

**AN ANALYSIS OF FACTIVE COGNITIVE
VERB COMPLEMENTATION
PATTERNS USED BY ELT STUDENTS**

Doktora Tezi
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**AN ANALYSIS OF FACTIVE COGNITIVE VERB COMPLEMENTATION
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PhD DISSERTATION

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ÖZET

İNGİLİZCE ÖĞRETMENLİĞİ PROGRAMI'NDA OKUYAN ÖĞRENCİLERİN KULLANDIKLARI OLGUSAL BİLİŞ EYLEMLERİNİN YANULAMLAMA GÖRÜNÜMLERİNİN İNCELENMESİ

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Bu araştırmanın amacı, İngilizce'yi yabancı dil olarak öğrenen Türk öğrencilerin olgusal biliş eylemlerini (*bil-*, *anla-*, *hatırla-*, *unut-*, ve *pişman ol-*) yanulamlama (eylemin seçtiği üyeler) özellikleri açısından anlama ve kullanım yeterliliklerini ortaya çıkarmaktır. Bu amaç doğrultusunda, gömülü karma yöntem benimsenmiş, hem nitel hem nicel veri toplama yöntemleri kullanılmıştır. Araştırmanın katılımcılarını bir devlet üniversitesinde İngilizce Öğretmenliği Bölümü'nde okuyan 269 öğrenci oluşturmaktadır. Veri toplama aracı olarak dört çeşit test (Cümle Tamamlama, Cümle Yazma, Boşluk Doldurma ve Dilbilgisellik Değerlendirme Testleri) geliştirilmiştir. İngilizce İstem Sözlüğü'ne (Herbst ve ark. 2004) göre eylemler, anlam ve örüntüleri açısından incelenmiş ve test maddelerinin oluşturulmasında Çağdaş Amerikan İngilizcesi Derlemi'nden faydalanılmıştır. Testlerden alınan puanların hesaplanmasında, istatistiksel testlerde ve eylemlerin yanulamlama örüntüleri ve eylem anlamlarının çözümlenmesinde nitel ve nicel veri analizi yapılmıştır. Çalışma bulguları, sözcük seviyesinin öğrencilerin eylemlerin yanulamlama ve anlamları açısından tanıma ve üretim düzeylerine etkisi olduğunu göstermiştir. Ayrıca, eylemlerin yanulamlama örüntülerinde öğrencilerin doğru, yanlış ve problemli kullanımlarının olduğu ortaya çıkarılmıştır. Doğru kullanımlarda, öğrencilerin belirli bir anlam ve kısıtlı türde örüntüyü tercih ettikleri saptanmıştır. Yanlış örüntülerin özellikle *pişman ol-* eylemi ile kullanıldığı gözlenmiştir. Ayrıca, öğrencilerin ürettikleri eylem anlamları ve yanulamlama örüntülerinde bir çok türde sorun yaşandığı görülmüştür. Bu bağlamda, bu tez çalışmasının, İngilizce'yi yabancı dil olarak öğrenen öğrencilerin aradil gelişimine ışık tutarak eylemlerin yanulamlama özellikleri açısından kullanımına ilişkin dil öğrenimi/öğretimi alanlarına önemli katkılar sağlayacağı düşünülmektedir.

Anahtar Sözcükler: Eylem yanulamlama örüntüleri, Eylem anlamları, İkinci dil olarak İngilizce, Olgusal biliş eylemleri, Algı ve üretim düzleminde bilgi.

ABSTRACT
AN ANALYSIS OF FACTIVE COGNITIVE VERB COMPLEMENTATION
PATTERNS USED BY ELT STUDENTS

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Department of Foreign Language Education

Anadolu University, Graduate School of Educational Sciences, May 2019

Supervisor: Prof. Dr. İlknur KEÇİK

The current research aimed to explore Turkish L2 learners' receptive and productive knowledge of factive cognitive verb complementation in terms of complementation patterns and senses. For the purposes of the research, embedded mixed-methods research design was adopted by using both qualitative and quantitative methods. Participants of the study consisted of 269 Turkish learners of English majoring in ELT program. Data were collected through four types of tests developed based on Valency Dictionary of English (Herbst, Heath, Roe, and Götz, 2004) to measure L2 learners' state of knowledge through *Grammaticality Judgment Test* and *Fill-in-the Blank Test* and to reveal choices of patterns and senses through *Sentence Completion Test* and *Free-Production Test* based on extracts from Corpus of Contemporary American English. Data were analyzed qualitatively and quantitatively through the identification of patterns and senses, calculation of raw and mean scores and statistical tests. The results of the study yielded the significant effect of word-level on L2 learners' recognition and production of verb complementation. The correct choices of L2 learners yielded the use of the verbs in very restricted sense with limited types of patterns (i.e. predominantly noun phrases). The incorrect choices included the wrong choices of various patterns especially prepositional phrases (*for/about/of/from Noun Phrases/V-ing*) with *regret*. Besides, various problems were observed such as the mismatch between the complementation pattern and verb sense, incorrect verb sense use and the problematic use of *wh-CL* complementation pattern. This study is hoped to provide valuable insights into L2 learners' interlanguage development through their correct, incorrect and problematic uses of verb complementation.

Keywords: Verb complementation patterns, Verb senses, English as a second language, Factive cognitive verbs, Receptive and productive knowledge.

All that I am and ever hope to be, I owe to them;

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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.

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03/05/2019

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.



