reflect, have an opinion on something or believe something to be the case*’ (Herbst, et. al., 2004). In this step, the researcher classified the complementation patterns as *[that-CL]*, *[NP]*, *[PP]*, *[wh-CL]*, etc., and identified the verb senses used by the learners. The verb senses were analysed based on their verb sense variations provided in Valency Dictionary of English. The results of these tests were also analyzed by another researcher and inter-rater reliability was calculated and the results of this analysis are provided in Appendices I and J.

After the quantitative data analysis procedure, data were analysed qualitatively. In the first phase of the qualitative data analysis procedure, all the sentences produced by the

learners in the sentence production and Sentence Completion Tasks were written on an Excel worksheet. In the analysis of Sentence Production Tasks, learner IDs, sentences and verb meanings written by the learners, vocabulary levels of the learners were written in separate columns. In the following step, the researcher tagged each instance manually and identified verb patterns and verb senses produced by the learner.

As mentioned before, Valency Dictionary of English was used as the primary source in order to check verb patterns and senses (see Appendix G for verb patterns and verb senses used in the analysis). Additional sources such as Verbnet, Merriam Webster, Collins, Cambridge online dictionary were used to identify verb complementation patterns and verb senses not found in Valency Dictionary of English. The rationale in using these supplementary sources is that monolingual learner dictionaries provide access to the world of meaning discriminations made by the target language; and provide definitions which distinguish subtle differences in meaning (Stein, 1989: 36). In this step, participants’ responses to test items were first tagged based on the verb complementation patterns (i.e., [that-CL], [zero that-CL], [wh-CL], etc.). Phrases and clauses were categorized. This categorization helped us describe the verbs with respect to their formal realization. Within the scope of the study, the data were tagged based on the formal categories described in the *Valency Dictionary of English* (Herbst et.al., 2004). These categories are as follows:

Table 3.3. *Categorization of Verb Complementation Patterns (Herbst, et.al., 2004)*

Phrases	NP: noun phrases [N]: the girl, him, the man I saw, etc.
	AP: adjective phrases [ADJ]: old, very old, too good to be true
	AP: adjective phrases [ADJ]: old, very old, too good to be true
	PP: prepositional phrases [Prep N]: about this topic, etc.
Clauses	Ing-clauses [V-ing]: coming home
	to-infinitive clauses [to-INF]: to come, to understand the situation
	that- clauses [that-CL]: that we had to go there
	wh-clauses [wh-CL]: how such gossip annoys him

In the second phase of qualitative data analysis procedure, verb senses were identified. Each token was analyzed in its context and different colors were used in order to group the instances into categories. For example, red was used for unacceptable pattern and meaning, blue for instances not found in Valency Dictionary of English but found in different sources (such as Corpus of Contemporary English, Collins online dictionary, etc.), green for pattern-meaning mismatch, yellow for unacceptable pattern because of

the probable literal translation from Turkish, purple for undecided items, orange for minor errors such as the wrong use of indirect question after the verb, the use of comma after the verb or the complementation pattern.

In order to reveal an overall picture of the learners' use of verb complementation patterns and verb senses, frequencies and percentages of 'acceptable use', 'unacceptable use' 'problematic use' and 'no answers' were calculated and grouped. In this grouping, as the learners were expected to write two sentences and two meanings for each verb (i.e. a total of eight sentences and eight verb meanings), a total of 364 instances were analyzed for each verb. In the Sentence Production Task, some of the learners wrote down the sentence and did not explain the sense of the verb, these sentences were included in the syntactic analysis but they were omitted in the semantic analysis.

In the analyses of Sentence Completion Task, similar to the process in Sentence Production Task, learner responses for each test item were written on an Excel worksheet by grouping them based on their IDs, vocabulary levels, and test items. Each sentence was tagged by using the following labels: unacceptable pattern and meaning, pattern-meaning mismatch, unacceptable pattern because of possible literal translation from Turkish, undecided items, minor errors such as the wrong use of indirect question after the verb, the use of comma after the verb or the complementation pattern. Any use that is out of context was counted as unacceptable instance as the learners were supposed to take the context into consideration in completing the sentence.

In the data analysis procedure, labels shown below were used and data were tagged accordingly:

Table 3.4. *Labels used in tagging the instances in Sentence Production and Sentence Completion Tasks*

Labels Used in Tagging	Sentence Production Task	Sentence Completion Task
Acceptable use	well-formed sentence in terms of pattern and meaning	well-formed sentence in terms of pattern and meaning formed appropriate to the context
Unacceptable use	ill-formed sentence and meaning, incomplete sentences, verbs used in noun forms, sentences written in Turkish	erroneous use of verb patterns, incomplete sentences, verbs used in noun forms, sentences written in Turkish
Problematic Use	pattern-meaning mismatch, possible literal translation from Turkish, undecided items	sentences written out of context, possible literal translation from Turkish, undecided items
No answer	no answer provided for the verb	no answer provided in the text.

3.7. Reliability and Validity Evidence of the Study

In order to increase the validity and reliability of the study, item analyses were administered for each task. Agreement values in the inter-rater reliability analyses and native speaker analysis are calculated.

Item format analysis is used in order to decide whether the item is properly written so that it measures all and only the desired content. This analysis was used for fill-in the gaps and Grammaticality Judgment Tasks. The guideline designed by Brown (1996) to make “well-informed and relatively objective judgments about how well items are formatted” (p. 50-51) was followed (see Appendix C). For the items, which require students to produce structures, the guideline for productive item formats proposed by Brown (1996, p. 58) was used (shown in Appendix D).

In addition to the aforementioned analyses, item content analysis was carried out to determine the degree to which each item is measuring the desired content, which inevitably involves expert opinion and native speaker judgment. Content validity was checked by consulting two native speakers and an expert (instructor at English Language Teaching Department). Based on their suggestions, instructions were elaborated, clarified, complex contexts were omitted and more simple and salient contexts were added for the sentence completion tests. In the light of their feedback, the difficult contexts with less clues were omitted and simpler, freer contexts with surrounding clues were added (See Appendix E for the Data Collection Instruments).

3.7.1. Item analyses

After the answers were gathered from the students, item facility (also called item difficulty or item easiness) and item discrimination analysis were conducted both in the pilot study and main study. Item facility (also called item difficulty or item easiness) is a statistical index used to examine the percentage of students who correctly answer a given item. In order to calculate item facility index, the number of students who correctly answered a particular item is added and then the sum is divided by the total number of students who took the test (Brown, 1996). Based on this analysis, an item facility value is revealed ranging from .00 to 1.00 for different items. This value allowed us to see the percentage of the students correctly answering the item.

As for the item discrimination analysis, it allowed us to see the degree to which an item separates the students who performed well from those who performed poorly

(Brown, 1996). This analysis shed a light on contrasting the performance of upper and lower group students. This analysis was conducted in the following steps:

- determining students in the top and bottom group on the whole test
- calculating item facility for upper and lower groups separately for each item
- subtracting the item facility for the lower group from the item facility for the upper group.

In order to identify internal consistency and reliability of the data collection tools, Kuder and Richardson Formula 20 (KR20) was utilized. The value obtained from this analysis refers to how consistent the results are and how well the test is measuring what is aimed to measure and it checks the internal consistency of measurements with dichotomous choices. Values range from 0 to 1. A high value indicates reliability, while too high a value (in excess of .90) indicates a homogeneous test. The closer the score is to 1, the more reliable the test.

Item facility (IF) and item discrimination (ID) analyses were conducted for Sentence Completion, Fill-in the Blanks and Grammaticality Judgment Tasks. In order to conduct these analyses, the values obtained from the results of the study were entered on the Excel worksheet, the formulas were entered and p (item difficulty) values, q (item facility) values, ID (item discrimination) indices were calculated. The results of the item facility and item discrimination analyses based on the main study are provided in Appendix H. KR20 for internal consistency and reliability of the data collection tools was also calculated. The results of the item analyses showed that KR20 for Sentence Completion Task is .83 whereas it is .59 for Fill-in the Blanks Task and .56 for Grammaticality Judgment Task. The range of reliability measurement are rated as low if it is less than 0.5, moderate if it is between 0.5 and 0.8, and high if it is greater than 0.8 (Salvucci, Walter, Conley, Fink, & Saba, 1997). Based on their item discrimination indices, majority of the items are found to have acceptable values to be involved in the test. These values are provided in Appendix H.

3.7.2. Inter-rater reliability analyses

The researcher calculated inter-rater reliability in order to see whether we reached an agreement in scoring the sentence production and Sentence Completion Task results of the participants. In this step, two researchers scored the items in these tasks based on the key independently (scores allocated to per item and the key are provided in

appendices). 30% of the papers were involved in inter-reliability analysis. Then, the researcher compared the scores and identified the points they disagreed in the scoring procedure. Based on this calculation, the measured Cohen's Kappa for Sentence Production Task was between 1.0 and .64 indicating an acceptable (i.e. substantial and almost perfect) agreement (Landis & Koch, 1977, p.165). As far as the agreement values in Sentence Completion Task is concerned, Kappa value is between 1.0 and .80 indicating almost perfect agreement between the raters (See Appendix I and Appendix J for the agreement values for each item in Sentence Production and Sentence Completion Tasks).

For the reliability measurements, in addition to the aforementioned steps followed in inter-rater reliability process, a native speaker analyzed 20 % (a total of 36 learner papers for each task) of Sentence Production and Sentence Completion Tasks. The native speaker was told that the L2 learners were administered a test and that her task was to note down the acceptability of the sentences produced by the learners in each task. More specifically, she was asked to judge each sentence based on their pattern acceptability and meaning acceptability. Within the scope of the study, depending on the well-formedness of sentences, she was asked to take notes by using plus (i.e., + for a well-formed sentence and meaning), minus (i.e., -, for an ill-formed sentence and meaning). The rationale in using this method is that this informal methodology has worked well because “acceptability judgments of linguistic phenomena tend to be strikingly robust, even at very small sample sizes” (Sprouse & Almeida, 2010, p. 33). The rationale in using the term ‘acceptability’ instead of ‘accurateness’ is that “L2 accuracy is a gradual concept rather than a binary phenomenon in the sense that a specific grammatical structure is not acquired fully at once, but learners gradually approach target-like use of that structure” (Martinez-Garcie & Wulff, 2012). In the overall data analysis procedure, we approached the data through the lens of acceptability as “acceptability is a concept that belongs to the study of performance, whereas grammaticalness belongs to the study of competence” and “grammaticalness is only one of the many factors that interact to determine acceptability” (Chomsky, 1965, p. 11).

In addition to this point, gradable results are crucial in the context of non-native language because well-formedness is a matter of degree: “[c]hoosing a verb and the complementation pattern to go with it is not just a matter of right or wrong, but (...) some verbs are associated with these complementation patterns much more strongly than others” (Martinez-Garcia & Wulff, 2012, p. 241).

It is important to note that as we were unable to reach a compromise with the native speaker in the use of *assume* in imperative form, we checked the aforementioned monolingual dictionary besides Corpus of Contemporary American English. As a result, we found out that *assume* is used in imperative form in COCA corpus in different registers (see examples below) and we accepted this use in the learner responses.

- (1) *Assume that* you are a Geographic Information Systems Analyst for the Department of Health in your state or province. (COCA: ACAD)
- (2) You're a big loveable baby, and everyone will always adore you for it, even when you're a middle-aged fella or gal. *Assume that* you are the center of the universe, the only one who matters in any situation. Why bother listening to anyone else's story? You're the dude who counts, right? (COCA: MAG)
- (3) Do you have any idea what you're asking? Let's say that they lit out of town the night of the accident. *Assume that* they drove until dawn so as to put as much distance between them and the local investigation as possible. Just in round terms, let's say that's about eight hours. Then *assume that* they stuck to the speed limit and didn't stop for anything other than filling up the car. That still gives them a driving range of roughly five hundred miles. (COCA: FIC)

After the native speaker rated all the responses, the agreement values were calculated as this step is crucial in that taking explicit steps to increase rater agreements has methodological benefits and increases the scientific credibility of the study (Creswell, 2003). Cohen's Kappa was calculated as it allows the marginal probabilities of success associated with the raters to differ. In order to decide on the acceptability of the agreement values, the following benchmark was used, most items in the study were found to have acceptable values. These benchmarks were suggested by Landis and Koch (1977, p.165) for interpreting Kappa:

Table 3.5. *Kappa Statistic Strength of Agreement*

Kappa Statistic	Strength of Agreement
<0.00	Poor
0.00- 0.20	Slight
0.21- 0.40	Fair
0.41- 0.60	Moderate
0.61- 0.80	Substantial
0.81- 1.00	Almost Perfect

Summary of the steps followed in the study and the procedures involved in each step are provided in Figure 3.7.

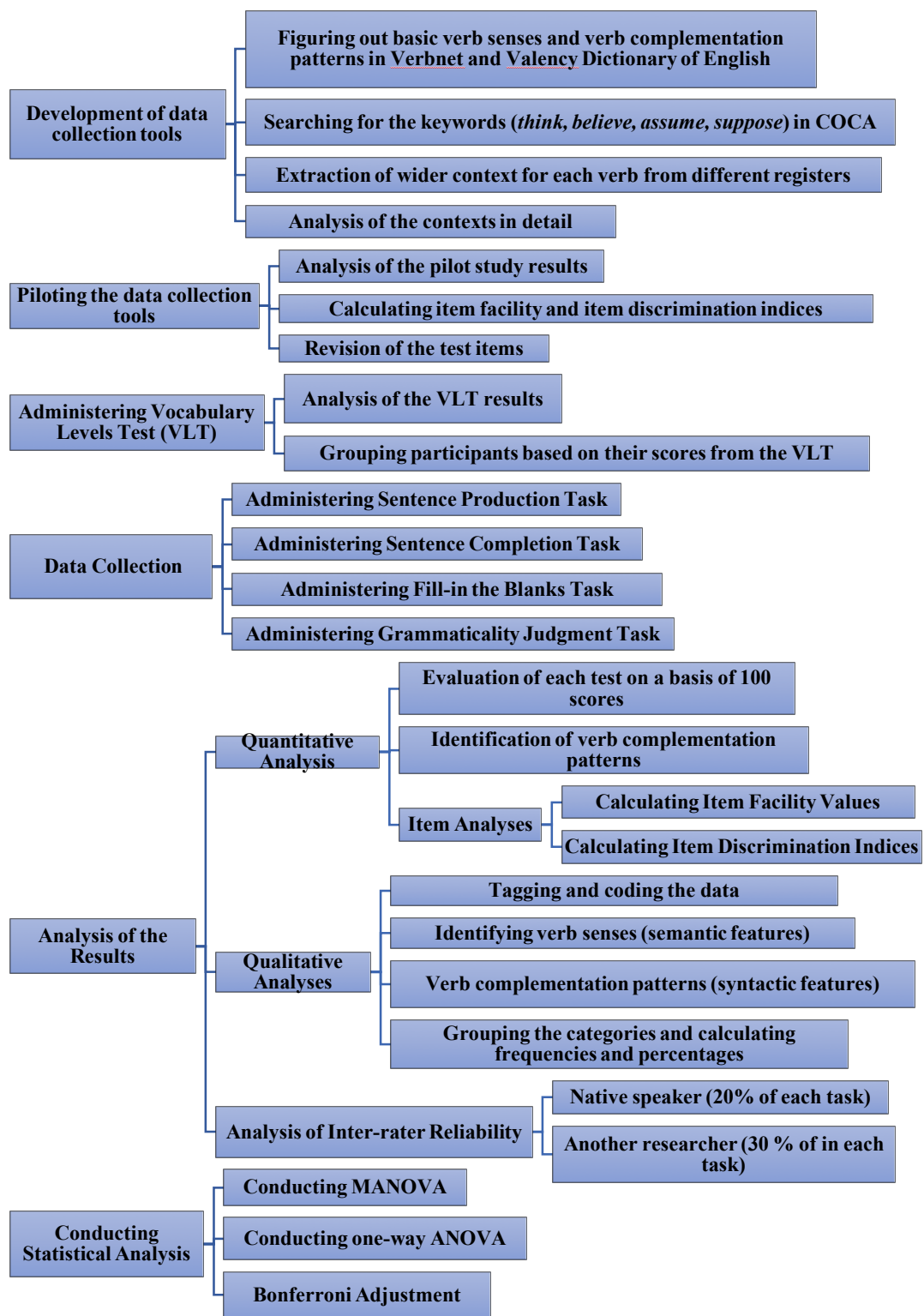


Figure 3.7. Research design flow chart

CHAPTER 4

4. RESULTS

4.1. Introduction

The current study examined the learners' use of cognitive verb complementation patterns and verb senses at receptive and productive levels. With this aim in mind, learners' competence at receptive level and performance at productive level are investigated and the following research questions are addressed:

- 1- Is there a significant difference among the task achievement levels of the learners at different classes and vocabulary levels?
 - a. Is there a significant difference among recognition and production task achievement of the learners at different class levels?
 - b. Is there a significant difference among recognition and production task achievement of the learners at different vocabulary levels?
- 2- What are the preferences of the learners regarding verb complementation patterns and their related verb senses?

The findings of the study are presented in line with the aforementioned research questions. The first research question is addressed to examine their achievement at recognition and production tasks and each test was evaluated on a basis of 100 points. After this stage, in order to see the effect of year of study on the total test score of students, MANOVA was run based on the scores they got in each task. Based on the results of this analyses, the learners were found to have differences and in terms of their achievement levels in all tasks. Accordingly, the learners were grouped into different vocabulary levels according to their scores from the Vocabulary Levels Test and MANOVA was conducted in order to investigate achievement level of the learners from different vocabulary levels in sentence production, sentence completion, fill-in the blanks and Grammaticality Judgment Tasks. Based on the results, as receptive performance is expected to be higher or close to production one, the results are checked once more and further analysis through one-way repeated measures ANOVA was conducted in order to get a better picture of the source of the difference.

Second research question is addressed in order to shed light on learner preferences regarding verb complementation patterns and their related verb senses. Verb complementation patterns and verb senses used by the learners in sentence completion and Sentence Production Tasks were examined. Overall findings for Sentence Production

Task was given first, then the results from both completion and production tasks were analysed based on example items for each verb separately.

4.2. Learners' Achievement Level at Recognition and Production Tasks

In order to identify the achievement level of the learners at recognition and production tasks, learner responses (a total of 182 participants) to sentence production, sentence completion, fill-in the blanks and Grammaticality Judgment Tasks were evaluated on a basis of 100 points. At first, the achievement level of the students from different tests were calculated according to their class levels. It was revealed that 4th year students scored higher than 1st year students in all tasks, and there was a notable difference in their scores in Fill-in the Blanks Task. In other words, based on the mean scores, fourth year students performed higher in Fill-in the Blanks Task compared to first year students (See Appendix M for descriptive statistics across year of study).

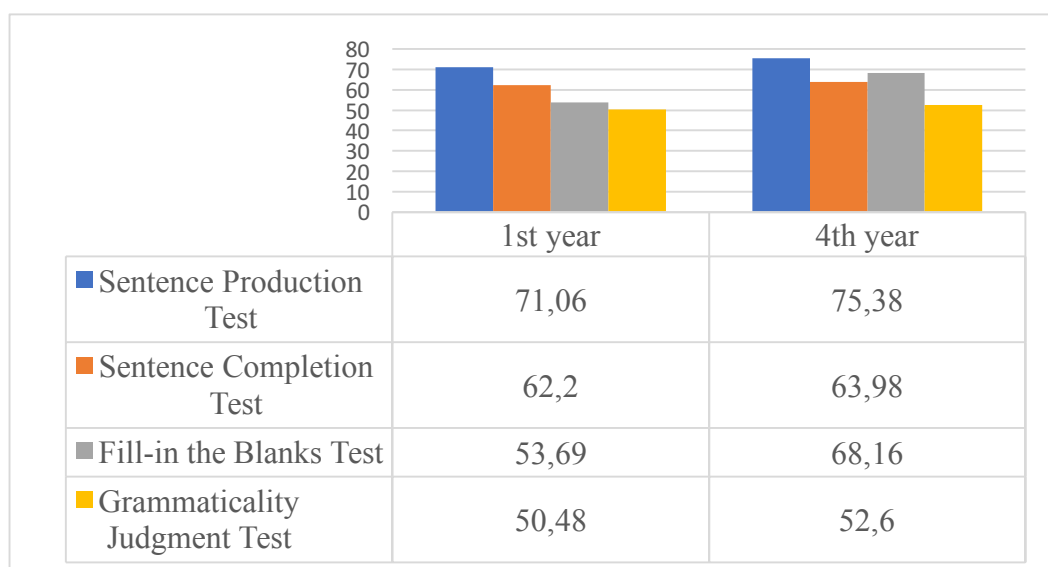


Figure 4.1. *Distribution of mean scores across year of study*

As seen in Figure 4.1, both groups of learners performed better in tasks examining state of knowledge at productive level (i.e. Sentence Production and Sentence Completion Tasks) compared to the tasks investigating their state of knowledge at receptive level (i.e. Fill-in the Blanks and Grammaticality Judgment Tasks).

After having an insight into the learners' achievement levels from different tasks, in order to reveal whether there was any significant difference among the learners at production and recognition levels, multivariate analysis of variance (MANOVA) was

conducted based on the year of study. This statistical analysis was conducted as the following assumptions were met: observations are randomly and independently sampled from the population, each dependent variable has an interval measurement, dependent variables are multivariate normally distributed within each group of the independent variables, and the population covariance matrices of each group are equal. The researcher also conducted MANOVA in order to identify any difference between 1st and 4th year students in their scores from SPT, SCT, FBT, and GJT. The results revealed that there was a statistically significant difference between different years of study on the combined dependent variables: $F_{4,177}=6.117, p < 0.001$; *Pillai's Trace* = 0.121; $\eta_p^2 = 0.121$).

Table 4.1. *The comparison among 1st and 4th year students based on their receptive and productive tasks*

Source	Task	N	Type III Sum of Squares	df	Mean Square	F	p	η^2
year of study	SPT ¹	182	846.502	1	846.502	3.026	.084	.017
	SCT ²	182	142.860	1	142.860	.292	.590	.002
	FBT ³	182	9474.110	1	9474.110	22.791	.000*	.112
	GJT ⁴	182	204.409	1	204.409	.842	.360	.005

Computed using alpha and significance = .05

1 Sentence Production Task

2 Sentence Completion Task

3 Fill-in the Blanks Task

4 Grammaticality Judgment Task

As the MANOVA test results yielded significant differences across different year of study in terms of overall mean scores, post-hoc tests were also conducted. As shown in Table 4.1, the only difference to reach statistical difference using a Bonferroni adjusted alpha level of .05, was Fill-in the Blanks Task: $F_{1,180}=22.791, p < 0.001, \eta_p^2 = 0.112$. An inspection of the mean scores indicated that 4th year students were found to have higher scores in all tasks (See Appendix P for the results of multivariate tests for the year of study).