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LIST OF ABBREVIATIONS

ACAD	: Academic Texts
AWL	: Academic Word List
COCA	: Corpus of Contemporary American English
EFL	: English as a Foreign Language
ELT	: English Language Teaching
ESL	: English as a Second Language
FBT	: Fill-in-the-Blank Test
FIC	: Fiction
FPT	: Free Production Test
GJT	: Grammaticality Judgment Test
ID	: Item Discrimination
ID No	: Identity Number
IF	: Item Facility
IL	: Interlanguage
INF	: Infinitive
KR-20	: Kuder-Richardson 20 Formula
L1	: First Language
L2	: Second Language
MAG	: Magazine
MANOVA	: Multivariate Analysis of Variance
MICASE	: Michigan Corpus of American Spoken English
NEWS	: Newspaper
SCT	: Sentence Completion Test

SLA	: Second Language Acquisition
SPOK	: Spoken Language
TNC	: Turkish National Corpus
VLT	: Vocabulary Levels Test

CHAPTER 1

1. INTRODUCTION

1.1. Background to the Study

The verb is considered to be the principal component of a sentence and a crucial determinant of sentence structure (Faulhaber, 2011) and its meaning (Healy and Miller, 1971). One of the most essential components of knowing what a verb denotes and how to utilize it in sentence comprehension and production is to know the syntactic environments it appears in and the semantic and selectional constraints on its possible syntactic complementation patterns (Hare et al., 2003, p. 281; Uçkun, 2012, p. 360). The idea of required constituents in the environment of a verb is dealt with from different perspectives focusing on purely syntactic aspects, purely semantic aspects or both syntactic and semantic aspects. Depending on the perspective based on, different terms are used to express the relations of the constituents a verb requires. One of the terms explaining these kinds of relations is *valency* put forth by Tesnière (Herbst, 2007; Matthews, 2007). The concept was primarily seen as the property of a word or lexical unit that determines the occurrence of other elements in a clause (Herbst, 2007). But later, the scope of its definition extended and became more general including semantic properties of words of other categories (Matthews, 2007, p.3) and there has been a movement from purely syntactic treatments to those in which additional dimensions specifically the semantic treatment entered into the analysis (Levin, 2015). Valency as a term is used to cover the analysis of not only verbs, but also nouns and adjectives in terms of complements (Herbst, 2004, p. xxv). In this study, valency analysis will be carried out in terms of complements cognitive verbs take. Within this perspective, the complementation patterns of cognitive verbs used by EFL learners will be analysed both syntactically and semantically. As Herbst and Götz-Votteler (2007) indicate, complementation being a neutral term will be used throughout the study.

Earlier studies (Rosenbaum, 1967; Bresnan, 1972) on verb complementation focused mostly and primarily on syntactic issues adopting syntactic approach which assumed that verbs simply subcategorize for certain complement types and they ignored the crucial role of meaning in complementation selection (Smith, 2009). For example, as Smith (2009) states, studies which were based on syntactic approach did not address the possibility that syntactically different complementation patterns may signal differences in meaning. However, as Pinker (2013) states, only syntactic properties of a verb are not

sufficient to explain complementation privileges of verbs, as language users overgeneralize the lexical rules regarding purely syntactic properties of verb argument structures and make errors. Accordingly, along with syntactic properties, semantic properties of verbs as well as morphological and phonological ones enable learners to predict verbs' syntactic behavior. As it is stated in 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 (Herbst, 2004, p. xxix)". Some scholars such as Dixon (1984), Fisher, Gleitman, H., and Gleitman, R. (1991) and Levin (1993) give priority to semantics in verbal complementation and approach from a semantic angle which helps language users see the non-arbitrary correlation between semantic and syntactic properties of verbs. Accordingly, the complement variety of a specific verb in a particular language is never random but meaning-driven as it is motivated semantically by the meanings of the verbs and complement types (Dixon, 1984; Bourke, 2007; Smith, 2009). According to Dixon (1984), there are general semantic principles that help language users decide what complements a specific verb can take. Knowing what complements a verb takes requires knowing the following information:

the kinds of complement clauses the language operates with, and their semantic characterisations, the semantic type to which a word belongs and its further semantic specification within that type, the complement possibilities for that semantic type in that language and its possible syntactic structures and constraints (Dixon, 1984, p. 585).

In this respect, as it is stated by Wilson and Garnsey (2009, p.369), "knowledge tied to verbs is particularly influential" as verbs tend to place strong restrictions on the complementation patterns they can take within the sentence they occur. In this regard, according to Can (2009, p. 2832), "teaching verbs is one of the most important areas of language instruction and it is the verb that establishes the relationship between semantics (meaning) and syntax (structure)". However, this relationship between verbal meaning and syntactic structures is very complex (Levin, 1993; Hare et al., 2003; Uçkun, 2012). This means that verbs may appear in multiple syntactic environments (Schwarte, 1988; Hare et al., 2003; Wang, 2014; Cuyckens and D'hoedt, 2015) and encode different meanings depending on the complementation patterns they co-occur with (Kidd et al., 2006, p.103). Accordingly, certain senses (i.e. meanings) of a verb highly correlate with specific complements (Roland, 2001; Hare et al., 2003). Verb semantics influences verbs'

complementation preferences (Hare et al., 2003). Considering verb semantics, many verbs demonstrate meaning differences and complementation patterns vary by the verb meaning (Hare et al., 2003). For example, a verb such as *find* can only co-occur with direct object if it is used to mean *locate* or it can take a sentential complement to mean *realize* (Hare et al. 2003, p.281). Similarly, the verb *grasp* can refer to *come to understand* if it occurs with a sentential complement (*i.e. She grasped that he wanted her to be quiet*) and it can mean *grip* when used with a direct object (*i.e. She grasped the handrail*) (Hare et al., 2003, p.283). This shows that different meanings of a verb are associated with different complementation patterns and as such verbs involve polysemy including a prototypical meaning and other extensions of uses.