Results could be due to the non-homogenous nature of classes based on their vocabulary levels (See Appendix R for the results). Mean scores of participants from different vocabulary levels were calculated in order to provide an in-depth picture of their achievement levels. After the aforementioned analyses, in order to provide an in-depth picture of their achievement levels, mean scores of the learners from different vocabulary levels were examined. The reason for this analysis is that the learners have non-homogeneous characteristics in terms of their vocabulary levels. As a result of the

analyses, the results indicated that the learners from 5000-word level performed better in all tasks based on the mean scores shown in Figure 4.2.

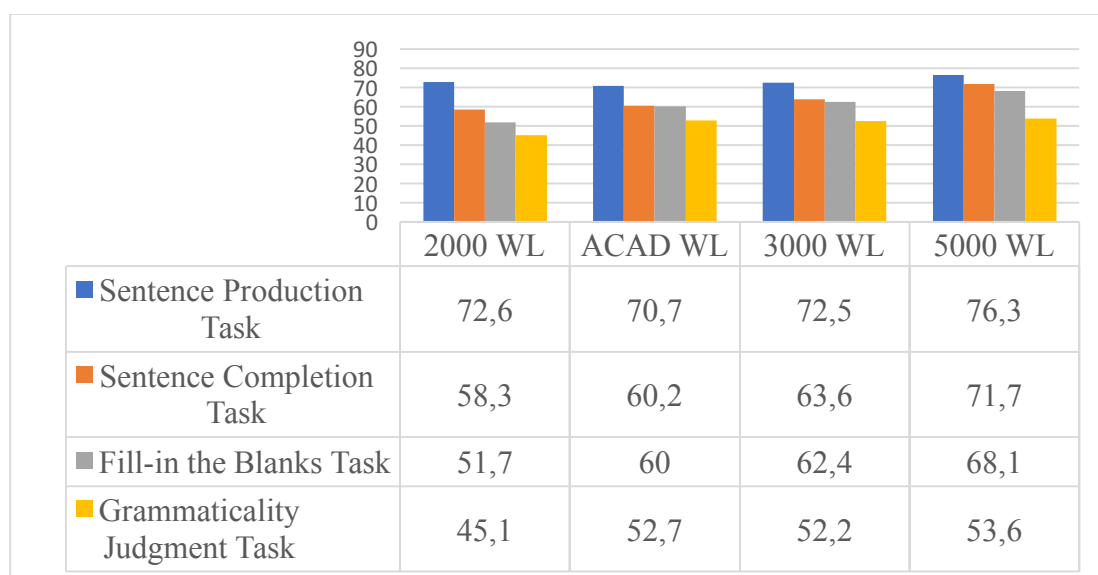


Figure 4.2. Distribution of mean scores across vocabulary levels

Based on these scores, MANOVA was conducted to see whether there is a difference across participants from different word levels in terms of their scores in all tasks. The findings indicate that there was a statistically significant difference between different vocabulary levels on the combined dependent variables ($F_{12,531}=2.049, p=0.019$; *Pillai's Trace*=0.133; $\eta_p^2=0.044$). As the MANOVA test results yielded significant differences across different vocabulary levels in terms of overall mean scores, post-hoc tests were also conducted.

Table 4.2. The comparison among the learners from different vocabulary levels based on their receptive and productive tasks

Source	Tasks	N	Type III Sum of Squares	df	Mean Square	F	p	η^2
VLT	SPT ¹	182	600.322	3	200.107	.704	.551	.012
	SCT ²	182	6186.106	3	2062.035	4.472	.005*	.070
	FBT ³	182	5223.321	3	1741.107	3.919	.010*	.062
	GJT ⁴	182	1771.649	3	590.550	2.495	.061	.040

Computed using alpha and significance= .05

1 Sentence Production Task, 2 Sentence Completion Task, 3 Fill-in the Blanks Task, 4 Grammaticality Judgment Task

As shown in Table 4.2, the only differences to reach statistical difference using a Bonferroni adjusted alpha level of .05, was Sentence Completion Task: $F_{3,178}=4.472, p=0.005, \eta_p^2= 0.070$ and Fill-in the Blanks Task: $F_{3,178}=3.319, p=0.010, \eta_p^2= 0.062$. An

inspection of the mean scores indicated that students at 5000-word level were found to have higher scores in Sentence Production Task ($\bar{x}$ =76.31, SD =16.06), in Sentence Completion Task ($\bar{x}$ =71.71, SD =19.83), in Fill-in the Blanks Task ($\bar{x}$ =68.15, SD =24.91), and in Grammaticality Judgment Task ($\bar{x}$ =53.68, SD =16.71). Post hoc test results show that there is a difference between the results of 2000 and 5000-word level students in sentence completion (Bonferroni adjustment value is .003) and in Fill-in the Blanks Tasks (Bonferroni Adjustment value is .007) (See Appendix R for the results of Multivariate Tests for Vocabulary Levels).

As seen above, results indicate that the learners (both in terms of year of study and word levels) performed better in tasks examining their state of knowledge at productive level compared to their state of knowledge at receptive level. Since receptive performance is expected to be higher or close to production one, the results are checked once more and further analysis through one-way repeated measures ANOVA was conducted in order to get a better picture of the source of the difference. The following assumptions were met: the test variables follow a multivariate normal distribution in the population, frequency distributions were plausible, and Sphericity is tested with Mauchly's test. The results of the one-way repeated measures ANOVA showed that there was a significant difference among the tasks: $F_{3,543}=51.911$, $p<0.001$, $\eta_p^2= .223$. Bonferroni post hoc tests showed that participants significantly performed better in Sentence Production Task ($\bar{x}$ =73.39; SD =16.82) and significantly lower in Grammaticality Judgment Task ($\bar{x}$ =51.62; SD =16.41) compared to other tasks. Neither condition significantly differed from their performance in Sentence Completion Task and Fill-in the Blanks Task (See Appendix O for the results of one-way Repeated Measures ANOVA).

Table 4.3. *Comparison of receptive and productive tasks*

	N	$\bar{x}$	SD	df	F	p	η^2
SPT ¹	182	73.39	1.641	3	15.4	< .000*	0.235
SCT ²	182	63.16	1.822	2.43			
FBT ³	182	61.48	1.556	99			
GJT ⁴	182	51.62	1.641	80.23			

Computed using alpha and significance= .05 (Mauchly's W= .895)

Based on the results in Table 4.3, it is possible to say that the learners do not differ in terms of their performance in all tasks, rather statistical significance was found in their performance in Sentence Production and Grammaticality Judgment Tasks. As the learners

had more freedom in their choice of verb complementation patterns and their related verb senses, they are possibly more inclined to use the structural and semantic properties of the verbs they know best in their responses to Sentences Production Task. As for their lower performance in Grammaticality Judgment Task, even native speaker experience dilemma in evaluating the grammaticality of certain patterns and meanings.

4.3. Overall Findings with Regard to the Learners' Use of Cognitive Verb Complementation Patterns and Related Verb Senses

In this section, the overall results of the sentence completion test are provided in terms of the acceptable, unacceptable, and problematic uses of the learners in their Sentence Production Task. The learners' acceptable use of all verbs is higher than their unacceptable uses, though *assume* has the lowest frequency (15.3%). As for the unacceptable uses, it is more frequent in *suppose* (8.51 %) whereas is less frequent in *believe* (4.67%). The most frequently problematic use was found in the sentences formed with *believe* (14.5). One of the most striking findings about learner responses in Sentence Production Task is that no answer category is frequent in the verb *assume* (23.6 %) as shown in Table 4.4.

Table 4.4. *Frequencies and percentages of cognitive verbs in Sentence Production Task*

	Acceptable use		Unacceptable use		Problematic Use		No Answer		Total	
	N	%	N	%	N	%	N	%	N	%
think	289	19.8	29	1.99	40	2.74	6	0.41	364	25
believe	263	18	17	1.16	53	3.64	31	2.12	364	25
assume	223	15.3	29	1.99	26	1.78	86	5.9	364	25
suppose	256	17.5	31	2.12	22	1.51	55	3.77	364	25
Total	1031	70.8	106	7.28	141	9.68	178	12.2	1456	100

As shown in Table above, no answer category is much higher in frequency in the use of *assume* and *suppose* compared to other verbs whereas unacceptable use is higher in the use of *suppose*. In other words, the learners were not able produce sentence by using *assume* and *suppose*. In the following section, the results are dealt with for each verb in detail referring to both of the productive tasks by also explaining predominant and less salient preferences.

4.3.1. Learners' choice of verb senses and verb complementation patterns of the verb *think*

In order to reveal an overall picture of the learners' choice of verb complementation patterns and related verb senses for the verb *think*, learner responses to Sentence Completion Task are first analyzed. As the learners were expected to take the context into consideration and complete the rest of the paragraph with the appropriate verb complementation pattern, and with the proper verb sense, the learners' acceptable responses were analyzed in terms of two categories that are the expected patterns and different choices. For example, the learners were expected to complete item 1 below with the following expression: *...about whether the content you are addressing would best be presented with due dates, or as a flexible, rotating course that can be started at any time.* Rather than providing the aforementioned response, the learners chose different responses such as *“Think what you will decide and which strategies you will use”* or *“Think of its' benefits”*. For this reason, frequencies and percentages of expected patterns were also included in the analysis for this task.

1. Determine if an instructional strategy or approach might take too much time or force the course audience to focus on an area of the content for longer than necessary. In the process, you are also developing the timeline for your course. Decide how long the course should take. Think..... (Sentence Completion Task-Item 4)

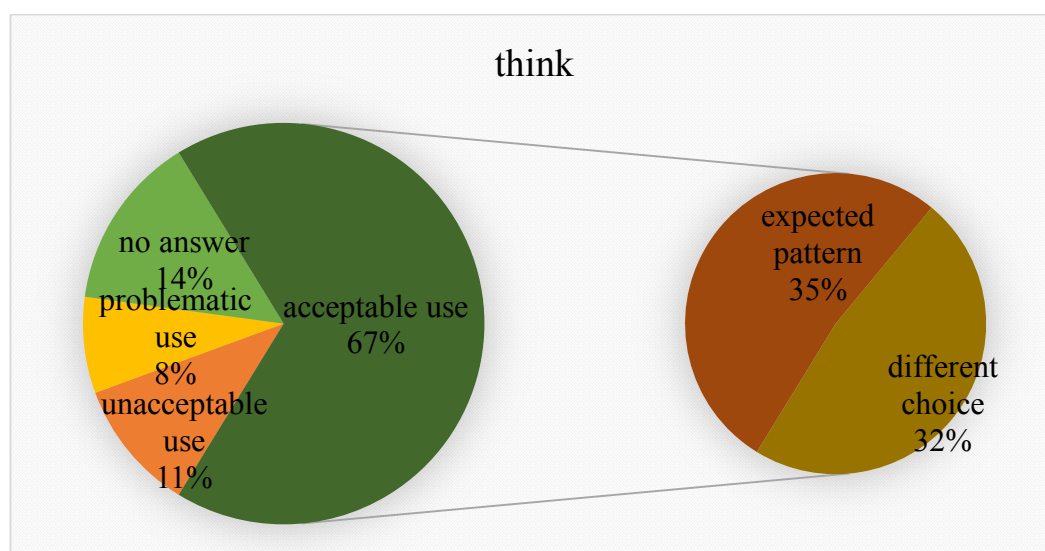


Figure 4.3. Learners' use of *think* in Sentence Completion Task

The findings with respect to the use of *think* indicate that acceptable use is 67% whereas unacceptable use is 11%, problematic use 8% and no answer 14%. The learners were able to provide the expected pattern in sentences with *think* (35%) whereas there exist different

choices as well (32%). In order to get a further in-depth picture and to reveal the patterns preferred over the others, an examination of item-based syntactic analysis of the learner responses to Sentence Completion Task was conducted as shown in Table 4.5 below:

Table 4.5. *Syntactic analysis of the responses for the verb ‘think’ in Sentence Completion Task*

		think													
		Item2		Item3		Item4		Item6		Item8		Item10		Item14	
		[to-INF]		[to-INF]		[Prep N] [about NP]		[zero that- CL]		[Prep N] [about NP]		[that- CL]		[that- CL]	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Acceptable use	Expected pattern	62	4.86	2	0.15	69	5.41	11	8.60	14	11.3	35	2.74	28	2.19
	Different choice	-	-	12	9.63	42	3.29	35	2.74	6	0.47	12	9.49	84	6.59
Unacceptable use		54	4.23	3	0.23	37	3.06	7	0.54	12	0.94	6	0.47	15	1.17
Problematic Use		43	3.37	19	1.49	8	0.62	13	1.02	4	0.31	7	0.54	5	0.39
No Answer		23	1.84	35	2.74	26	2.04	17	1.33	16	1.25	13	1.02	50	3.92
Total		182	14.2	182	14.2	182	14.2	182	14.2	182	14.2	182	14.2	182	14.2
TOTAL		N												1274	
		%												100	

The findings indicate that learners provided the expected pattern in four of the test items (Item 2, 4, 6, 8) out of seven. In item three, only 0.15 % of the participants provided the expected pattern (i.e. to-INF) whereas 9.65 % of the participants preferred different but acceptable patterns such as [that-CL] and [zero that-CL] as shown in the following example:

2. I try to see this moment through his eyes: There's something very bright beneath the water, probably on the bottom but seemingly close enough to touch. He becomes mesmerized by this light, too large and bright to be a piece of jewellery, a diamond bracelet slipped off a woman's wrist, a ruby necklace: No, this light is so bright he can't quite connect it to anything his twelve-year-old brain knows the name of. He thinks (Item 3- Sentence Completion Task)

In example 2, the learners were expected to complete the rest of the sentence with “*to ask his mother if she sees it, if she knows what it is*”. Rather than providing the expected pattern, the learners provided other acceptable responses such as “*He thinks that it is a magical gift from a superhero (4.6.10: 3000 level)*”, and “*He thinks this is something that he has ever seen (1.1.18: 3000 level)*. In other words, there found to be a tendency to

choose [that CL] or [zero-that CL] instead of choosing [to INF] as the complementation pattern. For the items 10 and 14 in Sentence Completion Task, the expected verb complementation pattern was [that CL] for both items as shown below:

3. Before this assignment, I had never used Twitter; and, truthfully, I never gave it much thought as a medium. I really did not think_____. My impression was that Twitter was for celebrities, people who had an arrogant sense of self-importance, or others who think anything they do during the day is interesting. (Item 10-SCT)
4. If we are to re-teach the same lessons, we would focus more on building fluency with my students. We do not think_____ . (Item 14-STC).

In example 3, for item 10, the learners were expected to use: *“I really did not think that I had a need for it”* whereas in example 4, for item 14, the expected sentence was: *“We do not think that we needed to go back as far as identifying the letter sounds”*. Different from the patterns provided in the aforementioned examples, the learners were found to prefer [zero-that CL] for both items and wrote responses such as *“it is important in social life”*, *“it is a necessary to use Twitter”* for item 10 whereas they provide responses such as *“accuracy is the priority”*, *“traditional method is the best one”*.

In addition to this context-bounded task, the learners were provided a context independent task (i.e., Sentence Production Task) and were expected to write two sentences with the verb *think* and its verb senses. Based on their responses, both semantic and syntactic analyses were conducted and verb complementation patterns and their related verb senses were identified. Overall results of this investigation revealed that acceptable pattern and meaning use were higher in frequency in the sentences formed with the verb *think* compared to the other verbs. Main verb senses identified in the use of *think* are thought (mental engagement, reflect), consider (remember, plan/intend), opinion (have an opinion sth, believe sth to be the case, predict, suppose). Among these senses, the most salient verb sense is *expressing personal* opinion in clauses whereas it is *considering* in phrase category (See Appendix S for the overall results of syntactic and semantic analysis of the verb *think* in Sentence Production Task). Besides, the learners have a strong preference for using *think* to express personal opinion (64.4 %) with [that CL] (11%) and mostly with [zero that-CL] (51.6 %) as shown in the examples below:

5. I think the breakfast was delicious (1.1.16: 3000 level).
6. I think that there is a misunderstanding between them (4.1.23: 2000 level).
7. I think your hair looks cool (1.8.5: 3000 level).

Considering [NP] complementation pattern with *think*, there is a preference for using [Prep N-about NP] (19.5 %) as a complementation pattern, and the learners use this pattern to express the verb sense *thought/mental engagement* (8.18%) as shown in the following examples:

8. I am thinking about my future plans (4.3.22: ACAD level).
9. I am thinking about my last exam grade (4.3.10: 3000 level).

Other salient verb senses used by the learners are consider, remember, plan/intend (19.9%) used predominantly with [Prep N-about NP] (10.6 %). Percentages of all other types in verb patterns and senses are comparatively small and lie between 1.42 % [wh-CL] and 2.84 % for [to INF], [Prep N-about V-ing], and [Prep N -of V-ing]. Example sentences produced by the learners are presented below in order to exemplify the use of aforementioned verb senses:

10. I've been thinking about moving to America (1.1.18: 3000 level).
11. I'm thinking about you every second of a day (4.1.23: 2000 level).
12. I'm thinking of you all the time (1.8.5: 3000 level).
13. I am thinking to join local team this year (4.1.22: 2000 level).

In examples 10, 11, and 13, the learners use *think* to denote the '*consider (plan/intend)*' meanings whereas in example 12, they use the verb to denote '*consider/remember*' meaning.

In the analyses of learner responses, a number of unacceptable and problematic uses in sentence completion and Sentence Production Tasks are identified in the use of the verb *think*. These uses can be summarized as the wrong choice of the complementation pattern, problematic use of inversion, use of comma after the verb, possible literal translation from Turkish, pattern-meaning mismatch, wrong choice of prepositional phrases as the complementation pattern of *think* as exemplified below:

14. It is necessary to pay attention to the equivalence of the courses while making agreements with new universities. If it is not possible, these agreements should not be done. The Erasmus programme is thought_____ (Item 2- Sentence Completion Task).

The learners were expected to complete the rest of the sentence with: "*to be more efficient if these problems can be solved*". The learners completed aforementioned context with erroneous complementation patterns such as '*as an agreement between universities, as a helpful way for this problem, as a tool for completing students' education, as the most important example of this, as an awkward programme, as a*

holiday but it is a serious matter'. There is a total of 29 instances for this erroneous use in the responses. This use may be attributed to L1 transfer from Turkish as this use is the Turkish equivalence of "*olarak/olduğu düşünülür*". In Turkish National Corpus, there are such occurrences which may be accepted as Turkish equivalences and examples of possible literal translation from Turkish.

- (a) Yollar ve Yeşil Alanlar Şantiye içi yollarla diğer servis yollarını şantiyenin ana damarları olarak düşünülür. (W-NC06A2A-1966-206)
- (b) Doğal durumda bireyler özgür ve belirli haklara ve çıkarlara sahip varlıklar olarak düşünülür. (W-IH39C3A-1295-269)
- (c) Hizmetin kalitesinin müşteri tutmada ve yeni müşteriler elde etmede etkili olduğu düşünülür. (W-MF10A4A-1822-231)
- (d) Diğer taraftan, Bakla Tepe'deki obsidyen atölyesinin yukarıda sayılan buluntu yerlerinkinden daha farklı bir işleve sahip olduğu düşünülür. (W-SE05A1B-4203-59)

The use of NP as the complementation pattern of the verb *think* is another erroneous use.

15. Determine if an instructional strategy or approach might take too much time or force the course audience to focus on an area of the content for longer than necessary. In the process, you are also developing the timeline for your course. Decide how long the course should take. Think..... (Item 4-Sentence Completion Task).

For the above-mentioned item, the learners provided responses such as '*think your timeline before deciding, the appropriate time for it, advantages and disadvantages of it, etc.*' rather than providing appropriate responses (e.g. about NP, of NP, etc.).

Another notable example is that the learners use [that-CL] and [zero that-CL] complementizers and they provide 'consider' as the verb sense of *think*. The problem is that when *think* is used to mean consider, following complementation patterns according to the Valency Dictionary of English are used: [to-INF], [about VP/V-ing], [of NP/V-ingp].

16. I think you are beautiful (sense explained by the learner: consider) (4.5.21: ACAD level).
17. I think you should buy these shoes (sense explained by the learner: consider) (4.8.11: 3000 level)

One of the most erroneous use is that students did not appropriately use indirect questions with *think*, which happens to be one of the most frequent verbs in English. This erroneous use was found in their responses in sentence production and Sentence Completion Tasks as shown in the examples below:

18. Think about where do you want to go (4.6.8: 5000 level).
19. Think about when do you start and finish at your course (4.6.8-5000 level).

20. Think what will you do first (1.4.9: 3000 level).

4.3.2. Learners' choice of verb senses and verb complementation patterns of the verb *believe*

In order to reveal an overall picture of the learners' choice of verb complementation patterns and related verb senses for the verb *believe*, the learners' responses to Sentence Completion Task were analyzed first. As the learners were expected to take the context into consideration and complete the rest of the paragraph with the appropriate verb complementation pattern, and their related verb meaning, the learners' acceptable responses were also analyzed in terms of the expected patterns and different choices.

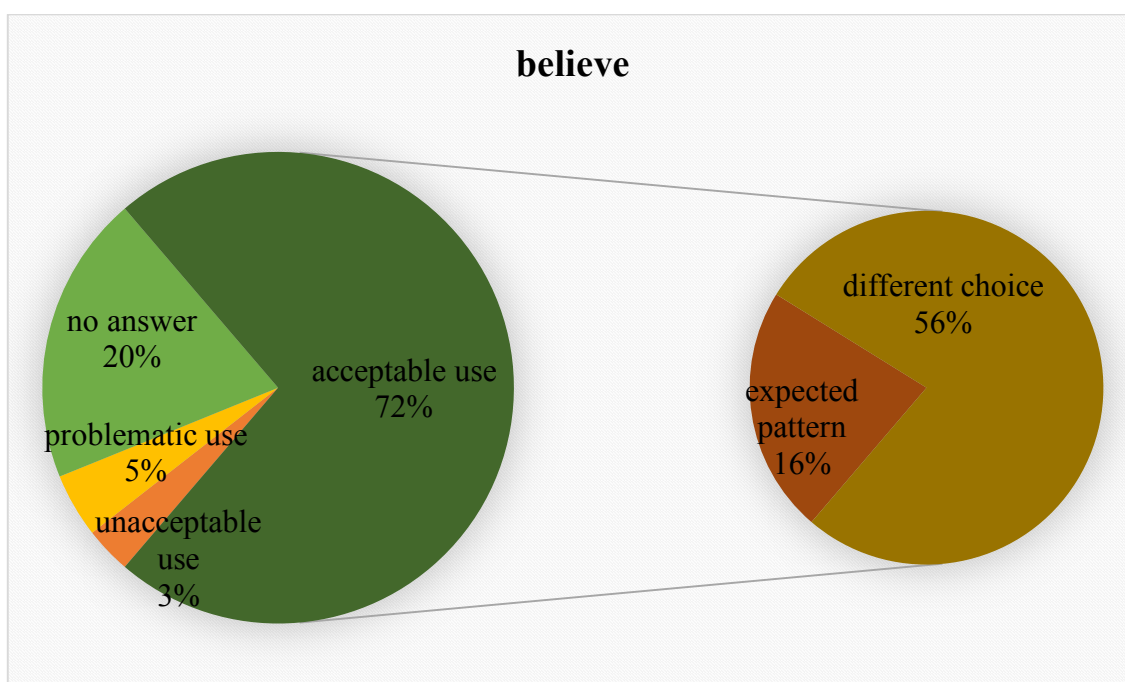


Figure 4.4. Learners' use of the verb 'believe' in Sentence Completion Task

As shown in the Figure above, the findings with respect to the use of *believe* show that acceptable use is 72% whereas unacceptable use is 3%, problematic use 5% and no answer 20%. Different from the verb *think*, the learners showed a tendency to choose different patterns (56%) rather than the expected patterns (16%). In order to get a further in-depth picture and to reveal the patterns preferred over the others, an examination of item-based syntactic analysis of the learner responses to Sentence Completion Task was conducted as shown in Table 4.6:

Table 4.6. Syntactic analysis of the responses for the verb 'believe' in Sentence Completion Task

		believe											
		Item15		Item16		Item17		Item18		Item19		Item20	
		[that-CL]		[that-CL]		[NP]		[wh-CL]		[wh-CL]		[zero that-CL]	
		N	%	N	%	N	%	N	%	N	%	N	%
Acceptable use	Expected pattern	64	5.86	31	2.83	2	0.18	2	0.18	11	1	68	6.22
	Different choice	97	8.88	96	8.79	12	10.9	12	11.7	11	10.6	55	5.03
Unacceptable use		3	0.27	6	0.54	3	0.27	4	0.36	15	1.37	4	0.36
Problematic Use		-	-	15	1.37	10	0.91	9	0.82	5	0.45	9	0.82
No Answer		18	1.64	34	3.11	47	4.3	40	3.66	35	3.2	46	3.84
Total		182	16.6	182	16.6	182	16.6	182	16.6	182	16.6	182	16.6
TOTAL		N 1.092											
		% 100											

As shown in Table 4.6, the learners provided different acceptable responses for majority of the items (Items 15, 16, 17, 18, 19). In other words, the learners provided different and acceptable answers to the sentences with the verb *believe* rather than the expected pattern to five of the items out of six. In terms of the specific patterns preferred over the others, it was observed that the learners provided different choices rather than using [NP], [wh-CL], and [that-CL]. They preferred using [zero that-CL] rather than [that-CL], [NP], [wh-CL] whereas they preferred using [that-CL] rather than using [wh-CL]. In other words, preferences in their responses were mostly either [that-CL] or [zero that-CL] as exemplified below:

21. He snatched his trousers off the back of a chair. He zipped up, fingers fumbling as he fastened his belt, afraid she might leave. He checked the window again before unlocking the door. Nothing had changed. She still stood there alone. He could scarcely believe..... (Item 17- Sentence Completion Task)

In one of the items in Sentence Completion Task as exemplified in example 21 (it is item 17 in SCT) above, the expected pattern was: “*his good fortune*” and the learners were expected to complete the sentence by using [NP] as the complementation pattern. Rather than choosing [NP] (0.18%), the learners preferred using different choices (10.9 %) such as [that-CL] and [zero that-CL] and provided responses such as “*that he would face to dangerous condition*” (1.1.23: ACAD level), “*someone was really waiting for*

him” (1.8.6: 3000 level). Another striking example in terms of the learners’ preference of [that-CL] and [zero that-CL] over [wh-CL] is exemplified below:

22. Even at the kindergarten level, parents, especially mothers, encourage their sons and daughters to excel in different areas. Males are encouraged and expected to achieve in subjects such as math, and females are encouraged to be cooperative (Baker & Entwisle, 1986). Children believe.....(Item 18: Sentence Completion Task).

In example 22 above, the learners were expected to make use of the contextual clues and to complete the paragraph with the following expression: “*what their parents tell them and try to adjust to parental expectations*”. Rather than using this expected pattern (0.18 %), which is [wh-CL] as the complementation pattern of *believe*, majority of the learners provided different choices (11.6 %) such as “*that they have different roles in society*” (4.8.9: ACAD level), “*there are roles for every gender*” (4.5.9: 5000 level).

Other than this context-dependent task, the learners were provided a context independent task (i.e., Sentence Production Task) and were expected to write two sentences with the verb *believe* and its verb senses. Concerning the main verb senses identified in the use of the verb *believe*, these senses are ‘*think or be sure that something is true, correct, useful, and religion*’. As verb senses ‘*think this is the case (think sth is true)/hold as an opinion/accept sth as true or probable*’, and ‘*believe another person (trust, have confidence)*’ were involved in this category in Valency Dictionary of English and Verbnet, their frequencies and percentages were calculated and merged these instances in the ‘*general*’ verb sense category within the scope of this study. As a result, findings indicate that there is a total of 263 acceptable instances in the verb *believe* in Sentence Production Task. As some of the learners wrote down the sentence and did not explain the sense of the verb, 5 sentences (NP: 3, zero that-CL: 2) were included in the syntactic analysis, but they were omitted in the semantic analysis. Findings of the syntactic analysis show that *believe* is distinctive for [Prep N-in NP] (33.8 %) in phrase category to denote senses such as religion (12.1 %), and to believe another person, trust, have confidence (17.1 %) whereas [zero that-CL] (26.6 %) and [that-CL] (20.9 %) are salient in clause category used to express senses such as think this is the case, hold as an opinion (49 %) in Sentence Production Task (see Appendix T for the results of semantic and syntactic analysis of *believe* in Sentence Production Task). The most striking finding is that there is not a clear tendency in the use of [that-CL] and [zero that-CL], the learners showed variation and they also preferred using [Prep N] and [NP] as the complementation

patterns of the verb. Sentences produced by the learners are presented below in order to exemplify patterns and related verb meanings:

23. I believe that you can pass the exam (verb sense: accept something as true or probable) (4.5.10: 2000 level).
24. I believe that you are perfect (verb sense: general-think this is the case) (4.5.10: 2000 level).
25. She believes in miracles (verb sense: general-believe the existence of something) (4.3.16: 2000 level).
26. He believes in Hinduism (verb sense: religion) (1.4.16: 5000 level).
27. I believe in you (verb sense: trust/have confidence) (1.6.16: 3000 level).

In the analyses of learner responses to the sentence completion and Sentence Production Tasks, a number of unacceptable and problematic responses are identified in the use of the verb *believe*. Some learners wrote responses that are completely out of context as exemplified below:

28. Reading is still fundamental. By bringing reading alive, school librarians still teach students to love books and celebrate stories and authors. Students love stories and enjoy reading in spite of the fact that so many are over-scheduled with extracurricular activities and school work. We truly believe _____. School librarians know there is a book for every reader and a reader for every book. (Item 20- Sentence Completion Task).

In the aforementioned example, the learners were expected to take the sentences before and after the blank into consideration and to complete the paragraph with the following statement: “*students who read succeed*”. Irrelevant responses such as “*that school is completely useless*” (1.1.5: 5000 level), “*there is no time to read*” (4.3.16: 2000 level) are observed and the learners do not seem to pay attention to the context. For the same item (Item 20), other problematic use is that the learners use a clause rather than a phrase after the preposition as exemplified below:

29. We truly believe in reading a book is a necessity (1.4.10: ACAD level).
30. We truly believe in reading is a waste of time (1.6.16: 3000 level).

Another unacceptable use is the wrong choice of the verb complementation pattern. As shown in example 31 and 32, the learners choose inappropriate complementation patterns such as ‘*believe up*’ and ‘*believe to*’.

31. Never stop believing up me (1.6.8: 3000 level).
32. I believe to my friend so I can tell my secrets to her (1.6.22: ACAD).

Wrong choice of prepositional phrases and omission of prepositional phrases as the complementation pattern of *believe* is another problematic aspect in learner responses. As shown in the below-mentioned examples, the learners were expected to use [Prep N], however, they did not use the preposition.

33. I believe fate (4.8.14: 3000 level).

34. She believes Budizm (4.8.9: ACAD level).

The learners were also found not to provide appropriate verb senses for *believe*. While the appropriate verb sense for example 35 and 36 is ‘*trust/have confidence*’, Verb sense explained by the learners for example 35 is ‘*be cheated*’ and for example 36, it is ‘*you can do it*’.

35. I believed your utterances (4.6.18: 3000 level).

36. I believe in you (1.1.8: 3000 level).

Besides, the learners were found to violate the rule with regard to the use of indirect question with the verb *believe*. In other words, cancelling inversion is also ignored in the sentences formed with the verb *believe* as shown in example 37 below:

37. I cannot believe how did I do it. (1.6.16: 3000 level).

Considering the aforementioned unacceptable and problematic uses with regard to verb *believe*, wrong choice of the complementation pattern, problematic use of inversion, possible literal translation from Turkish, pattern-meaning mismatch, wrong choice of prepositional phrases as the complementation pattern are observed in learner responses.

4.3.3. Learners’ choice of verb senses and verb complementation patterns of the verb *assume*

In order to reveal an overall picture of the learners’ choice of verb complementation patterns and related verb senses of *assume*, the learners’ responses to Sentence Completion Task were analyzed. Complementation patterns and related verb senses were grouped into categories such as acceptable use, unacceptable use, problematic use and no answer and frequencies and percentages with respect to each category were calculated. Similar to the categories used in presenting the findings with regard to *think* and *believe*, the learners responses for *assume* were also classified into categories as seen in Figure 4.5.

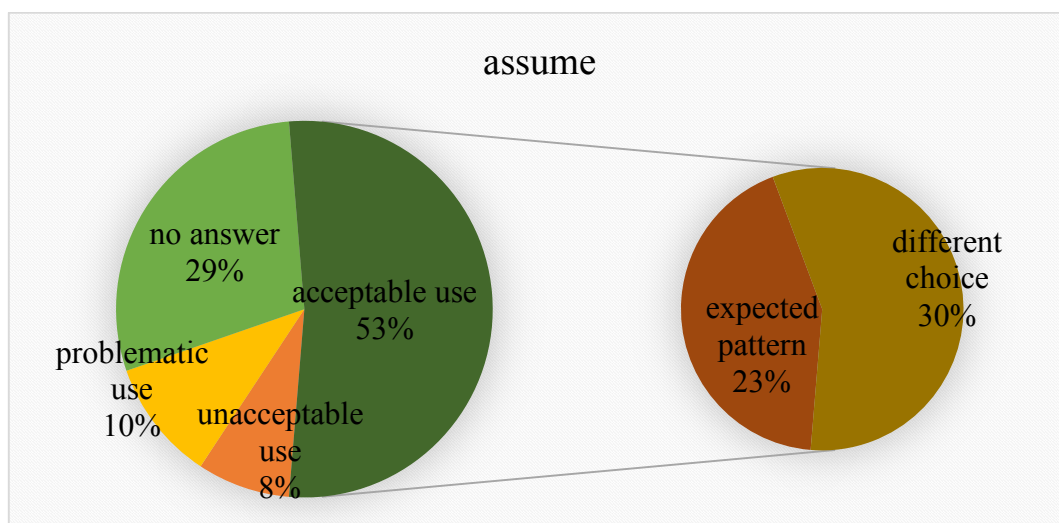


Figure 4.5. Learners' use of the verb 'assume' in Sentence Completion Task

As shown in the figure above, the findings with respect to the use of *assume* show that acceptable use is 53% whereas unacceptable use is 8%, problematic use 10% and no answer 29%. It was also revealed that the learners showed a tendency to choose different patterns (30%) rather than the expected patterns (23%). In order to get a further in-depth picture and to reveal the patterns preferred over the others, an examination of item-based syntactic analysis of the learner responses to Sentence Completion Task was conducted as shown in Table 4.7 below:

Table 4.7. Syntactic analysis of the responses for the verb 'assume' in Sentence Completion Task

		Item1		Item5		assume Item9		Item11		Item12	
		[that-CL]		[zero-CL]		[that-CL]		[that-CL]		[that-CL]	
	Expected pattern	N	%	N	%	N	%	N	%	N	%
	Different choice	40	4.39	32	3.51	60	6.59	39	4.28	35	3.84
Acceptable use		57	6.26	56	6.15	55	6.04	63	6.92	42	4.61
Unacceptable use		9	0.98	11	1.2	14	1.53	8	0.87	31	3.4
Problematic Use		15	1.64	22	2.41	17	1.86	30	3.29	11	1.2
No Answer		61	6.7	61	6.7	36	3.95	42	4.61	63	6.92
Total		182	20	182	20	182	20	182	20	182	20
TOTAL	N	910									
	%	100									

The results illustrate that the learners mostly provided different and acceptable answers to the sentences with *assume* rather than the expected pattern to four of the items

out of six. It was seen that the learners preferred to use [that-CL] rather than using [zero that-CL] in item 9 whereas they used [zero that-CL] rather than [that-CL] in three items (Item 1, 11, and 12) as shown in the examples below:

38. Teacher-librarians assume what is being taught in the library is reinforced across the school. That is, information literacy is being developed across the school, for example by history teachers when students complete research-based assignments. Many teachers may also assume _____ (Item 1- Sentence Completion Task).

In the example above, the learners were expected to complete the sentence with the following expression: “*that skills and abilities are reinforced by other teachers or departments*”. While no answers are salient in this item, the learners choose different complementation patterns such as “*library can develop students level of knowledge about the historical events and helps students about their assignments* (4.8.22: 3000 level)”, “*that library has a big role in reinforcing the knowledge of the student* (1.4.21: ACAD level)”.

As for learner responses in Sentence Production Tasks, basic verb senses were identified and their responses were categorized in terms of verb complementation patterns and their related verb senses. Considering the main verb senses identified in the use of *assume* in Sentence Production Task, ‘*suppose or expect something to be the case, predict/estimate/think that something is true or probably true, believe, accept true without verification, take over, gain, responsibility*’ are found to be the most common verb senses preferred by the learners. There is a total of 207 acceptable instances in the verb *assume*. As some of the learners wrote down the sentence and did not explain the sense of the verb, 16 sentences ([that-CL]: 9, [zero that-CL]: 7) were included in the syntactic analysis, but they were omitted in the semantic analysis.

Findings of the syntactic analysis show that *assume* is distinctive for [that-CL] (69.5 %) and used to denote verb meaning ‘*suppose or expect something to be the case*’ (49.2 %) in Sentence Production Task. *Assume* shows much less complementation pattern variation in the learners’ productions and NPs are rather infrequent (4.83 %) (see Appendix U for the results of syntactic and semantic analysis of *assume* in Sentence Production Task). A number of learner uses in terms of the verb *assume* in Sentence Production Task are presented below. It was revealed that the learners provided a range of verb senses such as ‘*predict, take over, suppose something to be the case*’.

39. I assume that he will win the game (verb sense: predict/estimate/guess) (4.6.6.: 3000 level).
40. I assume full responsibility (verb sense: take over/responsibility) (4.3.13: 3000 level).
41. I assume you are well educated (verb sense: suppose sth to be the case) (1.8.15: 2000 level).
42. Assume that you are the prime minister (verb sense: suppose sth to be the case) (4.6.16: ACAD)

It was revealed that the learners have a tendency to choose certain patterns such as [that CL] [zero that-CL] and certain verb meanings such as ‘suppose or expect sth to be the case’ and ‘predict/estimate’.

In addition to the aforementioned findings, in the analyses of learner responses, a number of unacceptable and problematic uses in sentence completion and Sentence Production Tasks are identified in the use of the verb *assume*. These uses can be summarized as the wrong choice of the complementation pattern, wrong choice of prepositional phrases as complementation pattern, and pattern-meaning mismatch.

43. He assumes that he is king in our neighbourhood (sense explained by the learner: take over/responsibility) (1.8.3: 5000).
44. I assume that I am a good man (sense explained by the learner: want) (4.6.16: ACAD).
45. Let's assume that aliens live with us in this world (sense explained by the learner: pretend to be) (4.8.23: 3000 level).

In addition to these errors, wrong choice of prepositional phrases as complementation pattern of *assume* is one of the most common errors. *assume to*, *assume of*, *assume on*, *assume as*.

46. Assume me as a friend (4.5.5: 3000 level).
47. We can't assume on engineers and engineering technologists rely solely or even primarily on traditional technical skills (1.8.15: 2000 level).
48. We assume to receive applications (1.4.16: 5000 level).
49. You won't assume of me for that situations (1.6.10: 2000 level).

As shown in the aforementioned examples, the learners were found to choose unacceptable patterns in the use of the verb *assume*.

4.3.4. Learners' choice of verb senses and verb complementation patterns of the verb *suppose*

In order to reveal an overall picture of the learners' choice of verb complementation patterns and related verb senses for the verb *suppose*, the learners' responses to Sentence Completion Task were analyzed in terms of the following categories: acceptable use, unacceptable use, problematic use and no answer and frequencies and percentages with respect to each category were calculated for the learners' acceptable answers to Sentence Completion Task.

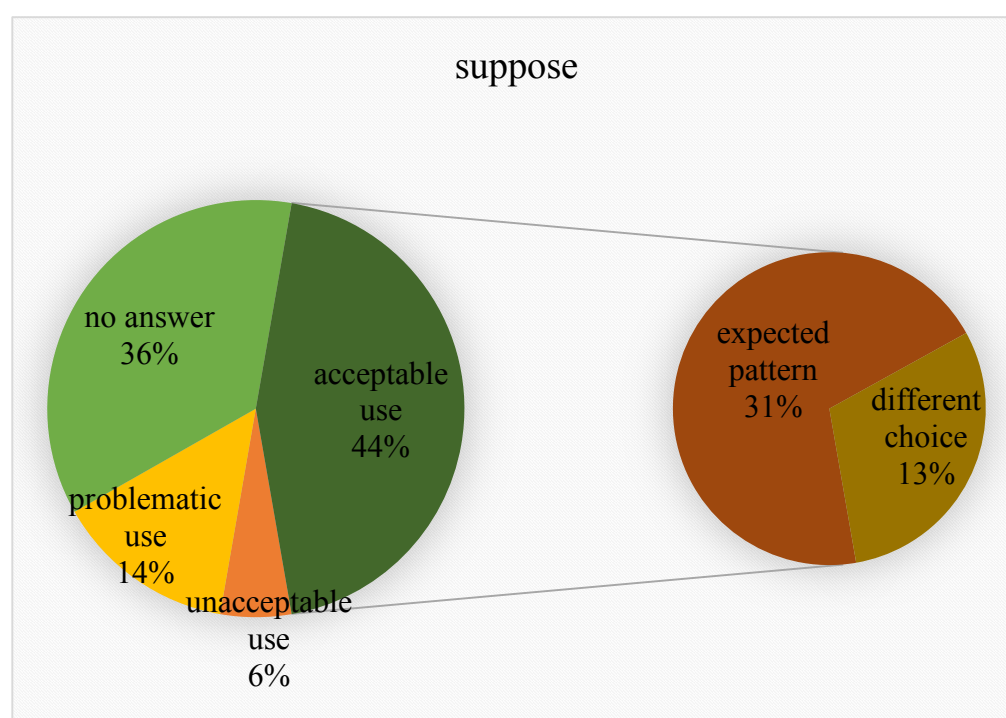


Figure 4.6. Learners' use of the verb '*suppose*' in Sentence Completion Task

As shown in Figure 4.6, the findings with respect to the use of *suppose* show that acceptable use is 44% whereas unacceptable use is 6%, problematic use 14% and no answer 36%. Different from the verb *think*, the learners showed a tendency to choose the expected patterns (31%) rather than preferring different patterns (13%). In order to get an in-depth picture and to reveal the patterns preferred over the others, an examination of item-based syntactic analysis of the learner responses to Sentence Completion Task was conducted as shown in the table below:

Table 4.8. *Syntactic analysis of the responses for the verb ‘suppose’ in Sentence Completion Task*

		suppose			
		Item7		Item13	
		[that-CL]		[zero that-CL]	
		N	%	N	%
Acceptable use	Expected pattern	29	7.96	84	23
	Different choice	20	5.49	29	7.96
Unacceptable use		8	2.19	12	3.29
Problematic Use		33	9.06	18	4.94
No Answer		92	25.2	39	10.7
Total		182	50	182	50
TOTAL	N	364			
	%	100			

As shown in Table 4.8, the findings of the analysis of the responses provided sentences with *suppose* show that the learners (25.2 %) were unable to provide a response one of the items (item 7) and provided unacceptable (8%) or problematic (9.06 %) responses whereas they provided expected pattern in the other item (i.e. item 13).

50. And we have involved faculty members as colleagues as we have attempted to influence their teaching techniques in in-service programs. Suppose_____. It should; most of the new textbooks I see suffer from the same inadequacies that spoil the books that the New Social Studies were supposed to supplant (Item 7 -Sentence Completion Task).

In example 50, the learners were expected to provide the following answer: “*that society sponsored a new schooling decade*”. For this item, the learners provided answers such as “*suppose that all of the books are adequate for the studies* (4.6.19: 3000 level)” and “*suppose they stop using all the new textbooks*” (4.8.9: ACAD level).

Considering the frequencies and percentages of *suppose* across verb senses and verb complementation patterns in Sentence Production Task, it is important to note that as some of the learners wrote down the sentence and did not explain the sense of the verb, 12 sentences (that-CL: 6, zero that-CL: 6) were included in the syntactic analysis, but they were omitted in the semantic analysis. There was a strong preference for the use of [that-CL] (44.6 %) and [zero that-CL] (38.5 %). Verb sense types frequently used with the verb *suppose* are ‘*believe- express one’s belief of view, consider as suggestion, hypothetical, to have a duty or responsibility*’. Among these senses, the learners showed a tendency to use *believe- express one’s belief or view* with a high percentage (67.6 %). Besides this sense, they also used *suppose* to denote a hypothetical case (15.5 %), to have a duty or responsibility (15.1 %). Percentages of all other types in verb patterns and senses are comparatively small (See Appendix V for Syntactic and Semantic Analysis of

suppose in Sentence Production Task). A number of learners' use of verb complementation patterns and senses are exemplified below:

51. I suppose that you are very good at dancing (verb sense: believe/ express one's view) (4.5.6: 2000 level).
52. I suppose you will be here on time (verb sense: consider probable or likely) (1.2.15: 5000 level).
53. Suppose that you got lost in the woods. What would you do? (verb sense: hypothetical/imagine) (1.1.1: 3000 level).
54. The students are supposed to be in the class before the teacher arrives (verb sense: to have a duty or responsibility) (4.5.11: 5000 level).