At this point, cognitive verbs are one category of such verbs which possess various and numerous senses and which are thus ambiguous (Naigles, 2000, p.248; Nixon, 2005, p.20). The verbs included in this category are *know, understand, assume, suppose, believe, think, forget, understand and so on*. These kinds of verbs are labelled as opinion verbs (Klotz, 2007), verbs of cognitive attitude (Cappelli, 2008), private verbs (Quirk et al., 1985; Biber, 1988), verbs of belief (Papafragou, Cassidy, and Gleitman, 2007), propositional attitude predicates, mental verbs (Biber, Johansson, Leech and Conrad, 1999; Hare et al., 2003), mental state verbs (Naigles, 2000; Spanoudis, Natsopolous and Panayiotou, 2007), cognitive state verbs (Owen Van Horne and Lin, 2011) and here the term ‘cognitive verbs’ (Bourke, 2007; Fetzer, 2008; Fetzer and Johansson, 2010) is adopted. They refer to a class of verbs based on semantics of its members that concentrate on the verb’s private domain of reference and may denote the psychological disposition of the speaker or other discourse communities (Fetzer, 2008, p. 4; Fetzer and Johansson, 2010, p. 243). They “communicate information about mental states and actions such as thought (e.g. know, forget), emotion (e.g. enjoy), desire (e.g. want), perception (e.g. see) (Owen Van Horne and Lin, 2011, p.2). They include many verb-senses of cognition, feeling, knowledge, perception and belief and they are universal and seen in every language (Givón, 1973, p.891). Considering their syntactic and semantic features, they are extremely complex lexical items (Cappelli, 2008, p.538). At this point, it becomes a real challenge for language learners to know complementation possibilities of verbs which allow multiple interpretations (Hare et al., 2003; Uçkun, 2012). That is, it is important for language learners to have the knowledge that the structure a verb appears in is influenced by the particular verb meaning in given context. It is also important for

them to be aware of multiple meanings of a verb and their complementation possibilities. That is, language learning is a developmental process (Piriz, 2008, p.235) and an understanding of English language learners' interlanguage regarding the use of cognitive verbs along with their complementation patterns at recognition and production levels through this study is expected to provide an invaluable insight into their developmental process.

1.2.Statement of the Problem

In the literature, the phenomenon of verb complementation has been a concern for many studies in the last five decades (Höglund, 2015, p.1) and a treacherous research topic in the domain of the first and second language acquisition. It has been found to be a problematic area for many L2 learners and “a common source of errors in foreign language learning” (Celce-Murcia and Larsen-Freeman, 1999; Herbst, Heath, Roe, and Götz, 2004, p.vii; Yoon, 2016) as has been revealed in the previous studies (i.e. Vawser, 1988; Celce-Murcia & Larsen-Freeman, 1999; Bourke, 2007; Vercellotti and Jong, 2013; Yoon, 2016). For example, L2 learners of German, Thai, Chinese, Korean, French, Russian and Spanish experience difficulty in distinguishing meanings of verbal complements (Schwartz and Causarano, 2007; Kitikanan, 2011; Vercellotti and Jong, 2013) and they make grammatical and syntactical errors such as coupling incorrect verb complementation patterns with the incorrect verbs (e.g. adverbial/prepositional complement instead of noun phrase), omitting obligatory complements and wrong choice of tense, aspect and case (Celce-Murcia and Larsen-Freeman, 1999, p.645; Roe, 2007, p.220). Additionally, L2 learners make errors such as the deletion of *to* in *to*- infinitive complementation pattern (e.g. “*I want buy the books*”), using inflected infinitive (e.g. “*he wanted her to washed the dishes*”), and using *that* with *to*-infinitive (e.g. “*She allowed us that to leave school*”) (Anderson, 1983, p.24). L2 learners inaccurately use the root verb form or both *to*-infinitive and *ing*- forms after the matrix verb which requires either the former or the latter (Duffley and Tremblay, 1994; Roe, 2007; Schwartz and Causarano, 2007; Vercellotti and Jong, 2013; Wang, 2014). Regarding gerundial and infinitival verb complementation, English language learners find it difficult to determine the differences between these two types and their meanings and thus they feel unsure about which form to choose and where to use it properly (Dazdarevic and Fijuljanin, 2014; Wang, 2014). Petrovitz (2001, p.172) argues that gerundial and infinitival complements are among the