In the examples provided above, the learners explained a range of verb senses such as *believe/ express one's view, to have a duty or responsibility, imagine, and consider probable or likely*. In addition to their acceptable uses, their responses were analysed in terms of their unacceptable and problematic uses. It was revealed that the learners produced wrong choice of prepositional phrases as complementation pattern as shown in the following examples:

55. I suppose to you go to Istanbul (1.6.17: ACAD level).
56. I don't suppose you to have a chocolate milkshake in your pocket (1.8.15: 2000 level).

Another problematic use is that learners could not explain the appropriate verb sense for the verb *suppose*.

57. She supposed that I would not return from the Rome (sense explained by the learner: claim) (1.4.5: 3000 level).
58. I don't suppose you to let your child study at this school (sense explained by the learner: advise: 1.6.9: ACAD level)

As shown in example 57, the learner use the appropriate verb complementation pattern however they explain the verb sense as '*claim*', which is unacceptable whereas in example 58, learner did not make of correct choice of verb complementation pattern and verb sense. As seen in this example, the learner use [to INF] as the complementation pattern of *suppose* and explained the verb meaning as '*giving advise*', which are both unacceptable.

CHAPTER 5

5. DISCUSSION AND CONCLUSION

5.1. Introduction

In this chapter, the findings of the study are discussed in the light of the relevant literature concerning properties of inherent verb meanings and patterns, grammaticalization, and concerning L2 acquisition process, the role of contextual information, possible L1 transfer in L2 lexis, language internal interference, and avoidance.

5.2. Discussion of the Results

To begin with, it is indicated that effect of L1 knowledge, the amount of exposure to L2 input, and properties of inherent verb meanings in L2 affect the acquisition of verb subcategorization frame patterns (Tono, 2004). For this reason, relating the learners' preferences of verb complementation patterns and verb senses with regard to the aforementioned factors is needed.

With regard to the slight difference between 1st and 4th year students, there is a difference between the expected and obtained results because the expected result would probably be 4th year students' much higher performance at all tasks. This difference may be due to the fact that mental lexicon is the "...passive store of declarative knowledge about words" (Levelt, 1989, p. 185) "learning words is a recursive process and does not occur instantaneously" Gass & Selinker (2008, p.466). In their study related to the acquisition of grammatical structures, Hanania and Gradman (1977) indicate that semantic saliency and grammatical complexity of the structure, learners' readiness, their limited meaningful exposure, and little pressing need to use language are factors affecting their acquisition process. Considering these variations, personal differences and diverse characteristics of the learners in terms of their competence and performance levels may differ from each other. Because the results of the study showed that regardless of the year of study, the learners differ in terms of their vocabulary levels. The results indicated that the learners with high vocabulary level (5000-word level) also performed better in all tasks. This result may be due to their personal involvement in language apart from the classroom and their mental lexicon may differ from each other. The variations in their

characteristics such as the use of internet, extensive reading, their personal experiences (e.g. interaction with native speakers, etc.) may also have an effect on their differences.

Another notable finding is that learners' achievement was much better in their state of knowledge considering production level compared to the reception level. Since receptive performance may be expected to be higher than or close to productive one, the results are checked once more and based on the further analyses, the learners are found to perform better in Sentence Production Task compared to other tasks. This result may possibly be attributed to the nature of the tasks. More specifically, Grammaticality Judgment Tasks may not provide a sensitive evaluation (about whether or not a sentence is grammatical) of a learner's developing linguistic abilities, rather, they elicit a response indicating the learner's belief about the L2 grammar (Munnich, Flynn & Martohardjono, 1994, p. 229). Considering the fact that even native speakers may have difficulties in identifying between grammatical vs. ungrammatical items, the results of the study regarding learners' achievement in GJT may be affected by this inherent nature of the task. Another possible reason may be due to the nature of Sentence Completion Task. The learners were expected to provide an answer considering contextual clues in this task. In developing the tasks, contexts were carefully chosen, nevertheless, other linguistic elements in the surrounding context might have a debilitating effect on their responses.

Based on the findings of the study, the learners were found to choose a number of patterns and verb meanings over the others. These preferences can be attributed to the inherent properties and nature of the verb. For example, rather than choosing [to INF] as the complementation pattern of *think*, the learners preferred using [that CL]. This tendency may be attributed to the fact that *think* chooses [that CL] as part of its inherent properties (based on the verb entry information in Valency Dictionary of English). More specifically, according to Valency Dictionary of English, more than 30% (shown as '>30%' in the dictionary) of the verb *think* chooses [that CL] as the complementation pattern. Another reason may be the exposure of language input and its nature. For example, In Longman Grammar Corpus, that-clauses are found overwhelmingly the most common type of complement clause in conversation, while to clauses, wh-clauses, ing-clauses are relatively rare in academic prose, wh-clauses are only moderately common in conversation and fiction, but they are quite rare in news and academic prose (Biber & Xeppen, 1998, p. 150). Consequently, the learners' exposure to literary genres, which includes examples of spoken language, their use of internet as a spoken medium, their

exposure to English films and popular serials may have an effect on their choice of verb complementation patterns along with its related verb senses.

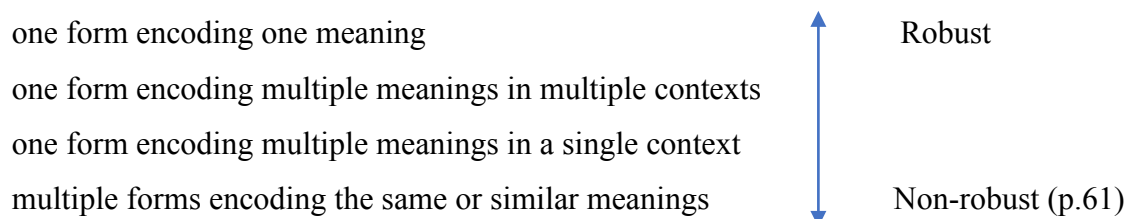
In relation to the inherent choice of verbs, Faulhaber (2011, p. 137) points out that the verbs *consider*, *think*, *reflect*, *ponder*, *contemplate*, and *judge* can all be used more or less synonymously when complemented by +[that-CL] or +[Q/S] (Quote/Sentence). Learners' tendency to use [that-CL] may be attributed to this fact. They further argue that other uses than [that-CL] are more restricted:

+ [that-CL] all
 + [Q/S] ?*contemplate*
 + [NP] *reflect* = 'mirror', *consider* = 'consideration', *judge* = 'assess'
 + [wh-CL] *judge* = 'assess'
 + [wh-to-INF] **reflect*
 + [V-ing], **think*, *?*judge*, *consider* = 'consideration', *reflect* = 'mirror'
 + [to-INF] **consider*, **ponder*, **contemplate*, **reflect*
 + [so/not/otherwise] ?*consider*, **reflect*, **ponder* (p. 148).

These selectional restrictions of *think* may also affect the learners' tendency use that pattern as semantic properties and syntactic-semantic canonical relation determine the choice of certain patterns over the others (Conie & Annie, 1996). More specifically, as suggested by Conie and Annie (1996), if the verb is inherently mental-utterance, for example, verbs such as *believe*, *know*, *imagine*, *realize* and *find*, even though the verb allows both the [that-CL] and the infinitival complement, there would still be a preference for the that-clause over the infinitival clause. Results of the current study also revealed a similar tendency in that the learners mostly preferred mostly either [that-CL] or [zero that-CL] as the complementation patterns of *believe*, rather than choosing [WH-CL] and [NP]. With respect to the L2 learners' choice of certain patterns over the others, Biber and Xeppen (1998) revealed that the learners with different L1 backgrounds choose [to INF] rather than that-clauses, ing-clauses, and WH-clauses in their texts (in Longman Learner Corpus). They further indicate that to-clauses are more noteworthy, being much more common in French, Spanish, Chinese, and Japanese learners' essays than they are in any of the native registers. Therefore, this tendency towards the use of [that-CL] should be further examined.

While the learners prefer certain patterns and verb senses over the others, they seem to avoid using some patterns and senses. For example, one of the notable findings is that the learners did not produce sentences by using the verb *assume* for some of the items in sentence completion and Sentence Production Task. This finding may be

attributed to the relatively less occurrence of this verb in language (based on the occurrences in COCA) compared to other verbs such as *think* and *believe*. In discussing the variability dimension of input robustness, Han (2014, p. 61) argues that robust input is [+frequent] and [-variable], whereas non-robust input is [-frequent] and [+variable] and proposes the following scale:



In their definition, frequency refers to the number of times a given form appears in the input, variability concerns the form-meaning function relation intrinsic to that form (Han, 2014, p. 61). Considering aforementioned arguments and the fact that frequency plays an important role in vocabulary acquisition (Schwartz & Causarano, 2007), less use of the verb *assume* can probably be accounted for its infrequency and non-robustness in language. The underlying reasons for the difficulties faced by the learners may probably be their avoidance of the target item and their less exposure to *assume* and *suppose* compared to other verbs such as *think* and *believe*. In the literature, it is suggested that “what is avoided is typically a target language word or structure that is perceived as difficult by the learners and what is used instead is an expression that they find in some sense simpler and that conveys more less the same content as the expression initially envisaged” (Laufer & Eliasson, 1993, p. 36). This avoidance may be attributed to the following factors:

- a) difference between LI and L2;
- b) identity between LI and L2, which is construed as difference by the learner;
- c) inherent complexity of the avoided item (Laufer & Eliasson, 1993, p. 37).

Levenston (1979) proposes that L2 learners would show a tendency not to use lexical verbs for which there is no direct translation equivalent in the LI, and the learners would project their LI lexical knowledge onto their developing interlanguage lexicon.

Expressing verb senses in Sentence Production Task seem to be problematic for the learners. The learners were observed to have challenges in explaining verb sense to the sentences they formed. This seems to stem from the fact that language learners experience challenges as English language offers a great variety of semantically similar

complement patterns (Martinez-Garcia & Wulff, 2012). They receive the input from different sources, but they do not seem to internalize the senses though they internalize the form, and they have not yet completed the form-meaning relationship. The learners need to internalize syntactic rules, verbal and nominal paradigms, and other descriptions of linguistic features of language (Van Patten, 1996).

Additionally, the results of the study showed that the learners performed better in tasks examining their state of knowledge at productive level compared to their state of knowledge at receptive level. This finding can probably be accounted for their challenges in making sense of the contextual information provided in sentence completion and Fill-in the Blanks Tasks. In parallel to the aforementioned views, verb complementation and its complex variant nature cause also difficulties for the L2 learners in terms of their acquisition (Vercellotti & Jong, 2013) and their anomalous and polysemic nature seem to create challenges for the learners. These views may support the finding that the learners had difficulty in understanding the contextual information and providing answers to task items that require making sense of the contextual clues.

With respect to the nature of the verbs, grammaticalization may be another reason of the challenge creating aspect. Grammaticalization is defined as “the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions, and once grammaticalized, continue to develop new grammatical functions” (Hopper and Traugott 2003, p. 18). In the literature, it is indicated cognitive verbs are assigned the ‘status of parenthetical’ (Fetzer, 2008, p. 5) when they are used with first person subject and parenthetical expressions, like comment clauses proposed by Quirk et.al. (1985), have pronoun verb combinations such as *I think*, *I guess*, *I believe*, *I suppose*, etc. In the same vein, it is pointed out that complement-taking mental predicates such as *I think*, *I suppose* are subject to a process of grammaticalization (Van Bogaert, 2011), and *I think* followed by zero complementizer denote parenthetical meaning and the expression can be regarded as a pragmatic marker (Palander-Collin, 1999). The process of gaining novel meanings and functions may create a dilemma for the learners along with their crude knowledge over verb complementation patterns. For example, *I think* has grammaticalized into an epistemic parenthetical, rather than its “original function of subject plus verb introducing a complement clause” (Tagliamonte & Smith, 2005, p. 304). Verbs of cognition grammaticalize into ability markers, habitual markers, temporal markers (Rhee, 2001). These verbs predominantly form epistemic marking function

mostly encoding evidentiality (Rhee, 2001). In this regard, Perkins (1983) indicates that expressions such as *I think*, *I presume*, and *I suppose* are syntactically versatile and these verbs have a close affinity with modal adverbs. Learner's interlanguage seems to benefit from the grammaticalization as the results of the current study indicate the learners have a strong preference for using *think* to express personal opinion (64.4 %) with [that CL] (11%) and mostly with [zero that-CL] (51.6 %) and for using *believe* with [zero that-CL] rather than [that-CL], [NP], [wh-CL] complementation patterns.

Considering the fact that verbs with multiple meanings are associated with multiple lexical semantic representations (Rappaport Hovav & Levin, 1998), the reflection of these representations of the learners' interlanguage is suggested to be examined in detail. In the literature, in their study based on lexical semantics, Ard and Gass (1987) examined whether the learners started off with general rules of syntax, or whether they were more reliant on patterns of phrase structure acquired on a verb by verb basis. They revealed that learners at low levels start with more syntactically uniform whereas higher level learners respond with respect to the differences in verb semantics. They further indicate that the learners start off by learning words as bare items (i.e. without recording the subcategorization), resulting in syntactic generalizations and as word meaning becomes clearer, so does the knowledge of the syntax associated with it.

The results of the study also showed that there are erroneous uses such as the use of indirect questions, wrong choice of prepositional phrases as complements, and pattern-meaning mismatch. Possible reasons of these uses may be the learners' use of a word for which they do not have the appropriate subcategorization frame, the learners' use of dictionaries which do not provide sufficient examples for common subcategorization frames for the verbs, different lexical entries for learned systems, interference with the subcategorization of the L1 counterpart, semantic similarity to another English word with a different subcategorization frame (Hubbard & Hix, 1988, p. 95-96).

Based on learner responses, they were found to violate the rule regarding the use of indirect question with cognitive verbs and they had challenges in cancelling inversion and as a result they produce sentences such as "*think about where do you want to go*". According to the developmental sequence for English suggested by Pienemann (1998), cancelling inversion is the latest word order step as shown in the table below:

Table 5.1. *Developmental sequence for English word order, including English negation, according to Processability Theory (Based in Pienemann, 1998-Table 4.1. on p. 51)*

Timing	Word order steps	Illustration	Corresponding morpheme sequence
1.	Single word formulae	How are you? Hello.	
2.	NEG+SVO (external, anaphoric)	No me live here.	past -ed plural -s, progressive -'s plural agreement -s
3.	Fronting (Neg+X, Do+X, Adv+X)	He no stay here.	
4.	Inversion (with y/n, copula)	Have you seen him? Where is he?	
5.	Inversion elsewhere (don't +V)	Why didn't she eat that? Why didn't you tell me?	3 rd person -s
6	Cancel inversion	I wonder what he wants to eat.	

As for the wrong choice of prepositional phrases as complements such as “*believe to/up, think on, assume to/of/as, suppose to*” found in learner responses both in sentence completion and production tasks, this problematic aspect may be attributed to language internal interference. Bhatia (1974) considering internal interference among one of the factors affecting learner errors, classified the reasons of errors as follows: negative motivation (a psychological problem), direct interference of the first language, and interference of the target language (internal interference). In the literature, internal effect of the target language is interpreted as one of the reasons of errors (Bhatia, 1974; Dusková, 1969; Falk, 1968; Hussein, 1971; Selinker, 1969; Wilkins, 1968; Wolfe, 1967) Standish (1973, p. 105) propose that language internal interference is more important than external interference (interference from the native language). With regard to the learners’ errors stemming from this interference, it is pointed out that when the learners do not know a correct form, they will make up a form that does not exists either in their native or target language (Wolfe, 1967; 181). This case of creation of their own structures is called ‘construction of a subgrammar’ (Falk, 1968). In the literature, common verb complementation errors in learner language are found to be related to the use of transitives used as intransitives, intransitives used as transitives, incorrect passive of transitive verb, stative verbs in the progressive, fixed particle moved, dative movement errors, intrusive be, gerund complement for infinitive, infinitive for gerund, infinitive marker on naked infinitives, tensed that-complement for untensed, preposition missing, preposition added, incorrect preposition (Hubbard & Hix, 1988).

Some of the problematic uses may possibly be attributed to L1 transfer or incomplete mastery of this verb in their mental lexicon as confusion or incomplete

mastery of the grammatical system of a language may result in erroneous uses by the learners (Meriö, 1978). Scholars argue that L2 learners will make use of ready-made hypotheses based on L1 lexical rules or features wherever they perceive them to fit the available L2 data (Adjemian, 1983). Studies conducted with the learners from different L1 backgrounds show that clausal complements were the easiest complement type for Persian speakers but ranked midway between infinitives and gerunds for Spanish and Japanese speakers (Anderson, 1983). The reason for this difference was attributed to multifunctional nature of “that” (e.g., a demonstrative pronoun, a determiner, a complementizer, etc.) and to the complexity of verb. Differences in the learners’ proficiency level seem to be another reason behind their use of verb complementation patterns and their related verb senses. As far as the results of the present study are concerned, it was revealed that the learners with high vocabulary levels performed better in all tasks. Scholars argue that the learners benefit from similarities of certain structures shared by the L1 and L2 at initial stages whereas they recover from overgeneralization errors at advanced stages and acquire categories which do not exist in their L1 (Tono, 2004). Besides, the learners’ hypotheses in terms of syntactic frames seem to stem from learners’ L1 (Bley-Vroman & Yoshinaga, 1992; Inagaki, 1997). For example, Inagaki (1997) examined the role of input in the acquisition of verb meanings and syntactic properties of these verbs used by Japanese learners. They revealed that *tell* verbs were distinguished more successfully by the learners compared to *throw* verbs as *tell* verbs occur more frequently in learners’ input. Biber and Xeppen (1999) in their study focusing on the analysis of complement clauses in native and non-native texts revealed that that-clauses and to-clauses were much more common in non-native learners groups (i.e. French Japanese, Chinese, Spanish) than in any native register and these differences are attributed to reflection of a kind of transfer (p. 150).

Based on the results of the study, a number of unacceptable uses such as ‘*Erasmus programme is thought as an exchange programme*’ are found in learner responses. In English, “*think* normally seems to need the particle *of* when the particle *as* is used” (Faulhaber, 2011, p. 163). Considering the learner responses to the tasks, this rule is violated. In Turkish, sentence-initial verbs such as *think* and *understand* are used to mark either the speaker’s desire, wishes or varying degrees of commitment to the truth of the state of affairs or proposition in the complement clause, and the speaker’s surprise of an unexpected event in the proposition of the complement clause (Turan, Aslan, Corga,

2014, p.148). Besides, a comma is used after the verb *I think* in Turkish when it is used in sentence initial position. This tendency is also observed in the learners' production. The use of comma after *I think* and *I believe* may possibly be attributed to their L1. The learners may have access to lexical information in the L1 lexicon and they may transfer a lexical rule or lexical feature from L1 into the learner-grammar lexicon (Adjemian, 1983).

As a result of transfer from their L1, the learners experience challenges in establishing form-meaning mappings and they cannot move away from form-function mappings they acquired in their native language (Deshors, 2015). This form-function experience of the learners represents a “*processing bias*” for non-native speakers and causes them to produce patterns that deviate from the native form (Ellis & Sagarra, 2011, p. 593). In parallel to the aforementioned studies, Martohardjono and Flynn (1995) focus on the L2 acquisition of the infinitive and the *that*-clause in English by Japanese, Chinese and Spanish speakers. Based on their analyses, they provide the following differences across different languages:

- i. Japanese has finite clauses but not infinitives.
- ii. Chinese has finite clauses with an aspect marker *le*, but not infinitives as there is no morphological marking to determine this.
- iii. Spanish has both finite and non-finite clauses, but no infinitive is allowed with certain verbs such as *tell* and *remind*.

Considering the aforementioned differences across languages, if L2 learners rely on L1, in the acquisition of infinitive structures, native speakers of Chinese and Japanese should prefer finite over infinitival clauses. Native speakers of Spanish should show a preference for finite clauses with *tell* and *remind* as those verbs do not take infinitive in the L1. Their overall suggestion is that there is a universal preference for the infinitival complement to that clause, independent of the native language of the learners (Martohardjono & Flynn, 1995). Widest variety of subcategorization errors were found to occur with verbs, these errors predominantly semantic in nature while there are also syntactic errors (Hubbard & Hix, 1988). As these lexicogrammatical errors are not dealt with systematically at both earlier stages and at more advanced levels and as they stem from incomplete knowledge of the word in question (Hubbard & Hix, 1988), recognizing their nature is crucial in order to prevent the learners from overgeneralizing and fossilising the rules.

With regard to the second language acquisition research, Bardovi-Harlig and Bofman (1989) indicate that many of the studies of grammatical development could be classified into two: “studies that examine formal features and studies that seek to gauge overall progress by a developmental index” (p. 18). The current study is in the second category as it aims to shed light on verb complementation use and interlanguage characteristics of Turkish EFL learners at receptive and productive level. The present study is also novel in that both context-bounded and context independent behaviours of verbs in terms of their complementation patterns in learner language was examined. According to scholars focusing on lexical semantics research, selection restrictions on verb arguments can only define default situations for verb events, and are often overridden by context information (Wu & Palmer, 1994, p.138). Focusing on both controlled (context-dependent) and free contexts seem to provide valuable insights into the verb complementation patterns and their meaning variations in learner language.

5.3. Conclusion

5.3.1. Summary of the study

The current study aimed at shedding light on the appearance of verb complementation patterns and verb senses of non-factive cognitive verbs in the learners’ interlanguage at both receptive and productive levels. This study focused on achievement level of the learners at recognition and production tasks and the preferences of the learners regarding verb complementation patterns and their related verb senses. An embedded mixed methods research design study was used to supplement the findings of quantitative data with the results revealed in qualitative data analysis. A total of 182 learners participated in the study. The participants of the study were 1st and 4th year students majoring at English Language Teaching Department at Anadolu University. In order to equalize and homogenize the participants, Vocabulary Levels Test (VLT) revised by Schmitt, Schmitt and Clapham (2001) was utilized. The results of the VLT were analysed and it was found out that there were 53 participants at 2000-word level, 56 participants at Academic word level, 127 participants at 3000-word level, and 77 participants at 5000-word level. The data gathering instruments, which were Sentence Production, Sentence Completion, Fill-in the Blanks, and Grammaticality Judgment Tasks, were developed by the researcher by searching for the keywords (i.e., *think*, *believe*, *assume*, and *suppose*) and by making use of the contexts in Corpus of Contemporary American English.

Sentence production and Sentence Completion Tasks were used to decipher the learners' language production and performance levels whereas fill-in the blanks and Grammaticality Judgment Tasks were used to address students' language recognition, competence levels. Verb entry information for each verb in the Valency Dictionary of English was examined in terms of verb complementation patterns and information regarding their related verb senses and inherent semantic and syntactic properties of verbs were used both in the design of data collection tools and in the analyses of learner responses to the tasks.

Regarding the first research question examining the learners' achievement levels at recognition and production tasks, each test was evaluated on a basis of 100 points. In order to see the effect of the year of study on the total test score of students, MANOVA was run based on the scores they got in each task. Based on the results, 4th year students performed higher at all tasks compared to the 1st year students. The most notable difference among the tasks was their scores in Fill-in the Blanks Task, 4th year students performed better. As these learners were mixed in terms of their characteristics, in order to get an in-depth picture, results were examined again taking vocabulary levels of the learners as a basis. Participants from 5000-word level performed better in all tasks. There was a difference between the results of 2000 and 5000-word level students in sentence completion and in Fill-in the Blanks Tasks. No difference was revealed between other groups.

In terms of the second research question which was addressed to investigate preferences regarding verb complementation patterns and their related verb senses, the learners were found to choose a certain patterns and verb meanings over the others. For example, in Sentence Completion Task, the learners were able to provide the expected pattern in sentences with *think* (35%) whereas there existed different choices (32%) in terms of the use of *think*. There found to be a tendency to choose [that-CL] or [zero-that CL] as the complementation pattern of *think* instead of choosing [to INF]. In Sentence Production Task, the learners had a strong preference for using *think* to express personal opinion as a verb sense and have a tendency to use [zero that-CL] as a complementation pattern in Sentence Production Task.

Another notable finding was that the learners showed a tendency to choose different patterns (56%) rather than the expected patterns (16%) of the verb *believe*. The most striking finding for this verb was that there was not a clear tendency in the use of

believe with [that-CL] and [zero that-CL], the learners showed variation in their choices and they preferred using [Prep N] and [NP] as the complementation pattern of the verb *believe* in Sentence Completion Task. In terms of the use of *believe* in Sentence Production Task, the learners preferred using [Prep N-in NP] to denote senses such as *religion and to believe another person, trust, have confidence*. As for the use of *assume*, it was revealed that the learners showed a tendency to choose different patterns (30%) rather than the expected patterns (23%) and the learners preferred to use [that-CL] rather than using [zero that-CL] in one of the test items whereas they used [zero that-CL] rather than [that-CL] in three items. Verb complementation pattern used with *assume* is [that-CL] and the main verb sense was *suppose or expect something to be the case* in the Sentence Production Task. Lastly, the learners showed a tendency to choose the expected patterns (31%) rather than preferring different patterns (13%) in the use of *suppose* in the Sentence Completion Task. As for their responses in the Sentence Production Task, there was also a strong preference for the use of [that-CL] and [zero that-CL] as the complementation pattern of *suppose*, and the learners showed a tendency to use *believe, express one's belief or view as the main verb sense*.

Results regarding learner responses to the Sentence Completion Task indicate that acceptable use was more frequent is the use of *believe* whereas unacceptable use was salient is the use of *think* in the Sentence Completion Task. The learners did not provide answers in the verbs *assume* and *suppose*. They were able to provide the expected pattern in sentences formed with *think* and *suppose* whereas they provided different and acceptable choices in sentences formed with *believe* and *assume*. The most frequently problematic use was found in the sentences formed with *believe*. One of the most notable findings about learner responses in Sentence Production Task was that no answer category was frequent in the verb *assume*.

Consequently, considering the learners' responses to sentence completion and Sentence Production Tasks, it is possible to say that common unacceptable and problematic occurrences are inappropriate use of indirect questions after the verbs, pattern-meaning mismatch, and possible literal translation from their L1, and erroneous complementation patterns such as the wrong choice of [Prep N] complementation pattern.

5.3.2. Pedagogical implications

Considering the fact that verbs are the key to the sentence and the verb phrase is the head of a sentence and the verb is the head of the verb phrase, a significant portion of the

grammar of a language is covered by teaching verbs and the structures they directly govern (Hubbard, 1994, p. 65). Considering this significance, the learners may experience a number of challenges because of the inherent complexity of the verbs. For this reason, focusing on both verb complementation patterns and related verb meanings is needed in the teaching process. In the literature, it is suggested that much of syntax is learned as a by-product of the semantic relations that underpin the meanings the learner needs to communicate (Ard & Gass, 1987, p. 250), thus, learning a language becomes a matter of establishing an L2 mental lexicon (Little, 1994). As Hubbard (1994) also states, form-meaning relations should be handled together in order to develop such a lexicon.

Factors operating on second language vocabulary acquisition are general constraints on information processing, the communicative importance of target words, the input frequency of target words, the formal complexity of target words (Meara, 1984) and cross-linguistic influence (Schlyter and Viberg 1985). A number of erroneous uses such as wrong choice of the complementation pattern, wrong choice of prepositional phrases as complementation pattern, and pattern-meaning mismatch have probably close connections with these factors.

As a result of such factors, the learners make choices for every L2 grammatical structure and they also make bad choices, and these bad choices will accumulate in time; even interlanguage system will stabilize if too many bad choices are made (Pienemann, 1998, p.326). In order to prevent the stabilization of these bad choices, erroneous and unacceptable uses may be explicitly introduced and discussed.

Based on the findings of the study, despite the learners choose appropriate complementation patterns, they seem to have challenges in using related verb senses within the context. Therefore, verb complementation patterns and verb senses should be taught by using contextual information leading to the appropriate choice. Adopting such an approach might be useful as “the examination of the different syntactic realizations of complements within the wider context of the lexicon gives information regarding the restrictions on the possible set of operators, and provides the means to account for different complement forms of the same predicate” (Faber & Usón, 1999, P. 122).

With regard to the presentation of different complementation patterns for the same verb sense is exemplified below. These examples are extracted from Valency Dictionary of English.

Table 6.1. Example verb senses provided in *Valency Dictionary of English* for the verb *think*

Verb sense	Example Sentence
consider, remember	• They never <i>thought</i> to give it a different name. • You don't <i>think</i> about how much you are actually paying for the things you buy. • I can't <i>think</i> of a certain concrete example.
engage in thought, have an opinion on something or believe something to be the case	• It is no good <i>thinking</i> negative thoughts about other people. • I've never <i>thought</i> why I like something or why I don't like something. • I never really <i>think</i> about creativity.
have an opinion on something or believe something to be the case	• Those who <i>think</i> him a poet rather than a philosopher do so because of this style. • The agreement is <i>thought</i> to include the safe release of the hostages. • What do you <i>think</i> of the photograph? • One always <i>thinks</i> George Orwell as a great polemicist. • I don't <i>think</i> that that is entirely true.

As seen in Table 6.1, the variations in terms of verb complementation patterns may be introduced along with their related verb senses. Different verb complementation patterns may be used for encoding the same meaning, so the subtle differences may also be explained to the learners. For example, verb complementation patterns of *think* such as [to INF], [about NP], and [of NP] are used to denote *consider* and *remember* verb meanings besides its common meaning as *expressing personal opinion*. Such form-meaning relations may be explicitly taught and the learners may be guided to pay attention to the structural and semantic properties of the verbs. Adopting such an approach may probably enable the learners to notice variation in the use of verb complementation patterns and verb senses as verbs that have similar syntactic frames are also the verbs that behave alike semantically (Gleitman, 1990). It may also enhance their awareness in terms of the properties of other verb classes such as verbs of communication, emotion, etc. and expand these rules in their mental lexicon. For example, the semantic grouping of mental verbs (e.g. *think*) was predicted by acceptance of that-clause complements, and the semantic grouping of transfer verbs (e.g. *give*) was predicted by acceptance of three noun phrases within the clause.” (Gleitman, 1990). In this respect, the variations in verb complementation and their verb senses should be involved in the instructional programs and introduced to the learners at each stage as they encounter every exemplar regardless of the stage.

In line with the aforementioned suggestions, presenting structural properties along with semantic properties is crucial. According to a lexicalist approach to semantics, a

verb completely encodes its syntactic and semantic structures, along with the relevant syntax-to semantics mapping (Lin, 2004). Thus, a lexically driven grammar is suggested instead of introducing syntactic formulas (Hubbard, 1994) as separation of form and meaning poses challenge for language learners (Little, 1994, p. 104) and a purely syntactic treatment of the issue is inadequate (Choi & Annie, 1996).

Considering the fact that the variation in syntactic context correlates with variation in meaning (Rappaport Hovav & Levin, 1998), these variations may be introduced explicitly to the learners. The rationale of the need for explicit instruction is that learners confronted with a target language sentence they do not at first understand can use explicit knowledge of syntactic structure to locate the source of their difficulty, which they can then overcome, perhaps by referring to a dictionary (Little, 1994, p. 104). Because mere exposure to L2 input is insufficient for identifying abstract grammatical features through mapping the form, and its meaning and function, explicit instruction might be beneficial (Kondo & Shirahata, 2015). As Hubbard and Hix (1988) indicate, teachers, particularly writing teachers of students beyond the beginner's level; need to be aware of the source of these errors so that they can distinguish them from other types of grammatical errors and more effectively help their students to overcome them. Consequently, rather than an item-based presentation and providing exhaustive lists, a pattern-based approach that unites verb complementation patterns and verb senses would be helpful to the learners. In that way, two crucial questions are addressed: 'How is this word used?' and 'What other words are used in the same way' (Hunston & Francis, 1998). In this regard, a pattern-based approach to word behaviour is likely to be useful to teachers devising consciousness-raising activities, particularly those based on authentic written or spoken texts (Hunston & Francis, 1998). Besides, learners' attention may be drawn to the following points:

- words tend to occur in more-or-less typical phraseologies;
- meaning and patterning are connected;
- grammar and lexis cannot be treated as distinct phenomena in a description of English (Sinclair, 1991).

As learning what words can come after verbs is usually more difficult than learning the meaning of the verbs and particularly learning to use complex verb phrases is typically one of the biggest challenges for learners of English (Kennedy, 2003), prioritizing this aspect in language learning and teaching process is needed. As Biber and

Xeppen (1999) suggest, several aspects of use are disregarded by both reference and ESL/EFL grammars and the following questions are not addressed:

- Which structural types of complement clause are common and which are rare?
- Are these structures found primarily in speech or writing?
- Are any particular verbs especially common controlling complement clauses?
- If two structural variants mean essentially the same thing, what factors influence the choice between them? (p. 147).

So, including such information in the reference grammars and books will be helpful to the students. Comprehensive reference grammars presenting structural and semantic properties of verb complementation patterns should also be used. Besides, as Coady (1993) states, knowing a word involves:

- knowing the degree of probability of when and where to encounter a given word and the sorts of words to be found with it [collocations],
- the limitations imposed on it by register [register],
- its appropriate syntactic behavior [grammatical properties],
- its underlying form and derivations [morphological behaviours],
- the network of associations it has [associative meanings],
- its semantic features, its extended or metaphorical meanings [senses], and so on (p. 13).

As a conclusion, it can be stated that considering the fact that knowing a word includes knowledge of a number of complex semantic and syntactic properties, the learners' lexical knowledge may be enriched and expanded by teaching these aspects explicitly within the context. This approach will help learners to expand their L2 lexicon.

5.3.3. Suggestions for further research

The present study can be viewed as a starting point for future research on the appearance of verb complementation patterns and verb senses in EFL learners' interlanguage. It would also be worth investigating whether the syntactic occurrences affected by verb sense and semantic features of the verb in learner's language. Additional data collection tools such as sentence combining tasks, close tests, picture description tasks, and corpus resources may be used to investigate this issue. With respect to the use of corpus data, following data collection tools and aims may be combined:

- Examining the use of verb complementation patterns and verb senses in International Corpus of Learner English and investigating the effects of different

mother languages on the choice of the learners, exploring variations through using LOCNESS as a baseline data,

- Investigating genre-specific uses of verb complementation patterns and verb senses in Michigan Corpus of Academic Spoken English and comparison of these preferences with the Academic Genre section of Corpus of Contemporary American English,
- Exploring the learners' use of these patterns and senses in different verb groups and comparing the instances in Turkish data,
- Focusing on how these patterns and verb senses are presented in EFL materials and shedding light on input data by creating a database of coursebooks and reference books,
- Comparing the learners with different L1 backgrounds in order to see a better picture of tendencies and avoidance,
- Conducting stimulated recall interviews to elucidate the learners' way of thinking and systematicity with regard to their choice of certain patterns over the others,
- Focusing on this issue from the transitivity aspect and examining the learners' use of monotransitive vs. ditransitive verbs.

A further step in the analyses of the verbs may be based on Distinctive Collexeme Analysis suggested by Stefanowitsch and Gries (2003), which measures the degree of association between the verb and complementation pattern. They argue that this analysis enables the researcher to quantify the extent to which a verb exhibits a significant preference for one construction over the other. Contrasting the syntactic choices of native and ESL speakers using logistic regression modeling (Deshors 2014; Gries and Deshors 2014; Nam, Mukherjee, Schilk, Mukherjee & Nam, 2013) may be another further study suggestion. As the phrases such as *I think* is salient in English and as it developed into a discourse marker functioning as a speech act adverbial (Aijmer, 1997, p. 1), examining these expressions in spoken language produced by the learners may contribute to the entire picture of the use of these expressions in interlanguage. The role of facilitative factors such as extensive reading, computer games, films should be examined by providing students with a background questionnaire. The role of LI in the acquisition of verb complementation by Turkish EFL learners is also needed for conducting comprehensive research studies. It is also necessary to extend the analysis of verb complementation to other than non-factive cognitive verbs and other verb classes such as

verbs of communication, emotion, activity. Last but not least, complementation patterns of other word classes such as nouns, adjectives should be examined in order to get an overview of learner language.

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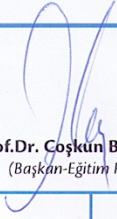
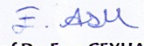
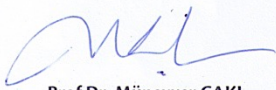
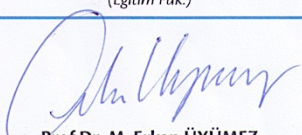
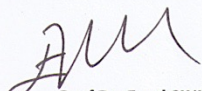
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APPENDICES



ANADOLU ÜNİVERSİTESİ
SOSYAL VE BEŞERÎ BİLİMLER BİLİMSEL ARAŞTIRMA VE YAYIN ETİĞİ KURULU
KARAR BELGESİ

ÇALIŞMANIN TÜRÜ:	Doktora Tez Çalışması
KONU:	Eğitim Bilimleri
BAŞLIK:	Eylem Yanıtlaması Üzerine Kesitsel Bir Araştırma: İngilizceyi Yabancı Dil Olarak Öğrenen Öğrencilerin Biliş Eylemlerini Kullanım Durumları
PROJE/TEZ YÜRÜTÜCÜSÜ:	Prof. Dr. İlnur KEÇİK
TEZ YAZARI:	Sibel SÖĞÜT
ALT KOMİSYON GÖRÜŞÜ:	-
KARAR:	Olumlu
 Prof.Dr. Coşkun BAYRAK (Başkan-Eğitim Fak.)	
 Prof.Dr. T. Volkan YÜZER (Başkan Yardımcısı-Açıköğretim Fak.)	 Prof.Dr. Esra CEYHAN (Eğitim Fak.)
 Prof.Dr. Münevver ÇAKI (Güzel Sanatlar Fak.)	 Prof.Dr. M. Erkan ÜYÜMEZ (İkt. ve İdari Bil. Fak.)
 Prof.Dr. Handan DEVECİ (Eğitim Fak.)	 Prof.Dr. Emel ŞIKLAR (İkt. ve İdari Bil. Fak.)

APPENDIX A: SUMMARY OF THE RESEARCH STUDIES

Research Studies on Native Language

Researcher(s)	Year	Focus of the Study	Findings
Duffley & Tremblay	1994	the use of the infinitive and the <i>-ing</i> after verbs expressing the notion of effort,	- what would seem to be the 'prototypical' verb of effort, <i>try</i> , does not denote effort inherently but merely implies it when used in combination with certain other lexemes, among these that of the <i>to</i> introducing the infinitive
Aarts & Aarts	1995	examining <i>find</i> with respect to semantic and syntactic properties	- <i>find</i> has five main verb senses such as discover by chance, succeed in obtaining, whereas <i>want</i> has three senses such as volitional (<i>desire</i>), non-volitional (<i>need, require</i>), and projected volition (<i>I advise you</i>). - The senses were found to correlate the syntactic patterns.
Aijmer	1997	analysis of subtypes of <i>I think</i> in terms of its syntactic, semantic, prosodic, and functional properties by using London Lund Corpus of Spoken English	- <i>think</i> has a number of different meanings such as 'believe', 'cogitate', and 'intend' and expresses epistemic modality as a pragmatic element - its function is to express the speaker's emotions whereas in its fact indicating or objective style, the speaker refers to themselves or to their beliefs
Simon-Vanderbergen	2000	examining the uses and functions of <i>I think</i> in political interviews and casual conversations.	- <i>I think</i> expresses the speaker's personal angle by making the statement subjective - <i>I think</i> has a complex of meanings which cannot simply be labelled 'uncertainty' or 'lack of commitment', rather, its functions include signaling

			a tentative attitude or authoritative deliberation.
Mair	2002	focus on three instances of grammatical variation in present-day standard English: the use of bare and to-infinitives with the verb <i>help</i> , the presence or absence of the preposition/complementizer <i>from</i> before -ing-complements depending on <i>prevent</i> , and the choice between -ing- and infinitival complements after the verbs <i>begin</i> and <i>start</i> .	- In all three instances, current British and American usage is shown to differ - there is a pseudo-prepositional use of the infinitive -provides an integrated description of the synchronic and diachronic factors at work in the observed variation.
Hunston	2003	the comparative frequency of two complementation patterns (<i>that</i> -clause and <i>wh</i> -clause) with the different wordforms of twenty-six verb lemmas	- in the majority of cases the patterns co-occur differentially with the different word forms - the <i>wh</i>- clause tends to occur most frequently with the base form while the <i>that</i>-clause occurs with the -ed form
Tao	2003	the use of <i>remember</i> and <i>forget</i> in three spoken English corpora (the Cambridge University Press/Cornell University Corpus, the Santa Barbara Corpus of Spoken American English, and the Corpus of Spoken Professional American-English)	-<i>remember</i> and <i>forget</i> take no complement, zero objects and noun phrases in a large number of instances -these verbs occur in flexible positions with a preference for certain types of subjects and tense forms - these verbs are found to undergo changes toward becoming a discourse particle in spoken English
Gomez	2004	analysis of the use of <i>I think</i> in academic spoken English from both semantic and syntactic aspects in Michigan Corpus of Spoken Academic English (MICASE)	- syntactic patterns, <i>I think</i> + <i>that</i> and <i>I think</i> + $\emptyset$ are the main complementation patterns -semantic functions are signalling politeness, vagueness and hesitation
Mair	2006	the use of <i>help</i> in British newspapers	- <i>help</i> preceding bare infinitival complements is

			found to undergo a process of grammaticalization -there found to be a spread of bare infinitive complements in British English.
Hommerberg & Tottie	2007	examining the use of <i>try</i> in British and American English	-considerable differences between British and American English as regards the complementation of the verb <i>try</i> - <i>try and</i> prevails in spoken British English - <i>try to</i> prevails in written British English and spoken American English
Cappelli	2008	the use of <i>know</i> , <i>believe</i> and <i>think</i> in elicited data (questionnaire)	-when <i>think</i> is construed in its prototypical cognitive attitude meaning and it conveys the epistemic evaluation of the speaker, and in this case, <i>know</i> always functions as its antonym - <i>think</i> , <i>believe</i> and <i>know</i> obviously can be contrasted with their negative forms
Fetzer & Johansson	2010	investigation of the frequency, distribution and function of 1st person self-references with the cognitive verbs <i>think</i> and <i>believe</i> , and <i>penser</i> and <i>croire</i> in British English and French argumentative discourse	-Cognitive verbs are assigned the role of parentheticals -these verbs signal the negotiation of validity of arguments -verbs show a preference for the discourse connective <i>and/et</i> in the co-occurrences.
Verdaguer	2010	examination of mental state verbs <i>think</i> and <i>pensar</i> (in Spanish) (in British National Corpus and the Corpus de Referencia del Espanol Actual).	- two main meanings of <i>think</i> : cogitation and opinion - The Spanish <i>pensar</i> does not have a broad coverage

			compared to <i>think</i> in English.
Taiwo	2016	analysis of the use of cognitive verb think in Nigerian job and career online discussion groups	-syntactic property: <i>I think</i> mainly occurs in the initial position and without an object or complementizer <i>that</i> and <i>I don't think</i> is preferred to <i>I think</i> + negative combination -semantic function: it is used to offer advice and draw conclusions

Research Studies on Learner Language

Researcher(s)	Year	Focus of the study	Findings
Hubbard & Hix	1988	types of lexical subcategorization errors with verbs	-the common errors are: transitives used as intransitives, intransitives used as transitives, incorrect passive of transitive verb, stative verbs in the progressive, fixed particle moved, dative movement errors, intrusive be, gerund complement for infinitive, infinitive for gerund, infinitive marker on naked infinitives, tensed that-complement for untensed, preposition missing, preposition added, incorrect preposition.
Lennon	1996	errors that advanced German learners of English as a foreign language made in lexical verb choice of frequently used verbs	- the frequently used verbs are <i>put</i> , <i>go</i> , <i>recognize</i> and <i>take</i> -13% of the errors committed were in verb choice
Biber & Xeppen	1998	examining complement clauses in Longman Learners' Corpus and they compared learners whose native languages are French, Spanish, Chinese and Japanese with native corpus	- <i>that</i> clauses and <i>to</i> -clauses are much more frequently used by all learner groups compared to native register. - the patterns of use in the learner essays are very similar to those found in native conversation and fiction, and different from those found in native academic prose

Juffs	1998	the frequency of verbs and their syntactic requirements in ESL learners' textbooks	-ESL materials may underrepresent some of the verb classes that are known to cause learners difficulty - materials should cover appropriate amount of semantic and syntactic properties of verbs
Liu et.al	2001	uses of the high frequency verb <i>make</i> in the essays of Chinese and native speakers of English	- Chinese speakers overproduce <i>make</i> in their essays and the most commonly occurring verb noun collocations are <i>make noise</i> , <i>make a decision</i> - <i>make</i> has also been used in different senses, the most commonly used sense is do something and cause a state/situation
Altenberg & Granger	2001	investigating the use of <i>make</i> among EFL learners by focusing on two corpus samples from the International Corpus of Learner English	-learners at advanced proficiency level have difficulties in using this verb -Swedish learners overuse adjective and verb structures whereas French-speaking learners exhibit a consistent underuse of causative <i>make</i> , especially noun and adjective structures
Bourke	2007	errors specific to verb complementation	- Many learners seem to operate on the 'economy principle', that is to say, they show a preference for shorter forms - Verbs possess certain semantic properties which help us to predict the type of complementation that can be selected
Roe	2007	most common problematic areas with respect to the verb complementation	- the choice of prepositional complement, the choice of clause complement, and the choice between noun phrase and prepositional complement
Granger & Paquot	2009	the use of lexical verbs in L2 learners' academic writing compared to both expert and novice native writing	-EFL learners significantly underuse the majority of academic verbs such as <i>include</i> , <i>report</i> or <i>relate</i> expressing rhetorical functions at the heart of academic writing

			- these learners are inclined to use conversational verbs such as <i>think</i> or <i>like</i>
Kang	2009	the effects of form-focused instructions on the learning of English verb complementation by Korean EFL learners	- the experimental groups showed better learning when compared to the control group in terms of both receptive and productive knowledge of the target structure
Can	2009	the acquisition of ergatives by Turkish learners of English	- ergative verbs pose challenges for the learners and that proficiency levels of the participants have increased in seven years
Saeed and Fareh	2011	Arab EFL learners' acquisition of verb senses of <i>feel, look, smell, sound, taste</i> by administering recognition, production and Grammaticality Judgment Tasks	-Arab learners of English encounter a tangible difficulty in attaining an adequate mastery level - performance of the learners in the recognition level was higher than that in the production level
Uçkun	2012	Undergraduate English literature students' use of verb subcategorization probabilities in Sentence Completion Tasks	-Results from the Norming study revealed that L2 learners provided the sentential complement-senses of the experimental verbs almost twice as often as the direct object-sense of the same verbs when no context was provided. -In the presence of priming context, participants' subcategorization preference was mostly to use the sentential complement argument to express the sentential complement-sense of the verbs. -Sentential complement arguments were dominant whereas direct object arguments in L2 learners' productions were underused
Yoon	2016	Korean EFL learners' use of to-infinitival and gerundial verb complementation in their argumentative essays	- Korean EFL learners are good at choosing complementation construction, the direction and strength of verb-construction association - Korean EFL learners could not use specific verbs (e.g. <i>prefer</i> and

			<i>begin</i>) with context-appropriate complementation patterns
Vercellotti and Packer	2016	structural complexity by identifying the clause types produced by EAP learners in free production monologues across three instruction levels	- learners produced increasingly complex language as measured by subordination - there is a developmental order for clause types in English for Academic Purposes context: adverbial, non-finite, relative, complement-taking predicate clause

APPENDIX B: CONSENT FORM

ARAŞTIRMA GÖNÜLLÜ KATILIM FORMU

Bu çalışma, "Eylem Üanulamlaması Üzerine Kesitsel Bir Araştırma: İngilizceyi Üabancı Dil Olarak Öörenen Öörenilerin Biliş Eylemlerini Kullanım Durumları" başlıklı bir araştırma çalışması olup İngilizce'yi yabancı dil olarak öörenen Türk öörenilerin, biliş eylemlerinin kullanım düzleminde gerektirdiği diğere ööelerin farkında olma düzeylerini belirlemeyi amaçlamaktadır. Çalışma, Sibel SÖÖÜÖ tarafından yürütölmekte olup sonuçları ile çalışma kapsamında seçilen "*düşün-, inan-, varsay-, zannet-*" biliş eylemlerine özgü yapı, anlam görünümleri ortaya konacaktır ve geleceğın ööretmenleri olan öörenilerimizin biliş eylemleri kullanım durumlarına gelişimsel olarak ışık tutulacaktır. Ayrıca, bu çalışmadan elde edilen sonuçlar çeşitli bilimsel çalışmalarda (tez, makale, bildiri, vb.) kullanılarak bilim dünyasına kazandırılacaktır.