most difficult subjects to teach and a continuing source of errors for even advanced L2 learners. They are introduced at the same time in a single unit in instruction programs and grammar texts, which in fact deserve being treated as independent topics in syllabuses due to syntactic, semantic and lexical distinctions between the two types (Petrovitz, 2001; Schwartz and Causarano, 2007). Moreover, Bourke (2007, p.35) states that verbal complementation is seen as one of the areas in English grammar that even many pedagogical grammarians find it hard to explain as it is said to be “unteachable or at least very complex and messy”. In this respect, Biber and Xeppen (1998) argue that complementation aspect of verbs in language use is ignored in reference books and ESL/EFL grammar. Grammar books provide extensive and exhaustive lists of verbs with their complement types in unsystematic way (Vawser, 1988; Bourke, 2007; Schwartz and Causarano, 2007; Kang, 2009; Wang, 2014), which language learners are expected to memorize (Wherrity, 2001; Lee and Choe, 2013). Nevertheless, such lists are not whole and not adequate for providing a broad coverage of verb complementation use. What is more, certain considerations are not addressed in grammar books such as what influences the choice among complementation patterns, which complement types are common or rare, which verbs particularly appear in sentential complements or direct object (Biber and Xeppen, 1998). In fact, all these considerations are of great value for ESL/EFL instructors, authors of EFL/ESL course books and students (Biber and Xeppen, 1998) since knowledge of verbs is particularly crucial (Wilson and Garnsey, 2009, p.369) in understanding the meaning and pattern variations of verbs as verbs tend to place strong restrictions on the complementation patterns they can take within the sentence they occur.

Cognitive verbs are of particular interest to the researcher among the problematic verbs within the scope of verb complementation due to a number of compelling rationales. They are “highly complex lexical items” (Cappelli, 2008, p.538) and they pose special problems for language learners at semantic, cognitive and syntactic levels (Nixon, 2005, p.20; Papafragou et al. 2007; Owen Van Horne and Lin, 2011, p.2). In terms of syntactic complexity, they can appear with multiple complements including primarily sentential complements (that, zero that-, wh- complements), noun phrases, inflectional phrases, prepositional phrases and verb phrases (Nixon, 2005). For example, *want* and *think* are both cognitive verbs but their complementation features differ in terms of syntactic frame (Owen Van Horne and Lin, 2011). While *to*- infinitive complement in “*I want him to go home*” is acceptable, it is not in the statement “*I think him to go home*” (Owen Van Horne

and Lin, 2011, p.2). To give another example, while *that*-sentential complement is acceptable in “*I think that he went home*”, it is not in the statement “*I want that he went home*” (Owen Van Horne and Lin, 2011, p.2). Even though these two verbs share the same semantic class, they could differ in terms of patterns they take. Owen Van Horne and Lin (2011) illustrate this with verbs *say* and *tell* which have similar meanings but take different complements: While it is natural to say “*I told him to go home*”, the statement “*I said him to go home*” is not (p.2). Or, while *that*-sentential complement is acceptable in “*I said that he should go home*”, it is not in “*I told that he should go home*”. These examples suggest that every verb is associated with one or more than one syntactic frame which must be learned and linked to the target verb (Owen Van Horne and Lin, 2011, p.2).

As far as cognitive complexity is concerned, cognitive verbs have particular dimensions called factivity (factive vs. non-factive) and express varying levels of certainty about the proposition (i.e. *know* with high degree of certainty and *think* with less certainty), (Wellman and Estes, 1987, p.152; Moore, Bryant and Furrow, 1989; p.168), which make them cognitively complex (Nixon, 2005, p.20).

As for the semantic complexity, cognitive verbs are challenging because they are abstract and they present a complex pattern of polysemy (Naigles, 2000; Nixon, 2005; Verdaguer, 2010). This means that each cognitive verb realizes multiple verb senses when it appears in different syntactic structures, which result from semantic extensions and thus exhibit ambiguity (Booth and Hall, 1995; Naigles, 2000; Stojičić, 2008, p.27). In the following sentences, Naigles (2000, p.247) illustrates a variety of different senses a single cognitive verb ‘*know*’ realizes in each sentence. In e.g.1 below, *know* takes a noun phrase as a complement and it refers to *recognition* whereas in e.g. 4, it takes zero complementizer and refers to *belief*. So, a particular cognitive verb does not have only one unitary meaning (Naigles, 2000, p.248; Nixon, 2005, p.20).

- (1) *I know that song. (recognize)*
- (2) *I don't know if that's gonna come out too well. (conjecture)*
- (3) *I don't know what you are saying. (understand)*
- (4) *I know you like that book. (believe)*
- (5) *You let me know if you want Mom to help you. (tell)*
- (6) *You know, the keys are over there. (shared information) (see Naigles, 2000, 247)*

In this sense, contextual conditions may be helpful in that they promote discovery of meanings of cognitive verbs especially those polysemous ones which have different

senses with their associated complements (Papafragou et al., 2007). Syntactic information may also be helpful in that it serves as a cue to the verb's meaning (Papafragou et al., 2007). For example, a language user cannot choose freely between *to-* infinitive and *ing-* complement when combined with the cognitive verb *remember* since “*to-* infinitive complement encodes a situation that is not yet realized at the time of remembering whereas *ing-* complement encodes it as actualizing before or at that time” (Cuyckens and D’hoedt, 2015, p.77).