- Bu çalışmaya katılımınız gönüllölük esasına dayanmaktadır.
- Çalışmanın amacı doğrultusunda, karma desen araştırma türü kullanılıp nitel ve nicel araştırmalar yapılarak sizden Cümle Tamamlama Gesti/ Boşluk Doldurma Gesti/ Cümle Üazma Gesti/ Dilbilgisellik Değerlendirme Gesti yoluyla veriler toplanacaktır.
- İsmınızı yazmak ya da kimliğınızı açığa çıkarak bir bilgi vermek zorunda değilsiniz/araştırmada katılımcıların isimleri gizli tutulacaktır.
- Araştırma kapsamında toplanan veriler, sadece bilimsel amaçlar doğrultusunda kullanılacak, araştırmanın amacı dışında ya da bir başka araştırmada kullanılmayacak ve gerekmesi halinde, sizin (yazılı) izniniz olmadan başkalarıyla paylaşılmayacaktır.
- İstemeniz halinde sizden toplanan verileri inceleme hakkınız bulunmaktadır.
- Sizden toplanan veriler arşivleme ve sanal veri depolama yöntemi ile korunacak ve araştırma bitiminde arşivlenecek veya imha edilecektir.
- Veri toplama sürecinde/süreçlerinde size rahatsızlık verebilecek herhangi bir soru/talep olmayacaktır. Üüne de katılımınız sırasında herhangi bir sebepten rahatsızlık hissederseniz çalışmadan istediğınız zamanda ayrılabilirsiniz. Çalışmadan ayrılmanız durumunda sizden toplanan veriler çalışmadan çıkarılacak ve imha edilecektir.

Gönüllölü katılım formunu okumak ve değerlendirmek üzere ayırdığınız zaman için teşekkür ederim. Çalışma hakkındaki sorularınızı Anadolu Üniversitesi İngilizce Ööretmenliği bölümünden Sibel SÖÖÜÖ'e yöneltebilirsiniz.

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Bu çalışmaya tamamen kendi rızamla, istediğım takdirde çalışmadan ayrılabilceğimi bilerek verdiğim bilgilerin bilimsel amaçlarla kullanılmasını kabul ediyorum.

(Lütfen bu formu doldurup imzaladıktan sonra veri toplayan kişiye veriniz.)

Katılımcı Ad ve Soyadı:

İmza:

Garib:

APPENDIX C. GENERAL GUIDELINES FOR MOST ITEM FORMATS

Checklist Questions	YES	NO
1. Is the item format correctly matched to the purpose and content of the item?	☐	☐
2. Is there only one correct answer?	☐	☐
3. Is the item written at the students' level of proficiency?	☐	☐
4. Have ambiguous terms and statements been avoided?	☐	☐
5. Have negatives and double negatives been avoided?	☐	☐
6. Does the item avoid giving clues that could be used in answering other items?	☐	☐
7. Are all parts of the item on the same page?	☐	☐
8. Is only relevant information presented?	☐	☐
9. Have race, gender, and nationality bias been avoided?	☐	☐
10. Has at least one other colleague looked over the items?	☐	☐

APPENDIX D. GUIDELINES FOR PRODUCTIVE ITEM FORMATS

Checklist Questions	YES	NO
Fill-In		
1. Is the required response concise?	☐	☐
2. Is there sufficient context to convey the intent of the question to the students?	☐	☐
3. Are the blanks of standard length?	☐	☐
4. Does the main body of the question precede the blank?	☐	☐
5. Has a list of acceptable responses been developed?	☐	☐
Short-Response		
1. Is the item formatted so that only one relatively concise answer is possible?	☐	☐
2. Is the item framed as a clear and direct question?	☐	☐
Task		
1. Is the student's task clearly defined?	☐	☐
2. Is the task sufficiently narrow (and/or broad) for the time available?	☐	☐
3. Have scoring procedures been worked out in advance with regard to the approach that will be used?	☐	☐
4. Have scoring procedures been worked out in advance with regard to the categories of language that will be rated?	☐	☐
5. Have scoring procedures been clearly defined in terms of what each score within each category means?	☐	☐
6. Is scoring to be as anonymous as possible?	☐	☐

APPENDIX E. DATA COLLECTION INSTRUMENTS

SENTENCE PRODUCTION TASK

Instruction: Write down 2 sentences for each verb below and write down the meaning of the verb in English in each sentence you formed.

1. Think

SentenceI:

Verb meaning: _____

SentenceII:

Verb Meaning: _____

2. Believe

Sentence I: _____

Verb meaning: _____

Sentence II: _____

Verb Meaning: _____

3. Assume

Sentence I: _____

Verb meaning: _____

Sentence II: _____

Verb Meaning: _____

4. Suppose

Sentence I: _____

Verb meaning: _____

Sentence II: _____

Verb Meaning: _____

SENTENCE COMPLETION TASK

Instruction: Complete the following sentences with your own word(s) taking the context into consideration.

1. Teacher-librarians assume what is being taught in the library is reinforced across the school. That is, information literacy is being developed across the school, for example by history teachers when students complete research-based assignments. Many teachers may also assume **that skills and abilities are reinforced by other teachers or departments.**
2. It is necessary to pay attention to the equivalence of the courses while making agreements with new universities. If it is not possible, these agreements should not be done. The Erasmus programme is thought **to be more efficient if these problems can be solved.**
3. I try to see this moment through his eyes: There's something very bright beneath the water, probably on the bottom but seemingly close enough to touch. He becomes mesmerized by this light, too large and bright to be a piece of jewelry, a diamond bracelet slipped off a woman's wrist, a ruby necklace: No, this light is so bright he can't quite connect it to anything his twelve-year-old brain knows the name of. He thinks **to ask his mother if she sees it, if she knows what it is, but he doesn't want to share it yet; he fears that if he mentions it or if his mother is able to name it, it will disappear.**
4. Determine if an instructional strategy or approach might take too much time or force the course audience to focus on an area of the content for longer than necessary. In the process, you are also developing the timeline for your course. Decide how long the course should take. Think **about whether the content you are addressing would best be presented with due dates, or as a flexible, rotating course that can be started at any time.**
5. Drummond (1995) stated that becoming an excellent college teacher is a continuing life-long professional challenge. He mentioned that we often erroneously assume **new teachers know how to teach because they used to be students.** In addition to the pedagogy a professor brings to the classroom, the knowledge of strategies used to assess students' learning also impacts what and how the students learn.

6. **A:** I want to talk to you more about Michael Jackson, what he became like as an adult, how difficult he found it when "Thriller" became the biggest selling album in history.
B: Do you think **when Michael became the biggest star in the world, after "Thriller," did it change him, do you think? I mean, you were his big brother. How did you see that impact on him as a human being?**
7. And we have involved faculty members as colleagues as we have attempted to influence their teaching techniques in in-service programs. Suppose **that society sponsored a new schooling decade.** It should; most of the new textbooks I see suffer from the same inadequacies that spoil the books that the New Social Studies were supposed to supplant.
8. **A:** But so, Madonna has released her thirteenth studio album, it's called Rebel Heart. And Carson, as I said, did sit down with Madonna asking her about among many other things about her new music, motherhood as well and sending her girl off to college.
B: What do your kids think **about your album?**
C: They're very opinionated. They love obviously, they love all the Diplo tracks.
9. However, our particular focus was on how these discussions supported student learning. The question of whether students were learning was never at issue. We assume **that students are always learning.** The question is: What are they learning?
10. Before this assignment, I had never used Twitter; and, truthfully, I never gave it much thought as a medium. I really did not think **that I had a need for it.** My impression was that Twitter was for celebrities, people who had an arrogant sense of self-importance, or others who think anything they do during the day is interesting.
11. **A:** Let's start with the most likely near-term scenario. Scientists find a fossil on Mars. But let's assume **that life found on Mars is no different than what we find here.** Just a red planet branch, of life that hitch hike two or four on meteors.
B: That's biologically very significant. But it has philosophically absolutely no significance at all. It is no different than finding that life extends to Antarctica, or deep into the Earth's crust.
12. From this highly specific research, we attempt to predict performance about a different group of students responding to a treatment that is likely somewhat different and a measure that may differ in a context that is different. Of course, we cannot assume that **findings are completely generalizable to new situations.**
13. I liked reading more than anything, and at one point there was a hospital administrator who came to talk about her work at our school, and I thought that that sounded like an interesting job. And I remember she had very nice shoes.

Maybe I could get shoes like that if I became a hospital administrator. Then I suppose **I went to university**.

14. We explained each learning objectives of the day and stated the teacher's expectations. Students were seen excited about their learning. The outcome of the lesson was that all participants were able to tell the letter sounds and the basis to help build the automaticity and fluency. If we are to re-teach the same lessons, we would focus more on building fluency with my students. We do not think **that we needed to go back as far as identifying the letter sounds, but we wanted to eliminate that being the struggle of decoding the words**.
15. **A:** How are you?
B: I'm great. And...
A: You saw the film, right?
B: Love it. And so, it opened in New York and in L.A. early. So, everybody else has to wait until today for it to come out, but really it came out on Christmas Day in New York. And I just fell in love with the film. And it's a great movie. I really believe **that this is going to win best picture**.
16. I was illiterate before, because I stopped going to school. But I could learn how to read and write, thanks to the literacy courses run in the prison. Now I can read newspapers and write letters to my friends and family. Moreover, I suppose that I will be able to manage myself better thanks to the anger management courses. I believe **that the courses that I took in prison will both improve my personal, family and social life and help me find a job after being released**.
17. He snatched his trousers off the back of a chair. He zipped up, fingers fumbling as he fastened his belt, afraid she might leave. He checked the window again before unlocking the door. Nothing had changed. She still stood there alone. He could scarcely believe **his good fortune**.
18. Even at the kindergarten level, parents, especially mothers, encourage their sons and daughters to excel in different areas. Males are encouraged and expected to achieve in subjects such as math, and females are encouraged to be cooperative (Baker & Entwisle, 1986). Children believe **what their parents tell them and try to adjust to parental expectations**.
19. And they came to me, and asked if I was interested in joining. This was in April 2001. It was a huge decision. It was so risky that as I sit here today, I cannot believe **how brave I was and that I was willing to take the risk**. I had worked for 17 years to build a legal practice, I had clients, had a partnership in my firm, and it was a big personal risk to leave the certain for the unknown.
20. Reading is still fundamental. By bringing reading alive, school librarians still teach students to love books and celebrate stories and authors. Students love stories and enjoy reading in spite of the fact that so many are over-scheduled with

extracurricular activities and school work. We truly believe **students who read succeed**. School librarians know there is a book for every reader and a reader for every book.

FILL-IN THE BLANKS TASK

Instruction: Fill-in the blanks with the appropriate verbs below. One verb can be used several times (more than once or twice).

think	pretend	assume	believe
regret	suppose	affect	compare

1. In sum, these studies suggest the benefits of teaching students to translate great stories into brain movies that play in the theater of the mind's eye. As teacher Kelly Diane Rose notes, " Kids love watching movies. When they **think** of reading as the process of making brain movies, they become more motivated and read more, which is key to becoming a better reader".
2. **A:** This is a wonderful opportunity. I think the kids in this school are excited. It's something fun and wonderful, and there is no downside.
B: The opposition disagrees. They say the kids are being taught the wrong lesson.!
C: You can disregard a vote, you can disregard democracy, you can do anything if you've got the money.
B: They have petitioned the State School Board to shut down the team.!
D: We honestly can't **believe** why wouldn't want to give these kids a chance. These are kids.!
B: Kids who just want to play ball.
3. One example of exploratory writing occurs when teachers ask probing questions to review previously taught content and ask students to **think** about responses and then share their responses with classmates. A second example is posing questions so students reflect on key points presented during a short lecture followed by their explaining their understanding of these concepts in writing.
4. One such question is: do student grades correlate with the amount of time they spend in the course units associated with particular assignments? **Suppose** students demonstrate poor knowledge or skills in one area: interviewing. Usage data might indicate that the students spend less time in the units devoted to interviewing than they do in units associated with other tasks.
5. This makes them more appealing to humans while retaining the rich, spontaneous appearance and ecological resistance of a wild plant community. Because these gardens are naturalistic and wild in appearance, people often **assume** that they are

easy to achieve and successfully maintain. Such perceptions are, unfortunately, false.

6. **Speaker A:** And what do you want people or companies or governments to take from the film? Do you want some action from the film?

Speaker B: I make films because I really **believe** in the power of communicating. And so how people then use that information, you know, that's up to them. So I do hope that it raises awareness and maybe takes an issue that's abstract and makes it a bit more human or visceral, so you can understand the consequences.

Speaker A: All right, the film is " Citizenfour. " Laura Poitras, Glenn Greenwald, thank you both very much.

7. At the population level, considering that interventions should be conducted in settings that will maximize access to the targeted population group and that have the potential to facilitate behavior change, schools are **thought** to be key settings to improve physical activity among adolescents. In Japan, school attendance rate for compulsory junior high school education is almost 100%.
8. Although most researchers **suppose** that some sort of metabolism must have developed very early in life's story, at least one student of life's basic properties has questioned the need to have an active metabolism for creating an evolving system.
9. From this highly specific research, we attempt to predict performance about a different group of students responding to a treatment that is likely somewhat different and a measure that may differ in a context that is different. Of course, we can not **assume** that findings are completely generalizable to new situations - - this is one reason that systematic reviews typically require multiple independent studies that demonstrate effectiveness of a treatment.
10. **A:** The car that I was in was standing up straight and as as quickly as it happened, it stopped just as fast. And I remember just sitting there for a second thinking I can not **believe** that just happened. We just this train just crashed. And then once smoke started filling the car, I thought, I got to get out of here.
B: We're glad Janelle is okay.

GRAMMATICALITY JUDGMENT TASK

Identify whether the following sentences are appropriate or not.

- 1) We believe this point is vital for supporting adolescent struggling readers.

☐ **sounds good** ☐ not sure ☐ sounds bad

- 2) We can't assume on engineers and engineering technologists rely solely or even primarily on traditional technical skills.

☐ sounds good ☐ not sure ☐ **sounds bad**

3) Can you believe it's been forty years?

☒ **sounds good** ☐ not sure ☐ sounds bad

4) We believe in the appropriate reference group depends on the educational plans for the child.

☐ sounds good ☐ not sure ☒ **sounds bad**

5) It is not unusual to assume that writers without art historical backgrounds could lend a scholarly analysis to contemporary forms.

☐ **sounds good** ☐ not sure ☐ sounds bad

6) We believe on the biggest gains in the performance of WatsonsPaths will come from improvements in Watsons.

☐ sounds good ☐ not sure ☒ **sounds bad**

7) I don't suppose you to have a chocolate milkshake in your back pocket.

☐ sounds good ☐ not sure ☒ **sounds bad**

8) Did you ever think why are these people doing this?

☐ sounds good ☐ not sure ☒ **sounds bad**

9) One might suppose that the reasons for that poor performance stem from a lack of instruction.

☐ **sounds good** ☐ not sure ☐ sounds bad

10) Of course, without asking the cyclists themselves, it is unsafe to assume their intent to save womankind.

☐ **sounds good** ☐ not sure ☐ sounds bad

11) I suppose another feature is that you have a number of people within the system that seem to be there because they wanted an alternative Facebook.

☐ **sounds good** ☐ not sure ☐ sounds bad

12) I think I offer many chances for students to succeed; my job as a teacher is to make sure that they have got the knowledge.

☐ **sounds good** ☐ not sure ☐ sounds bad

- 13) The researcher encouraged the participants to think about concepts by answering focus questions.

☐ **sounds good** ☐ not sure ☐ sounds bad

- 14) You can also think that the robot as making a person more productive and enabling people to do things economically infeasible.

☐ sounds good ☐ not sure ☐ **sounds bad**

- 15) Prior to important decisions at schools, teachers are informed and made to assume on the issue in advance.

☐ sounds good ☐ not sure ☐ **sounds bad**

- 16) I suppose it's quite possible that we would disagree on the definition of convenience.

☐ **sounds good** ☐ not sure ☐ sounds bad

- 17) Feminism is about choices, and about thinking why do we make the choices we do.

☐ sounds good ☐ not sure ☐ **sounds bad**

- 18) Felicia wished she'd believed to bring a brush.

☐ sounds good ☐ not sure ☐ **sounds bad**

- 19) When a man steals to satisfy hunger, we can safely assume that there is something wrong in society.

☐ **sounds good** ☐ not sure ☐ sounds bad

- 20) I suppose so, but I know I painted a baby-house doll that resembles her.

☐ **sounds good** ☐ not sure ☐ sounds bad

APPENDIX F: VOCABULARY LEVELS TEST

Vocabulary Levels Test (Schmitt et al., 2001)

Sevgili Öğrenciler,

Bu çalışma, bir doktora tez çalışması kapsamında hangi sınıfa ne kadar sözcük bilgisi gerekli olduğunu saptamak amacıyla yapılmaktadır. Yanıtlarınıza not verilmesi, ders

kapsamında değerdendirilmesi söz konusu değildir. Sağlıklı sonuçlar alınabilmesi için yanıtını/anlamını bilmediğiniz sözcükleri boş bırakmanız ve sözlük kullanmamanız gerekmektedir.

Açıklama: Her anlam için doğru bir sözcük seçiniz. Anlamın karşısına bu sözcüğün numarasını yazınız. Aşağıda bir örnek yer almaktadır:

You answer it in the following way.

- | | | | |
|----------|-------------|----------|----------------------------|
| 1 | business | | |
| 2 | clock | <u>6</u> | part of a house |
| 3 | horse | <u>3</u> | animal with four legs |
| 4 | pencil | <u>4</u> | something used for writing |
| 5 | shoe | | |
| 6 | wall | | |

Araş. Gör. Sibel SÖĞÜT

Version 2 The 2,000 word level

- | | | | |
|---------|------------------------------|------------|-------------------------------------|
| 1 copy | | 4 pity | <u> </u> thing made to be like |
| 2 event | <u> </u> end or highest | 5 profit | another |
| point | | 6 tip | |
| 3 motor | <u> </u> this moves a | 1 accident | |
| car | | | |

2 debt
sound
3 fortune
must pay
4 pride
opinion of
5 roar
6 thread

_____ loud deep
_____ something you
_____ having a high
yourself

1 blame
2 elect
3 jump
4 manufacture
5 melt
6 threaten

_____ make
_____ choose by voting
_____ become like water

1 coffee
2 disease
work
3 justice
clothing
4 skirt
in the right
5 stage
6 wage

_____ money for
_____ a piece of
_____ using the law
way

1 ancient
2 curious
3 difficult
4 entire
5 holy
6 social

_____ not easy
_____ very old
_____ related to God

1 bitter
2 independent
3 lovely
4 merry
5 popular
6 slight

_____ beautiful
_____ small
_____ liked by many people

1 clerk
2 frame
3 noise
4 respect
sound
5 theater
6 wine

_____ a drink
_____ office worker
_____ unwanted

1 dozen
2 empire
3 gift
4 opportunity
the
5 relief
6 tax

_____ chance
_____ twelve
_____ money paid to
government

1 admire
2 complain
longer
3 fix
first time
4 hire
opinion of
5 introduce
6 stretch

_____ make wider or
_____ bring in for the
_____ have a high
someone

1 arrange
2 develop
3 lean
4 owe
something
5 prefer
6 seize

_____ grow
_____ put in order
_____ like more than
else

Version 2 The 3,000 word level

1 bull		6 muscle	
2 champion	_____ formal and	1 abandon	
serious manner		2 dwell	_____ live in a place
3 dignity	_____ winner of a	3 oblige	_____ follow in order to catch
sporting event		4 pursue	_____ leave something
4 hell	_____ building where	5 quote	_____ permanently
valuable		6 resolve	
5 museum	objects are		
shown			
6 solution			
		1 assemble	
		2 attach	_____ look closely
1 blanket		3 peer	_____ stop doing something
2 contest	_____ holiday	4 quit	_____ cry out loudly in fear
3 generation	_____ good quality	5 scream	
4 merit	_____ wool covering	6 toss	
used on			
5 plot	beds	1 drift	
6 vacation		2 endure	_____ suffer patiently
		3 grasp	_____ join wool threads together
1 comment		4 knit	_____ hold firmly with your
2 gown	_____ long formal	hands	
dress		5 register	
3 import	_____ goods from a	6 tumble	
foreign			
4 nerve	country	1 brilliant	
5 pasture	_____ part of the	2 distinct	_____ thin
body which		3 magic	_____ steady
6 tradition	carries feeling	4 naked	_____ without clothes
		5 slender	
1 administration		6 stable	
2 angel	_____ group of		
animals		1 aware	
3 frost	_____ spirit who	2 blank	_____ usual
serves God		3 desperate	_____ best or most important
4 herd	_____ managing	4 normal	_____ knowing what is
business and		happening	
5 fort	affairs	5 striking	
6 pond		6 supreme	
1 atmosphere			
2 counsel	_____ advice		
3 factor	_____ a place covered		
with grass			
4 hen	_____ female chicken		
5 lawn			

Version 2 The 5,000 word level

1 analysis		1 contemplate	
2 curb	_____ eagerness	2 extract	_____ think about deeply
3 gravel	_____ loan to buy a	3 gamble	_____ bring back to health
house		4 launch	_____ make someone angry
4 mortgage	_____ small stones	5 provoke	
mixed with		6 revive	
5 scar	sand		
6 zeal		1 demonstrate	
		2 embarrass	_____ have a rest
1 cavalry		3 heave	_____ break suddenly into small
2 eve	_____ small hill	4 obscure	pieces
3 ham	_____ day or night	5 relax	_____ make someone feel shy or
before a		6 shatter	nervous
4 mound	_____ holiday		
5 steak	_____ soldiers who	1 correspond	
fight from		2 embroider	_____ exchange letters
6 switch	_____ horses	3 lurk	_____ hide and wait for someone
		4 penetrate	_____ feel angry about something
1 circus		5 prescribe	
2 jungle	_____ musical	6 resent	
instrument			
3 nomination	_____ seat without a	1 decent	
back or		2 frail	_____ weak
4 sermon	_____ arms	3 harsh	_____ concerning a city
5 stool	_____ speech given	4 incredible	_____ difficult to believe
by a priest in		5 municipal	
6 trumpet	_____ a church	6 specific	
1 artillery		1 adequate	
2 creed	_____ a kind of tree	2 internal	_____ enough
3 hydrogen	_____ system of	3 mature	_____ fully grown
belief		4 profound	_____ alone away from other
4 maple	_____ large gun on	5 solitary	things
wheels		6 tragic	
5 pork			
6 streak			
1 chart			
2 forge	_____ map		
3 mansion	_____ large beautiful		
house			
4 outfit	_____ place where		
metals are			
5 sample	_____ made and		
shaped			
6 volunteer			

Version 2 Academic Vocabulary

1 area
 2 contract _____ written agreement
 3 definition _____ way of doing something
 4 evidence _____ reason for believing
 5 method _____ something is or is not true
 6 role

1 debate
 2 exposure _____ plan
 3 integration _____ choice
 4 option _____ joining something into a
 5 scheme _____ whole
 6 stability

1 access
 2 gender _____ male or female
 3 implementation _____ study of the mind
 4 license _____ entrance or way in
 5 orientation
 6 psychology

1 accumulation
 2 edition _____ collecting things over time
 3 guarantee _____ promise to repair a broken
 4 media _____ product
 5 motivation _____ feeling a strong reason or
 6 phenomenon _____ need to do something

1 adult
 2 exploitation _____ end
 3 infrastructure _____ machine used to move
 4 schedule _____ people or goods
 5 termination _____ list of things to do at
 6 vehicle _____ certain times

1 alter
 2 coincide _____ change
 3 deny _____ say something is not true
 4 devote _____ describe clearly and exactly
 5 release
 6 specify

1 correspond
 2 diminish _____ keep
 3 emerge _____ match or be in agreement
 4 highlight _____ with
 5 invoke _____ give special attention
 6 retain _____ to something

1 bond
 2 channel _____ make smaller
 3 estimate _____ guess the number or size
 4 identify _____ of something
 5 mediate _____ recognizing and naming
 6 minimize _____ a person or thing

1 explicit
 2 final _____ last
 3 negative _____ stiff
 4 professional _____ meaning 'no' or 'not'
 5 rigid
 6 sole

1 abstract
 2 adjacent _____ next to
 3 controversial _____ added to
 4 global _____ concerning the whole
 world
 5 neutral
 6 supplementary

Version 2 The 10,000 word level

1 alabaster		1 dissipate	
2 chandelier	_____ small barrel	2 flaunt	_____ steal
3 dogma	_____ soft white stone	3 impede	_____ scatter or vanish
4 keg	_____ tool for shaping	4 loot	_____ twist the body about
wood		5 squirm	_____ uncomfortably
5 rasp		6 vie	
6 tentacle			
		1 contaminate	
1 benevolence		2 cringe	_____ write carelessly
2 convoy	_____ kindness	3 immerse	_____ move back because of fear
3 lien	_____ set of musical	4 peek	_____ put something under water
notes		5 relay	
4 octave	_____ speed control	6 scrawl	
for an			
5 stint	_____ engine	1 blurt	
6 throttle		2 dabble	_____ walk in a proud way
		3 dent	_____ kill by squeezing someone's
1 bourgeois		4 pacify	_____ throat
2 brocade	_____ middle class	5 strangle	_____ say suddenly without
people		6 swagger	_____ thinking
3 consonant	_____ row or level of		
something		1 illicit	
4 prelude	_____ cloth with a	2 lewd	_____ immense
pattern or gold		3 mammoth	_____ against the law
5 stupor	_____ or silver	4 slick	_____ wanting revenge
threads		5 temporal	
6 tier		6 vindictive	
1 alcove		1 indolent	
2 impetus	_____ priest	2 nocturnal	_____ lazy
3 maggot	_____ release from	3 obsolete	_____ no longer used
prison early		4 torrid	_____ clever and tricky
4 parole	_____ medicine to put	5 translucent	
on wounds		6 wily	
5 salve			
6 vicar			
1 alkali			
2 banter	_____ light joking talk		
3 coop	_____ a rank of British		
nobility			
4 mosaic	_____ picture made of		
small pieces			
5 stealth	_____ of glass or stone		
6 viscount			

APPENDIX G: VERB COMPLEMENTATION PATTERNS AND VERB SENSES USED IN THE ANALYSES		
THINK		
Verb Sense	Patterns	Example Sentences
SENSE A. THOUGHT Think can mean 'engage in thought, reflect' also in phrasal verbs: think over; think through.	+ Np (usually: thoughts)	Ex. Barge people are very often alone and have time to think grand thoughts. It's no good thinking negative thoughts about other people.
	+ wh-CL/wh	Ex. I've never thought why I like something or why I don't like something. - I was just thinking how awful it must have been.
	+ about Np/V-ingp/about wh-CLP/wh to-INFP (frequent)	Ex. I was just thinking about that. -I never really think about creativity. -You don't think about how much you are actually paying for the things you buy. -Just think about where you were and where you are now. - The Churches now have to think about how to create a new basis for support.
	+ of Np/V-ingp / of wh-CLP/wh to-INFP (frequent)	Ex. He thought of how he'd kissed her.
	QUOTE/SENTENCE	"My God!" she thought. "He's coming back."
	+ to REFL PRON « NI to REFL PRON + that-CL/ to REFL PRON + wh-CL	Ex. You say aloud the things I think to myself. -I think to myself that I don't care what other people think. -Reading this, I thought to myself how gladly I would have been of that company.
	+ to REFL PRON ~ QUOTE/ to REFL PRON « SENTENCE	But don't think to yourself Oh, I'll do it later, when I get home.' Like the index to an Elizabeth David book, Sutcliffe thought to himself.
SENSE B. CONSIDER Think can mean 'consider' or 'remember'.	+ to-INFP:it	Ex. They never thought to give it a different name. -Alice Kettlby could tell them the truth of it, if they had only thought to ask. -The European Commission has thought to placate the fears of its southern Mediterranean neighbours and a joint Maghreb Union Community meeting will be held in November.
	+ about Np/V-ingp/about wh-CLP/wh to-INFP (frequent)	Ex. I wouldn't even think about lying to you.
	+ of Np/V-ingp / of wh-CLP/wh to-INFP (frequent)	Ex. I've searched everybody that I can think of. -Can't think of a concrete example. - I can't really think of a way round it, you know. -How can you think of winning a national championship when you do that sort of thing? -We had to think of how to sort this out.
	+ N	Ex. Most people, though they do not say it and may not even think it, associate this kind of behaviour in wives with domestic violence.
	+ (that)-CLP:i, (>30%)	Ex. I think you have the right to use the road and you don't need to pay for it. -I think that's a good point. - I don't think that that is entirely true. -One would have thought that they would have got something which was probably a little bit more compatible. It is thought that the balance of power will be held by the Liberal Party.

SENSE C: OPINION Think can mean 'have an opinion on something or believe something to be the case'.	+ wh-CL/wh	Ex. I can't think why.
	QUOTE/SENTENCE	It really was a shame, she thought.
	+ so/not/otherwise	Ex. That's how it would end up, in my view. -Don't you think so? -Will my son be able to finance his retirement some day with his childish toys and pastimes? I think not. -Their spokesman insists this is not a waste of money. Confused customers might think otherwise.
	+ Np + N/itp + N-pattern	Ex. Those who think him a poet rather than a philosopher do so because of his styles. -I think it a great pity that many viewers watch such rubbish when they could be doing more worthwhile things.
	+ Np + ADJ/itp + ADJ-pattern	Ex. I thought him charming. She thought him blinded by love. -You wouldn't have thought it possible. -Political commentators think it unlikely that he will give up his quest for leadership.
	be thought + to-INF	Ex. The agreement is thought to include the safe release of all the hostages. -One problem is to construct measures of the variables that are thought to determine patterns of trade.
	+ what + about N/V-ing/what + about wh-CL/wh to-INF	Ex. What do you think about what's happening in Eastern Europe at the moment?
	+ what/much/etc. + of N	-What do you think of the photograph? • Gutfreund didn't think much of Goldstone's argument
	+ NP + ADV	Ex. I was beginning to think him in need of hormone replacement. -She had never thought him like his father.
	+ of Np + as N/of itp + as N-pattern	Ex. One always thinks of George Orwell as a great polemicist. - I don't think of it as a sacrifice to watch what I eat or drink in order to keep fit.
	+ of Np + as ADJ/of itP + as ADJ-pattern	-"Many people think of angels as benign, pleasant and helping," says University of Wisconsin psychiatrist Richard Thurrell.
	+ what/much/etc. + of N + as N	Ex. But what do you think of it as a book?

BELIEVE		
Verb Senses	Patterns	Example Sentences
Sense A. GENERAL Believe means 'think or be sure that something is true, correct, useful, etc.'	+ Np	Ex. And in both parts of the nation, few people believe Mr Kohl's promises that Germany will be truly one in three or four years. -Can you believe it? Five o' clock in the morning! -He did not sound as if he believed her.
	+ (that)-CL (very frequent)	Ex. He really believed that there was something wrong with this man. -Our correspondent says the Royal Air Force believes effective training for aircrew in the country is impossible under the new regulations.

(i) A person1 can believe in an idea, ideal, person, procedure, etc., i.e. be strongly convinced that they are morally right, successful or useful. (ii) A person1 can believe something, i.e. think it is the case. (iii) A person1 can believe another person, i.e. think that this person speaks the truth.	+ wh-CL (often: how or what)	Ex. I couldn't believe how steep it was.
	SENTENCE	Ex. She is, I believe , on her way here now.
	+ in Np	Ex. We believe in clubs developing their own players.
	+ so/not/otherwise	-I don't believe so. -Until someone can prove the film isn't genuine, there is no reason to believe otherwise.
	+ N to-INF (usually passive)	Ex. She believed her son to be still alive. -The bomb, believed to have been concealed in a truck, exploded in the morning in a commercial zone of Medellin. -Police in the Irish Republic have arrested the captain of a ship seized off the French coast three years ago with an arms shipment believed to be for the IRA.
	+ N + ADJ/it + ADJ-pattern	Ex. I wouldn't have believed it possible. -Although generally associated with China and South East Asia today, historians believe it likely that the martial arts were actually developed in India and subsequently exported more than 1,000 years ago.
	+ N + of N	How could they believe that of me?
Sense B. RELIGION A person believing in something such as a God thinks they exist	+ in N/V-ing/in N V-ing (frequent)	Ex. We believe in prevention rather than cure. - I can't help feeling things were all much easier when we all believed in Santa Claus! -Do patients believe in the treatment because they feel better, or get better because they believe? (only if clear from context) -I believe in keeping the planet clean.

ASSUME		
Verb Senses	Patterns	Example Sentences
	+NP	Ex. Don't assume anything. -You shouldn't mind, assuming a fair interest rate, keeping the account at that bank.

Sense A: SUPPOSE	+(that)-CLp:it (>30%)	Ex: I always assumed that peace officers were to enforce the spirit of the law and not the letter of the law. - It is simply that science, in order to function, must assume that physical laws are not dependent on the time and the context in which they are tested.
Assume can mean 'suppose or expect something to be the case'.	SENTENCEp:it	Ex. Philip Larkin, one has to assume, was joking when he said that sexual intercourse began in 1963. - I mean, for example, the day that the Times spells light L I T E would be a long way off, one would assume.
	+ so/not/otherwise	Ex. Has the vehicle's engine ever been upgraded?' -'He didn't say so. I assume not.' -I think it would be very silly of us to assume otherwise. -They were disgustingly, obscenely wealthy. Or at least we assumed so at the time
	+ N + AD J / it + ADJ-patternp	Ex. Bail is extremely difficult to obtain and the accused is assumed guilty until proven innocent, contrary to the normal principle of justice. -Rich in mystery, the formidable mist-covered mountains of Papua New Guinea were assumed inaccessible and uninhabited. -We blithely assume it is impossible to return the compliment
	+ Np + to-INF	Ex. The other stewards or people that I knew to be stewards or assumed to be stewards were I would say probably less experienced. -Everyone knew that Betty was assumed to be practically engaged, certainly promised tacitly, to one of the Lavery boys. -The CME is assumed to control not simply advertising and selling, but also product policy, pricing, distribution, and so on.
Sense B...POWER ETC.		
Assume can mean 'take over' or 'gain'. In this meaning it is typically used in phrases such as	+NP	Ex. The Front assumed power in Romania during the revolution. -Apologists for Haig have argued that the Somme offensive was a virtual fait accompli when he assumed command. - The plan calls for the UN to assume civil and military control over the disputed territory twenty-four weeks before a referendum on its future. - Quite obviously Viertel hadn't been aware that Fritz had assumed another surname.

assume control, assume responsibility, assume power.		
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SUPPOSE		
Verb Sense	Patterns	Example Sentences
Sense A. BELIEVE Suppose can be used to express one's belief or view. Often it implies that the speaker is not absolutely certain of the belief or view expressed.	+ (that)-CLp(it) (frequent)	Ex. I suppose that I really didn't think about it much. -I suppose I was a bit rude. -I suppose all writers must have a certain degree of ignorance or childishness.
	SENTENCEP:it	Ex. We've got practice rooms on campus and if I did take anyone on then I'd arrange to give lessons there, I suppose. -The possibilities, I suppose, are almost endless.
	+ so/not	Ex. "But God knows best. If He'd wanted you to help that man, He would have shown you the way." - "I suppose so, Father." She frowned. -"I presume in 1936 there weren't so many immigrants to London." "No, I suppose not."
	+ Np to-INF	Ex. They have generally supposed the danger to be remote because Parliament was broadly representative of the nation.
Sense B. HYPOTHETICAL Suppose can also be used to introduce a hypothetical situation; by using it the speaker appeals to the listener to take the situation as described for granted	+ (that)-CLp(it) (frequent)	Ex. Suppose Kingston finds a property that can be acquired for £ 100,000 because it needs extensive repairs. -Suppose there is no Maastricht. Suppose that the core of Europe drives on for union, leaving the scapegoats behind. These are not wild suppositions. -Now, supposing there were only one of those stamps. And supposing it was worth a million dollars. And supposing the man who owned it suddenly came into possession of a second stamp - its duplicate. What do you think would be the value of each of those two stamps?

		-The gamekeeper would never take a desk job supposing he could find one. • He often phrased his invitations in the negative. -"I don't suppose you'd like to come over and keep an old man company?" (= perhaps you would like)
	+ Np to-INF	Ex. Literature is particularly liable to changes of reputation. If you had asked in the Guardian of 1700 (supposing it to have existed) for the names of England's greatest poets, most lists would probably not have included Shakespeare.

Think-senses	Believe-senses	Assume-senses	Suppose-senses
Sense Number 1: judge, believe <u>Examples:</u> She thinks he is the best student in the class. They thought he was down at the pool parlor. You don't really think I took the money do you? He's probably thinking evil thoughts about me.	Sense Number 1: accept something as true or probable, based on evidence and reasoning <u>Examples:</u> I believed his report. I believe he is her boyfriend. John doesn't believe the unidentified flying object was an alien spacecraft. Do you believe the Red Sox can win the pennant this year? I don't believe much of what I hear on television.	Sense Number 1: accept as true without verification <u>Examples:</u> I assume his train was late. To assume good faith is a fundamental principle on any wiki, including Wikipedia. It's politely assumed that democracy is a means of containing and restraining violence. Man has always assumed that he was more intelligent than dolphins.	Sense Number 1: assume to be true for the sake of argument <u>Examples:</u> Suppose that you had a lot of money. What would you do? Let us suppose that function f is an n-variable Boolean function.

Sense Number 2: cerebrate, cogitate, reason <u>Examples:</u> I've been thinking for days about this math puzzle. It made her sad to think how much those people had suffered. 'I'm trying to think but nothing happens!' (Curly, The Three Stooges) Is man the only creature that thinks? What was I thinking? Don't think yourself into a funk over this. Sense Number 3: recall, remember <u>Examples:</u> Please try to think where you left the keys. She thought of her deceased brother every day.	Sense Number 2: accept a doctrine, not necessarily on the basis of reason or logic (includes believe in) <u>Examples:</u> The preacher hoped the atheists would believe. He believed in the program.	Sense Number 2: take on a feature, position, responsibility, right, etc. <u>Examples:</u> When will the new President assume office? She assumed strange manners. The gods assume human or animal form in these fables. He assumes the lotus position. Increasingly, families with limited resources have had to assume debt to defray these costs. He assumed to himself the right to fill all positions in the town. The contractor shall assume responsibility for all functions. Dress then assumed a more natural appearance. She assumed indifference. You'd put on a costume, assume a character, and act out a part.	Sense Number 2: consider probable or likely <u>Examples:</u> Look at that sky. I suppose it will rain today. Scientists supposed that large dinosaurs lived in swamps. I suppose you have heard the news. Do you suppose that Gillian will marry him? Her new book is supposed to be very good. It is widely supposed that the minister will be forced to resign.
Sense Number 4: visualize, focus <u>Examples:</u> Think how great we'll look in our new bathing suits. Think big and you will accomplish more. Try to think of how the others		Sense Number 3: take someone's soul into heaven <u>Examples:</u> This is the day when Mary was assumed into heaven. Many believe that she did not die at all, but was Assumed directly into heaven.	Sense Number 3: require something as a precondition <u>Examples:</u> Your plan supposes that there are enough presents to go around. Patience must suppose pain. (quote by Samuel Johnson)

will feel. They were thinking in terms of lives saved, not dollars spent. Sense Number 5: intend <u>Examples:</u> She didn't think to upset him. We thought to return early that night Sense Number 6: verb particle constructions, multi-word expressions <u>Examples:</u> Think about, think back, think of, think out, think over, think up, think twice.		If the George Mason Law faculty were suddenly assumed into heaven, would there be any loss to the legal profession here on earth?	Investment of this kind supposes an increase in the company's profits this year.
		Sense Number 4: wear, put on <u>Examples:</u> The queen assumed the stately robes. In the third frame, the youth has assumed clothing, jewellery, and thus identity. There are no beings known as hats, coats, shoes, dresses, and trousers--those are just the clothing assumed by us humans. The young black throat bunting, although full grown, had not yet assumed their second clothing, in which the sexes are distinguished.	Sense Number 4: consider something as an annoyance or unwilling agreement <u>Examples:</u> I suppose you're going to be late again! I suppose that you think that's funny. Well, I certainly don't! Uh... I suppose I can come with you to the dentist. I don't agree with it, but I suppose it's for the better.
			Sense Number 5: consider as a suggestion - for a polite question <u>Examples:</u> I don't suppose you could lend me the \$50, could you?