Hence, regarding these syntactic, cognitive and semantic demands of cognitive verbs, it is important and necessary for L2 learners to be aware of these complexities and to have knowledge of different senses of cognitive verbs as well as their associated complementation patterns. Thus, in the current study, cognitive verb complementation was analyzed with a focus on Turkish learners of English as a Foreign language (EFL) in terms of both syntactic and semantic aspects of complementation patterns. The cognitive verbs analyzed in this study are high-frequency verbs comprised of factive verbs including *know*, *remember*, *forget*, *regret* and *understand*. High-frequency verbs have certain characteristics which make them worth investigating specifically in cross-linguistic aspect (Viberg, 1996; as cited in Altenberg and Granger, 2001). Accordingly, they denote basic meanings mostly predominating various semantic fields and have their high-frequency equivalents in many languages (p.174). They are apt to be problematic for EFL learners and even advanced level learners and they show language-specific differences in spite of semantic similarity among different languages, which make them much more treacherous for EFL learners (Altenberg and Granger, 2001, p.174). In addition, they tend to be neglected in L2 instructional programs as soon as they have been taught, and thus even the advanced level learners may have incomplete knowledge of the verbs (Altenberg and Granger, 2001, p.190; Wang and Shaw, 2008). As the relation between the verb complementation pattern and the corresponding verb meaning is determined by the verb itself, it is of great importance for L2 learners to have knowledge of the complementation patterns and senses of high frequency verbs for successful language comprehension and production. Hence, in this research, Turkish EFL learners’ competence and performance were explored with regard to the high frequency factive cognitive verbs and their complementation patterns through a variety of tests that were developed by the researcher to measure learners’ knowledge at recognition level and their use at production level.

1.3.The Statement of the Purpose and the Research Questions

The purpose of the study is to explore the recognition and production of factive cognitive verbs (*i.e. know, remember, forget, regret and understand*) and their associated complementation patterns and senses by Turkish EFL learners in English Language Teaching (ELT) Program.

The following research questions are addressed in this research:

1. What are the achievement levels of Turkish EFL learners regarding factive cognitive verb (*i.e. know, regret, remember, forget, and understand*) complementation patterns at recognition and production levels?
2. What are the preferences of Turkish EFL learners regarding factive cognitive verb complementation patterns and their corresponding verb senses?

1.4.Significance of the Study

Firstly, this study touches on the issue of what Turkish L2 learners of English know and how they perform regarding the use of cognitive verbs and their complementation patterns as future English language teachers who are expected to be well-informed and need to be competent in the target language. In this regard, language learning is a developmental process (Píriz, 2008, p.235) and this study is believed to provide invaluable insights into this process in interlanguage development of L2 learners from different word-levels through a focus on their productive and receptive knowledge regarding the complementation patterns and senses of factive cognitive verbs.

Second, this study is believed to bring new insights into what types of patterns and in which sense L2 learners use with a particular cognitive verb and as a result, it may assist L2 learners in grasping cognitive verbs' different uses effectively. In this respect, the results of the study are expected to raise EFL learners' awareness of structural and semantic complexity of complement-taking verbs, *i.e. cognitive verbs* to enable them shape their developing interlanguage.

Third, the findings of this study are hoped to contribute to pedagogical improvements such as providing language input that would promote learning of different complementation patterns specified with complement-taking verbs as well as their meaning variations. The more L2 learners come across with the verbs with various complementation patterns and different senses the more they become acquainted with the features of the target language and the more accurate and appropriate their language use

becomes. In this respect, L2 learners need to be equipped with certain amount of knowledge about the native speaker norms without imposing them the idea that it is the only way of using the target language (Bentahila and Davies, 1989, p. 110). In this regard, the knowledge of verb complementation features facilitates language comprehension and production (Hare et al., 2008, p.281). Therefore, familiarizing learners with the verb senses associated with multiple complementation patterns may have a prominent effect on using target language well. In this sense, this may contribute to the development of EFL/ESL curriculum and language learning and teaching materials.

This study is also a contribution to the relevant literature since the question of how cognitive verbs and their complementation patterns are fully manifested in the interlanguage of EFL learners has not been addressed yet. Earlier studies have so far mainly dealt with theoretical issues regarding verb complementation or explored L2 learners' errors but few studies focused on language performance of L2 learners regarding how they use verb complementation patterns (Martinez-Garcia and Wulff, 2012; Vercellotti and Jong, 2013). Moreover, majority of the earlier studies mainly concentrated on complementation patterns of verbs in general not specifically cognitive verbs and analyzed L2 learners with a variety of L1 background such as Spanish, Thai, Arabic, Chinese, Italian, Japanese, Russian, French (i.e. Kitikanan, 2011; Martinez-Garcia and Wulff, 2012; Vercellotti and Jong, 2013). Turkish EFL learners' use of cognitive verbs and complementation patterns has not been researched yet. One study conducted in Turkish context was the study of Uçkun (2012) that focused on preferences of thirty-eight Turkish students majoring at the third year of education in English Literature and college English teachers regarding complementation patterns of polysemous verbs. Different from the present research, her study mainly examined the effect of context on their subcategorization preferences through sentence completion tests in presence and absence of context and the polysemous verbs investigated in her study do not include any of the verbs under investigation in the present study. In another study, Bozdağ and Badem (2017) mainly examined the communication verbs and the verb complementation patterns of specifically *mention* and *offer* in Turkish EFL learners' argumentative essays in comparison to English native speakers. Their study yielded differences in the frequencies of communicative verbs in both corpora and the patterns of *offer* and *mention* and also ungrammatical verb complementation patterns with *mention* by Turkish EFL learners. Thus, considering the relevant gap in the literature, the study of cognitive verbs in terms

of verb complementation features is relatively new area and this study is hoped to provide an insight into verbal complementation patterns associated with cognitive verbs under investigation used by Turkish EFL learners.

Lastly, this investigation also merits attention since it makes a methodological contribution to the literature through the development of tests to be used by other researchers in the same field of research. Fewer studies have been concerned with how well the language learner knows a particular target verb in terms of its syntactic environment and semantic meanings and how much instruction should be given related to the complementation features of that particular verb and its senses. Through only recognition tests, the larger part of the difficulties to be experienced most probably by the language learners in their production is left unexamined. That is to say, it is difficult to highlight problems encountered by learners and thus productive tests are also needed for covering various aspects and better understanding of correct and incorrect uses in language production. As it is stated by Chan (2004, p.68), recognition tests such as grammaticality judgement tasks are “the elicitation tasks that impose a high degree of control over the participants’ output production” and free writing tasks could provide further evidence for the maximum performances in L2. Thus, a variety of tests, that are, two recognition tests (i.e. “Grammaticality Judgement Test” and “Fill-in-the-blank Test”) and two production tests (i.e. “Free Production Test” and “Sentence Completion Test”) were designed to measure both competence and performance of English language learners regarding verbal complementation of cognitive verbs selected based on corpus data (i.e. Corpus of Contemporary American English) thereby guaranteeing natural context of English language use within the scope of this research.

To conclude, the findings of the current study are believed to be informative in that they provide insights into the interlanguage development in terms of verb complementation use through the exploration of L2 learners’ receptive and productive knowledge. Therefore, the views on the correct and incorrect choices of patterns and problematic uses based on these findings will be shared and discussed with teacher educators, i.e. the members of the institution where the study was conducted and outside the institution who are interested in, teacher trainees majoring in ELT Program, post-graduate students and the researchers who conduct studies in the field of linguistics and language teaching. Besides that, the classroom practices and suggestions prepared for the

learners, teachers, material designers, and curriculum designers will also be shared with that particular community.

1.5.Scope and Delimitations

The scope of the current research is limited to the analysis of five factive cognitive verbs and their most frequent verb complementation patterns used by ELT students at both recognition and production levels. One limitation might be the number of participants involved in the study. At the beginning of the study, a total of 360 ELT students in their 1st, 2nd, 3rd and 4th year of study participated in the Vocabulary Levels Test which was used to group the learners based on their word-levels. However, in the following data collection phases (i.e. administration of four tests), there was a decrease in the number of participants who took all the tests. At the end of the data collection procedure, a total of 269 students participated in all phases of the data collection. In this sense, the number of participants could be increased to make wider generalizations based on the findings of the study. Furthermore, as the sample of the study included the ELT Program students, i.e. language teacher trainees, it might not be possible to generalize the findings of the current study to other groups of language learners from different educational levels. Apart from that, another limitation may concern the instruments used in the current research. As data collection tools, four types of tests were developed to explore ELT students' receptive and productive knowledge of verb complementation. Even though the tests included extracts or sentences from both written and spoken language (i.e. a wide range of registers such as academic texts, fiction, magazines and news), the data were collected through a written medium. In this respect, these tests may lack giving deep insights for the verb complementation use specifically in spoken language.

1.6.Definitions of Terms

In this part, some basic terminology considering the key terms used throughout the study are presented and clarified and the details are elaborated in the Literature Review Chapter.

First Language (L1): It refers to the first language that a speaker acquires. It is also known as the mother tongue, native language (NL), or the primary language. In this dissertation, the abbreviation L1 was used.

Cognitive Verbs: Cognitive verbs refer to a class of verbs based on semantics of its members that concentrate on the verb’s private domain of reference and may denote the psychological disposition of the speaker or other discourse communities (Fetzer, 2008, p. 4; Fetzer and Johansson, 2010, p. 243).

Complementation: It is a term that is often used instead of the term ‘valency’ (Herbst et al., 2004, p. vii). It is a theory-neutral term (Herbst and Götz-Votteler, 2007, p.v), thus, this term was used throughout the study.

Complement: Complement, also called ‘complementation pattern’, is defined as “the element that the verb takes in order to form a grammatical sentence (Herbst et al., 2004, p. xxiii)”. Complements are ‘depended on the governing verb’ and they can be categorized in terms of three aspects covering formal and functional properties, semantic and lexical properties and the obligatory or optional status (ibid., p. xxiii). In terms of formal properties, complements are consisted of phrases and clauses. Phrases include noun phrases (NP), adjective phrases (ADJP), prepositional phrases (PrepN) whereas clauses include ing-clauses (V-ing), to-infinitive clauses (to-INF), that-clauses (that-CL), and wh-clauses (wh-CL) (ibid.).

Here are the abbreviations for the complements used throughout the study:

Table 1.1. *Abbreviations used for verb complementation patterns (Herbst et al., 2004, ibid.)*

Label	Explanation
[NP]	Noun phrase
[V-ing]	Present participle (i.e. gerundial) clause
[INF]	Bare infinitive clause
[to_INF]	to- infinitive clause
[that_CL]	that- clause
[wh-CL]	A clause introduced by a wh- word
[zero that_CL]	A clause without ‘that’
[wh to-INF]	to- infinitive clause realized by wh- word
[PrepN]	Prepositional phrase

Crosslinguistic Influence: It is defined as “the influence of one language upon another, most typically in cases of second language acquisition (SLA) (Odlin, 2013, p. 1)”. Even though it is considered roughly synonymous with the terms ‘language transfer’, and ‘interference’, they are not equivalent (Odlin, 2013). While language transfer and interference are mostly and traditionally associated with the behaviorist approach,

crosslinguistic influence is theory-neutral and a broader term (Kellerman and Sharwood-Smith, 1986; Odlin, 1989, p. 26; 2013; p.1; Callies, 2015).