APPENDIX H: RESULTS OF ITEM ANALYSES

Results of Item Analyses-Pilot Study

Item Number		Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9	Item10	Item11	Item12	Item13	Item14	Item15	Item16	Item17	Item18	Item19	Item20
Sentence Completion Task	IF(p)	0,49	0,38	0,73	0,63	0,48	0,80	0,19	0,84	0,68	0,85	0,63	0,45	0,57	0,63	0,85	0,70	0,66	0,74	0,70	0,64
	ID	0,57	0,40	0,44	0,67	0,51	0,44	0,36	0,34	0,51	0,26	0,59	0,53	0,53	0,65	0,40	0,61	0,69	0,65	0,63	0,67
		Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9	Item10	Item11	Item12	Item13	Item14	Item15	Item16	Item17	Item18	Item19	Item20
Grammaticality Judgment Task	IF(p)	0,56	0,41	0,66	0,25	0,65	0,57	0,54	0,42	0,62	0,58	0,48	0,65	0,81	0,33	0,26	0,62	0,25	0,47	0,70	0,49
	ID	-0,04	0,46	0,34	0,36	0,44	0,56	0,20	0,40	0,38	0,32	0,44	0,44	0,14	0,40	0,30	0,34	0,32	0,40	0,62	0,46
		Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9	Item10										
Fill-in the Blanks Task	IF(p)	0,64	0,53	0,80	0,49	0,81	0,84	0,45	0,58	0,43	0,59										
	ID	0,44	0,61	0,46	0,55	0,40	0,40	0,61	0,38	0,61	0,67										

Results of Item Analyses-Main Study

Appendix A: Results of Item Analyses																					
Item Number		Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9	Item10	Item11	Item12	Item13	Item14	Item15	Item16	Item17	Item18	Item19	Item20
Sentence Completion Task	IF(p)	0,49	0,38	0,73	0,63	0,48	0,80	0,19	0,84	0,68	0,85	0,63	0,45	0,57	0,63	0,85	0,70	0,66	0,74	0,70	0,64
	ID	0,57	0,40	0,44	0,67	0,51	0,44	0,36	0,34	0,51	0,26	0,59	0,53	0,53	0,65	0,40	0,61	0,69	0,65	0,63	0,67
		Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9	Item10	Item11	Item12	Item13	Item14	Item15	Item16	Item17	Item18	Item19	Item20
Grammaticality Judgment Task	IF(p)	0,56	0,41	0,66	0,25	0,65	0,57	0,54	0,42	0,62	0,58	0,48	0,65	0,81	0,33	0,26	0,62	0,25	0,47	0,70	0,49
	ID	0,44	0,46	0,34	0,36	0,44	0,56	0,20	0,40	0,38	0,32	0,44	0,44	0,14	0,40	0,30	0,34	0,32	0,40	0,62	0,46
		Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9	Item10										
Fill-in the Blanks Task	IF(p)	0,64	0,53	0,80	0,49	0,81	0,84	0,45	0,58	0,43	0,59										
	ID	0,44	0,61	0,46	0,55	0,40	0,40	0,61	0,38	0,61	0,67										

APPENDIX I. AGREEMENT VALUES FOR SENTENCE PRODUCTION TASK ITEMS

Sentence Production Task																
Verb	think				believe				assume				suppose			
Item ID	Sentence	Verb Meaning	Sentence	Verb Meaning	Sentence	Verb Meaning	Sentence	Verb Meaning	Sentence	Verb Meaning	Sentence	Verb Meaning	Sentence	Verb Meaning	Sentence	Verb Meaning
Agreement Value (Cohen's Kappa)	1	1	.75	1	1	.64	1	.92	1	.76	.84	.83	1	1	.91	.91

APPENDIX J. AGREEMENT VALUES FOR SENTENCE COMPLETION TASK ITEMS

Sentence Completion Task																				
Item ID	Ite m1	Ite m2	Ite m3	Ite m4	Ite m5	Ite m6	Ite m7	Ite m8	Ite m9	Item 10	Item 11	Item 12	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 20
Agreement Value	1	1	1	.92	.84	.91	1	.89	1	1	.92	1	.92	1	1	.83	.91	1	.80	1

APPENDIX K. AGREEMENT VALUES

Agreement Values for Sentence Production Task Items

Sentence Production Task																
Verb	think				believe				assume				suppose			
Item ID	Sent1(pat tern)	Verb Meaning	Sent2(pat tern)	Verb Meaning	Sent3(pat tern)	Verb Meaning	Sent4(pat tern)	Verb Meaning	Sent5(pat tern)	Verb Meaning	Sent6(pat tern)	Verb Meaning	Sent7(pat tern)	Verb Meaning	Sent8(pat tern)	Verb Meaning
Agreement Value (Cohen's Kappa)	1	1	.65	1	1	1	.65	1	.65	.65	.86	.77	1	1	.89	.87

APPENDIX L. AGREEMENT VALUES

Agreement Values for Sentence Completion Task Items

Sentence Completion Task-Pattern Acceptability																				
Item ID	Ite m1	Ite m2	Ite m3	Ite m4	Ite m5	Ite m6	Ite m7	Ite m8	Ite m9	Item 10	Item 11	Item 12	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 20
Agreem ent Value	1	1	1	.62	1	.72	1	1	1	1	.78	1	.90	1	1	.87	1	1	.87	.87

Sentence Completion Task-Meaning Acceptability																				
Item ID	Ite m1	Ite m2	Ite m3	Ite m4	Ite m5	Ite m6	Ite m7	Ite m8	Ite m9	Item 10	Item 11	Item 12	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 20
Agreem ent Value	.88	.94	.89	.89	.88	.84	.81	1	.77	.78	.83	.94	.85	.86	1	.87	.80	.90	.90	.91

APPENDIX M. DESCRIPTIVE STATISTICS ACROSS YEAR OF STUDY

Descriptive Statistics				
	Year of study	$\bar{x}$	SD	N
Sentence Production Task	1	71.06	17.698	84
	4	75.38	15.847	98
Sentence Completion Task	1	62.20	22.779	84
	4	63.98	21.550	98
Fill-in the Blanks Task	1	53.69	22.376	84
	4	68.16	18.520	98
Grammaticality Judgment Task	1	50.48	17.174	84
	4	52.60	14.073	98

Appendix N. Descriptive Statistics Across Vocabulary Levels

	Vocabulary Level	N	$\bar{x}$	SD
Sentence Production Task	ACAD ¹	37	70.777	15.663
	2000	34	72.610	17.745
	3000	73	73.544	17.415
	5000	38	76.315	16.060
Sentence Completion Task	ACAD	37	60.270	22.265
	2000	34	53.823	23.324
	3000	73	64.520	20.985
	5000	38	71.710	19.839
Fill-in the Blanks Task	ACAD	37	60.000	22.236
	2000	34	51.764	20.519
	3000	73	63.287	18.413
	5000	38	68.157	24.916
Grammaticality Judgment Task	ACAD	37	52.702	15.482
	2000	34	45.147	10.623
	3000	73	53.013	16.430
	5000	38	53.684	16.712

APPENDIX 0. ONE WAY REPEATED MEASURE ANOVA

Multivariate Tests ^a							
Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	
verbuse	Pillai's Trace	.522	65.279 ^b	3.000	179.000	.000	.522
	Wilks' Lambda	.478	65.279 ^b	3.000	179.000	.000	.522
	Hotelling's Trace	1.094	65.279 ^b	3.000	179.000	.000	.522
	Roy's Largest Root	1.094	65.279 ^b	3.000	179.000	.000	.522
a. Design: Intercept Within Subjects Design: verbuse b. Exact statistic							

Mauchly's Test of Sphericity ^a							
Measure: MEASURE_1							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
verbuse	.895	19.868	5	.001	.927	.943	.333
Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix. a. Design: Intercept Within Subjects Design: verbuse b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.							

Tests of Within-Subjects Effects							
Measure: MEASURE_1							
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	
verbuse	Sphericity Assumed	43370.113	3	14456.704	51.911	.000	.223
	Greenhouse-Geisser	43370.113	2.782	15592.226	51.911	.000	.223
	Huynh-Feldt	43370.113	2.829	15328.817	51.911	.000	.223
	Lower-bound	43370.113	1.000	43370.113	51.911	.000	.223

Error(verbuse)	Sphericity Assumed	151220.903	543	278.492			
	Greenhouse-Geisser	151220.903	503.455	300.366			
	Huynh-Feldt	151220.903	512.107	295.292			
	Lower-bound	151220.903	181.000	835.475			

Tests of Within-Subjects Effects							
Measure: MEASURE_1							
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	
verbuse	Sphericity Assumed	43370.113	3	14456.704	51.911	.000	.223
	Greenhouse-Geisser	43370.113	2.782	15592.226	51.911	.000	.223
	Huynh-Feldt	43370.113	2.829	15328.817	51.911	.000	.223
	Lower-bound	43370.113	1.000	43370.113	51.911	.000	.223
Error(verbuse)	Sphericity Assumed	151220.903	543	278.492			
	Greenhouse-Geisser	151220.903	503.455	300.366			
	Huynh-Feldt	151220.903	512.107	295.292			
	Lower-bound	151220.903	181.000	835.475			

Tests of Between-Subjects Effects						
Measure: MEASURE_1						
Transformed Variable: Average						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	2835786.833	1	2835786.833	4408.110	.000	.961
Error	116439.339	181	643.311			

Estimates				
Measure: MEASURE_1				
verbuse	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound

1	73.386	1.247	70.926	75.846
2	63.159	1.637	59.930	66.389
3	61.484	1.600	58.327	64.640
4	51.621	1.154	49.343	53.899

Multivariate Tests						
	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.522	65.279 ^a	3.000	179.000	.000	.522
Wilks' lambda	.478	65.279 ^a	3.000	179.000	.000	.522
Hotelling's trace	1.094	65.279 ^a	3.000	179.000	.000	.522
Roy's largest root	1.094	65.279 ^a	3.000	179.000	.000	.522
Each F tests the multivariate effect of verb use. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.						
a. Exact statistic						

APPENDIX P: MULTIVARIATE TESTS FOR YEAR OF STUDY

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^c
Intercept	Pillai's	.967	1294.088 ^b	4.000	177.000	.000	.967	5176.352	1.000
	Trace								
	Wilks'	.033	1294.088 ^b	4.000	177.000	.000	.967	5176.352	1.000
	Lambda								
	Hotelling's	29.245	1294.088 ^b	4.000	177.000	.000	.967	5176.352	1.000
sm1f	Trace								
	Roy's	29.245	1294.088 ^b	4.000	177.000	.000	.967	5176.352	1.000
	Largest								
	Root								
	Pillai's	.121	6.117 ^b	4.000	177.000	.000	.121	24.468	.986
	Trace								
	Wilks'	.879	6.117 ^b	4.000	177.000	.000	.121	24.468	.986
	Lambda								
	Hotelling's	.138	6.117 ^b	4.000	177.000	.000	.121	24.468	.986
	Trace								
	Roy's	.138	6.117 ^b	4.000	177.000	.000	.121	24.468	.986
	Largest								
	Root								
a. Design: Intercept + sm1f									
b. Exact statistic									
c. Computed using alpha = .05									

TESTS OF BETWEEN SUBJECTS EFFECTS

Tests of Between-Subjects Effects									
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta	Noncent. Parameter	Observed Power ^c

							Squared		
Corrected Model	SPT ²	846.502 ^a	1	846.502	3.026	.084	.017	3.026	.409
	SCT ³	142.860 ^b	1	142.860	.292	.590	.002	.292	.084
	FBT ⁴	9474.110 ^c	1	9474.110	22.791	.000	.112	22.791	.997
	GJT ⁵	204.409 ^d	1	204.409	.842	.360	.005	.842	.150
Intercept	SPT	969948.494	1	969948.494	3466.917	.000	.951	3466.917	1.000
	SCT	720159.344	1	720159.344	1471.122	.000	.891	1471.122	1.000
	FBT	671601.583	1	671601.583	1615.606	.000	.900	1615.606	1.000
	GJT	480582.431	1	480582.431	1979.859	.000	.917	1979.859	1.000
smif	SPT	846.502	1	846.502	3.026	.084	.017	3.026	.409
	SCT	142.860	1	142.860	.292	.590	.002	.292	.084
	FBT	9474.110	1	9474.110	22.791	.000	.112	22.791	.997
	GJT	204.409	1	204.409	.842	.360	.005	.842	.150
Error	SPT	50359.069	180	279.773					
	SCT	88115.519	180	489.531					
	FBT	74825.340	180	415.696					
	GJT	43692.432	180	242.736					
Total	SPT	1031367.188	182						
	SCT	814275.000	182						
	FBT	772300.000	182						
	GJT	528875.000	182						
Corrected Total	SPT	51205.572	181						
	SCT	88258.379	181						
	FBT	84299.451	181						
	GJT	43896.841	181						

² Sentence Production Task

³ Sentence Completion Task

⁴ Fill-in the Blanks Task

⁵ Grammaticality Judgment Task

a. R Squared = .017 (Adjusted R Squared = .011)
b. R Squared = .002 (Adjusted R Squared = -.004)
c. R Squared = .112 (Adjusted R Squared = .107)
d. R Squared = .005 (Adjusted R Squared = -.001)
e. Computed using alpha = .05

APPENDIX R. MULTIVARIATE TESTS FOR VOCABULARY LEVELS

Multivariate Tests ^a									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^d
Intercept	Pillai's Trace	.964	1178.719 ^b	4.000	175.000	.000	.964	4714.877	1.000
	Wilks' Lambda	.036	1178.719 ^b	4.000	175.000	.000	.964	4714.877	1.000
	Hotelling's Trace	26.942	1178.719 ^b	4.000	175.000	.000	.964	4714.877	1.000
	Roy's Largest Root	26.942	1178.719 ^b	4.000	175.000	.000	.964	4714.877	1.000
LEVEL	Pillai's Trace	.133	2.049	12.000	531.000	.019	.044	24.583	.932
	Wilks' Lambda	.869	2.100	12.000	463.298	.016	.046	22.153	.897
	Hotelling's Trace	.148	2.144	12.000	521.000	.013	.047	25.724	.944
	Roy's Largest Root	.131	5.780 ^c	4.000	177.000	.000	.116	23.120	.980
a. Design: Intercept + LEVEL									
b. Exact statistic									
c. The statistic is an upper bound on F that yields a lower bound on the significance level.									
d. Computed using alpha = .05									

TESTS OF BETWEEN SUBJECTS EFFECTS (VOCABULARY LEVEL)

Tests of Between-Subjects Effects									
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^c
Corrected Model	SPT ⁶	600.322 ^a	3	200.107	.704	.551	.012	2.112	.198
	SCT ⁷	6186.106 ^b	3	2062.035	4.472	.005	.070	13.417	.874

⁶ Sentence Production Task

⁷ Sentence Completion Task

	FBT ⁸	5223.321 ^c	3	1741.107	3.919	.010	.062	11.758	.823
	GJT ⁹	1771.649 ^d	3	590.550	2.495	.061	.040	7.486	.611
Intercept	SPT	891563.609	1	891563.609	3136.005	.000	.946	3136.005	1.000
	SCT	649667.768	1	649667.768	1409.013	.000	.888	1409.013	1.000
	FBT	613263.525	1	613263.525	1380.453	.000	.886	1380.453	1.000
	GJT	433782.857	1	433782.857	1832.950	.000	.911	1832.950	1.000
LEVEL	SPT	600.322	3	200.107	.704	.551	.012	2.112	.198
	SCT	6186.106	3	2062.035	4.472	.005	.070	13.417	.874
	FBT	5223.321	3	1741.107	3.919	.010	.062	11.758	.823
	GJT	1771.649	3	590.550	2.495	.061	.040	7.486	.611
Error	SPT	50605.250	178	284.299					
	SCT	82072.273	178	461.080					
	FBT	79076.129	178	444.248					
	GJT	42125.191	178	236.658					
Total	SPT	1031367.188	182						
	SCT	814275.000	182						
	FBT	772300.000	182						
	GJT	528875.000	182						
Corrected Total	SPT	51205.572	181						
	SCT	88258.379	181						
	FBT	84299.451	181						
	GJT	43896.841	181						
a. R Squared = .012 (Adjusted R Squared = -.005)									
b. R Squared = .070 (Adjusted R Squared = .054)									
c. R Squared = .062 (Adjusted R Squared = .046)									
d. R Squared = .040 (Adjusted R Squared = .024)									
e. Computed using alpha = .05									

⁸ Fill-in the Blanks Task

⁹ Grammaticality Judgment Task

POST-HOC TEST FOR VOCABULARY LEVELS (BONFERRONI ADJUSTMENT)

Bonferroni							
Dependent Variable	(I) LEVEL	(J) LEVEL	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
SPT ¹⁰	ACAD ¹¹	2000	-1.8333	4.00568	1.000	-12.5207	8.8542
		3000	-2.7675	3.40269	1.000	-11.8461	6.3111
		5000	-5.5388	3.89427	.940	-15.9289	4.8514
	2000	ACAD	1.8333	4.00568	1.000	-8.8542	12.5207
		3000	-.9342	3.50089	1.000	-10.2748	8.4064
		5000	-3.7055	3.98036	1.000	-14.3254	6.9144
	3000	ACAD	2.7675	3.40269	1.000	-6.3111	11.8461
		2000	.9342	3.50089	1.000	-8.4064	10.2748
		5000	-2.7713	3.37284	1.000	-11.7702	6.2277
	5000	ACAD	5.5388	3.89427	.940	-4.8514	15.9289
		2000	3.7055	3.98036	1.000	-6.9144	14.3254
		3000	2.7713	3.37284	1.000	-6.2277	11.7702
SCT ¹²	ACAD	2000	6.4467	5.10126	1.000	-7.1637	20.0572
		3000	-4.2503	4.33334	1.000	-15.8119	7.3113
		5000	-11.4403	4.95937	.133	-24.6722	1.7917
	2000	ACAD	-6.4467	5.10126	1.000	-20.0572	7.1637
		3000	-10.6970	4.45840	.105	-22.5923	1.1983
		5000	-17.8870 [*]	5.06901	.003	-31.4115	-4.3625

¹⁰ Sentence Production Task

¹¹ Academic Vocabulary Level

¹² Sentence Completion Task

	3000	ACAD	4.2503	4.33334	1.000	-7.3113	15.8119
		2000	10.6970	4.45840	.105	-1.1983	22.5923
		5000	-7.1900	4.29533	.575	-18.6502	4.2702
	5000	ACAD	11.4403	4.95937	.133	-1.7917	24.6722
		2000	17.8870*	5.06901	.003	4.3625	31.4115
		3000	7.1900	4.29533	.575	-4.2702	18.6502
FBT ¹³	ACAD	2000	8.2353	5.00728	.611	-5.1244	21.5950
		3000	-3.2877	4.25350	1.000	-14.6363	8.0610
		5000	-8.1579	4.86800	.573	-21.1460	4.8303
	2000	ACAD	-8.2353	5.00728	.611	-21.5950	5.1244
		3000	-11.5230	4.37627	.055	-23.1991	.1532
		5000	-16.3932*	4.97563	.007	-29.6685	-3.1179
	3000	ACAD	3.2877	4.25350	1.000	-8.0610	14.6363
		2000	11.5230	4.37627	.055	-.1532	23.1991
		5000	-4.8702	4.21620	1.000	-16.1193	6.3789
	5000	ACAD	8.1579	4.86800	.573	-4.8303	21.1460
		2000	16.3932*	4.97563	.007	3.1179	29.6685
		3000	4.8702	4.21620	1.000	-6.3789	16.1193
GJT ¹⁴	ACAD	2000	7.5556	3.65468	.241	-2.1953	17.3066
		3000	-.3110	3.10452	1.000	-8.5941	7.9721
		5000	-.9815	3.55303	1.000	-10.4612	8.4982
	2000	ACAD	-7.5556	3.65468	.241	-17.3066	2.1953
		3000	-7.8666	3.19413	.088	-16.3888	.6555
		5000	-8.5372	3.63158	.119	-18.2265	1.1521
	3000	ACAD	.3110	3.10452	1.000	-7.9721	8.5941
		2000	7.8666	3.19413	.088	-.6555	16.3888
		5000	-.6705	3.07730	1.000	-8.8809	7.5399
	5000	ACAD	.9815	3.55303	1.000	-8.4982	10.4612

¹³ Fill-in the Blanks Task

¹⁴ Grammaticality Judgment Task

		2000	8.5372	3.63158	.119	-1.1521	18.2265
		3000	.6705	3.07730	1.000	-7.5399	8.8809
Based on observed means. The error term is Mean Square(Error) = 236.658.							
*. The mean difference is significant at the .05 level.							

APPENDIX S. SYNTACTIC AND SEMANTIC ANALYSIS OF *THINK* SENTENCE PRODUCTION TASK.

	THINK								
		thought (mental engagement)		consider (remember, plan/intend)		express opinion (have an opinion, believe sth), predict, suppose		Total	
		N	%	N	%	N	%	N	%
Clause	that-CL	-		-		31	11	31	11
	zero that-CL	-		-		145	51.6	145	51.6
	wh-CL	3	1.06	1	0.35	-	-	4	1.42
	to-INF	-		7	2.49	1	0.35	8	2.84
	so/twice/like this	-		1	0.35	4	1.42	5	1.77
	null	4	1.42	-		-		4	1.42
Total		7	2.49	9	3.2	181	64.4	197	70.1
Phrase	Prep N (about NP)	23	8.18	30	10.6	2	0.71	55	19.5
	Prep N (about V- ing)	-	-	8	2.84	-	-	8	2.84
	(Prep N) of NP	1	0.35	10	3.55	2	0.71	12	4.27
	Prep N (of V-ing)	-	-	8	2.84	-	-	8	2.84
Total		24	8.54	56	19.9	4	1.42	84	29.8
TOTAL	281								100

APPENDIX T: SYNTACTIC AND SEMANTIC ANALYSIS OF *BELIEVE* SENTENCE PRODUCTION TASK.

<i>BELIEVE</i>													
				General-think or be sure that something is true, correct, useful									
		believe the existence of sth		think this is the case (think sth is true)/hold as an opinion/accept sth as true or probable		believe another person (trust, have confidence)		else (support/ value, express surprise)		religion		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Clause	that -CL	-	-	55	20.9	-	-	-	-	-	-	55	20.9
	zero that -CL	1	0.38	69	26.2	-	-	-	-	-	-	70	26.6
	wh-CL	-	-	4	1.52	-	-	1	0.38	-	-	5	1.9
	so	-	-	1	0.38	-	-	-	-	-	-	1	0.38
Total		1	0.38	129	49			1	0.38			131	49.8
Phrase	NP	3	1.14	1	0.38	38	14.4	1	0.38	-	-	43	16.3
	Prep N (in NP)	11	4.18	-	-	45	17.1	11	0.38	32	12.1	89	33.8
Total		14	5.32	1	0.38	83	31.5	2	0.76	32	12.1	133	50.5
TOTAL												263	100

APPENDIX U: SYNTACTIC AND SEMANTIC ANALYSIS OF *ASSUME* IN SENTENCE PRODUCTION TASK.

<i>ASSUME</i>									
		suppose or expect sth to be the case							
		suppose or expect sth to be the case		predict/estimate think that sth is true or probably true/believe/accept true without verification		...power/take over/gain/responsibility		Total	
		N	%	N	%	N	%	N	%
<i>Clause</i>	that -CL	102	49.2	42	20.2	-	-	144	69.5
	zero that -CL	23	11.1	30	14.4	-	-	53	25.6
<i>Total</i>		125	60.3	72	34.7	-	-	197	95.1
<i>Phrase</i>	NP	1	0.48	-	-	9	4.34	10	4.83
<i>Total</i>		1	0.48	-	-	9	4.34		
<i>TOTAL</i>								207	100

APPENDIX V: SYNTACTIC AND SEMANTIC ANALYSIS OF *SUPPOSE* SENTENCE PRODUCTION TASK.

<i>SUPPOSE</i>													
		believe-express one's belief or view											
		believe/exp ress one's belief or view/assum e		consid er probab le or likely		consider as suggesti on		hypotheti cal /imagine		to have a duty or responsibi lity		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
	to-INF (be suppos ed to)	-	-	-	-	-	-	-	-	37	15.1	37	15.1
<i>Clau se</i>	that- CL	43	17.6	32	13.1	21	0.81	32	13.1	-	-	109	44.6
	zero that- CL	48	19.6	39	15.9	1	0.4	6	2.45	-	-	94	38.5
	so	2	0.81	1	0.4	-	-	-	-	-	-	3	1.22
<i>Total</i>		93	38.1	72	29.5	3	1.22	38	15.5	37	15.1	243	99.5
<i>Phra se</i>	NP to- INF	-	-	-	-	-	-	1	0.4	-	-	1	0.4
<i>Total</i>		-	-	-	-	-	-	1	0.4	-	-	244	100