Factive Verb: It refers to the verb that ‘presupposes the truth of its complement sentences’ (Givón, 1973, p. 2). Factive verbs, as a sub-category of cognitive verbs, consist of verbs *know, remember, forget, see, hear, guess, resent, suspect, understand, be happy, regret, be aware, learn, realize, discover, notice* and *find out* (Givón, 1973, p. 893).

Interlanguage (IL): It refers to “the language produced by the non-native speaker of a language (Gass and Selinker, 2008, p. 518)”. It denotes the systematic knowledge underlying learners’ production (ibid). In addition, it is “an internalized new language system with its own structure, composed of elements from NL and L2 and also those from neither L1 nor L2 (Gass and Selinker, 2008, p.14)”.

Second Language (L2): In broad sense, it refers to ‘any language learned after one has learnt one’s native language (Richards and Schmidt, 2010, p. 514)’. Put it differently, it denotes any language learned after learning the first language regardless of the context of acquisition or attained level of proficiency (Jarvis and Pavlenko, 2008, p. 4).

On the basis of the purposes of present research, Chapter 2 provides conceptual background of the study regarding verb complementation and the main body of the literature including the studies conducted in L1 and L2 contexts in the field of verb complementation. Chapter 3 presents the methodology and covers specifically the research design adopted in this study, the participants, the data collection tools developed within the scope of this research, data collection procedure and data analysis. Then, Chapter 4 gives information about the findings of the study obtained from quantitative and qualitative data analyses. Next, Chapter 5 provides the readers with a discussion of the results by taking the findings of the previous research in the related literature into account. Finally, Chapter 6 presents a summary of the findings and suggests implications for pedagogical purposes and for further inquiries.

CHAPTER 2

2. REVIEW OF LITERATURE

2.1.Introduction

This chapter provides the conceptual background that forms the basis of the current study regarding the term verb complementation and the theoretical background of the study covering the valency phenomena. Apart from that, this chapter also presents a review of the related studies conducted on verb complementation in native English and English as an L2.

2.2.Conceptual Background

The syntactic and semantic relationships between the words within the sentence have been the inquiry of many scholars and one of the terms used to explain these relations of the required constituents within the environment the word appears is *valency*. Following Herbst and his colleagues (2004), this term specifies not only the formal properties of complements, which are the elements that have to occur within the sentence, i.e. their syntactic features, but also their semantic and collocational properties' (p. xxviii).

Valency was primarily a syntactic theory and was restricted to the syntax of verbs introduced by Tesnière (Herbst, 2007; Götz-Votteler, 2007, p. 37; Matthews, 2007; Horbačauskienė and Petroniene, 2013). Later, the scope of this concept have become more general and there has been a movement from solely syntactic approaches to semantic approaches in which 'meaning' has gained importance (Levin, 2015). Pure syntactic approach has been criticized as having little semantic basis and only providing heterogeneous and arbitrary lists of verbs the complement verbs take. This approach does not explain semantic senses of sentences and the relations between two sentences with the same verb taking different complements (Dixon, 1984; Bourke, 2007). Moreover, Korhonen (2002) asserts that providing only syntactic frames is not sufficient for a full description and she advocates the importance of semantic considerations including "specifying the number and type of arguments that a particular predicate requires, predicate sense in question, semantic representation of structure, mapping between the syntactic and semantic levels of representation and semantic selectional restrictions (p.19)".

Besides, among some scholars who prioritize the semantic aspect, Dixon (1984), Givón (1980), Levin (1993), Smith (2009) and Faulhaber (2011) can be named. For example, Dixon (1984) stresses the semantic basis of syntactic properties of words and gives priority to meaning of the verb and the complement it takes in verbal complementation in English. Dixon states that the complement variety a specific verb in a particular language appears with is not arbitrary and it “depends on the meaning of the verb and the meaning of the available complements” (p. 594). In semantic approach, there has been a renewed interest on the meaning of words themselves and how lexical semantic properties of words affect both syntactic frame and semantic interpretation (Korhonen, 2002, p. 32). For example, Levin (1993) claims that the studies on verb semantics revealed the relationship between syntax and semantics of verbs and also paid an extensive exploration of verb’s syntactic behaviour which is determined by verb meaning to a great extent. Accordingly, the variety in syntactic behavior is predicted on a semantic basis and may have semantic consequences. In addition, Levin proposes a semantic verb classification and he states that verbs that behave similarly in terms of alternations share certain common meaning components and thus categorized into a semantically coherent class. Further, he supports the existence of tie between various aspects of verb’s syntactic behavior and their meaning. Like Levin, some other scholars (i.e. Fischer, 1991; Fisher et al., 1991; Klotz, 2007; Smith, 2009; Faulhaber, 2011) agree on the idea that there is nonarbitrary correlation between lexical meaning of the verb and syntactic patterning. For example, assigning semantic roles to the constituents with which the verb is associated, Faulhaber (2011) argues that for generalizability of the semantic roles for semantic analysis of every verb, semantic roles need to be identified independently of the meaning of the verb so that parallel sentences can be related to each other. In this respect, the relationship between a verb’s syntactic features and semantic properties “could provide a stepping stone for language learning as the verb tells the learners about language patterns it goes with” (Behrens, 2007, p.194). In this respect, language learner is expected to learn the systematic mapping between verb meaning and syntactic structure (Lidz, 2006).

On the basis of these considerations regarding the verbs’ syntactic behaviour and their meaning, in the current research, the verbs were analysed by taking both syntactic and semantic aspects of complements into account. There is an interface between syntax and semantics and thus languages exhibit strong syntactic-semantic correlations

(Gleitman, 1990, p. 41; Juffs, 1998; De Souza, 2011). Herbst and his colleagues (2004) claim that a valency description can only be comprehensive on condition that it specifies not only the formal properties of complements, i.e. their syntactic features, but also their semantic and collocational properties (Herbst et al., 2004, p. xxviii). Following these authors, in this study, the syntactic analysis of complements included the classification of the verbs in terms of formal properties of complements they took (i.e. phrases and clauses) and the semantic analysis of complements covered the exploration of meanings of complements including the dis/similarities in meaning between various complements of a particular verb and which item can occur as a complement of that verb (xxix). Meanwhile, complements are generally confused with the adjuncts. In Valency Theory, there is a distinction between complements and adjuncts. Following Herbst (2004), complements are defined as the elements that have to occur within the sentence and they are dependent on the governing verb (p. xxiv). Here is an illustration of complements below.

(7) *I put paper and kindling by the fire.* (Herbst, 2004, p. xxv)

In the excerpt above, ‘I’, ‘paper and kindling’, and ‘by the fire’ are all complements. ‘I’ is the subject and the complement of the governing verb and ‘paper and kindling’ and ‘by the fire’ are the other verb complementation patterns used in the sentence.

Complements are divided into two groups on the basis of their formal realization and they are described in terms of phrases (i.e. Noun phrases ([NP]), Prepositional Phrases ([PrepN]), adjective phrases ([AdjP])) and clauses (i.e. [V-ing] clauses, [to-INF] clauses, [that-CL], [zero that-CL], and wh-clauses [wh-CL]) (Herbst, 2004, p. xxv; Herbst et al., 2004, p. xii).

On the contrary, adjuncts are the elements that are not dependent upon the valency of the governing verb (ibid.). Accordingly, adjuncts have two features. They can freely occur in the sentence and their forms are not determined by the main verb (p. xxiv). Adjuncts are considered to be not essential or central to the propositional meaning of the sentence and they do not need to occur with the verb or adjective (Celce-Murcia and Larsen-Freeman, 1999, p.629). Here is an instance of adjunct use in the following excerpt.

(8) *He did not want her to come last night.* (Herbst, 2004, p. xxv)

‘Last night’ is an adjunct that can freely occur and it can be replaced by other noun phrases (e.g. previous night) or a prepositional phrase (e.g. at midnight) or an adverbial phrase (e.g. right there).

Valency Theory is mainly concerned with the analysis of complementation patterns of verbs, nouns and adjectives (Herbst, 2004, p. xxv). In the current research we specifically focused on verb complementation patterns for a number of reasons. First, “verb occupies a central position within the sentence as it determines how many elements have to appear to form a grammatical sentence (Herbst, 2004, p. xxiv)”. Following Hubbard (1994), sentence grammar is considerably verb grammar (p.69). In L1 acquisition, as children start using the verb with different complements, they start to become aware of general or abstract knowledge about the verb in term of its syntactic and semantic features such as different complements it takes (Sofu and Sucak, 2018). However, verbs are much more challenging compared to other parts of speech in L1 acquisition because of both the cognitive and linguistic constraints that they require (Can, 2017; Sofu and Sucak, 2018, p. 833). As in the case of native language acquisition, verbs are more difficult to learn among other parts of speech in second language acquisition, too (Yip, 1994; Gentner, 2006; Can, 2017). Due to the lack of knowledge, maturational reasons, and challenges in identifying the conceptual features of verbs, L2 learners learn verbs later than nouns and make errors (Gentner, 2006, p.548). Second, the meanings of verbs and the verbal structures differ across languages (Gentner, 1981; Palmer, 1988). Hence learners face challenges in the use of verbs. It is the verb with which the largest numbers and varieties of verb complementation errors occur (Hubbard and Hix, 1988, p. 89).

Apart from that, a vast majority of English verbs are compatible with more than one complement and permit direct object and sentential complements with *that* or with *zero-that* complementizers, *to-* infinitive complements, *ing-* complements, *wh-* complements, *for-* to complements, which may result in semantic differences (Quirk et al., 1985, p. 1168; Schwarte, 1988; Taylor, 1993, p.207; Biber and Xeppen, 1998; Biber et al., 1999; Hare et al., 2003; Bourke, 2007; Spanoudis et al., 2007; Kang, 2009; Wang, 2014; Cuyckens and D’hoedt, 2015). Specifically, a certain verb belonging to a specific semantic type may co-occur in varied syntactic environments but semantically differ with the complement it appears (Dixon, 1984) as illustrated below:

(9) I remembered *that* I saw the student (but had no recollection of the details of our interview)

(10) I remembered *seeing* the student (and could have told you exactly what he said)

(11) I remembered *to* see the student (but by the time I looked in the waiting room he had given up and gone home)

(Dixon 1984, p. 591).

As illustrated in the example sentences above, a particular verb in one language can have more than one meaning and this verbal polysemy causes some cases such as varying polymorphical behaviors of verbs, taking different complementation patterns and these cases pose challenges for lexical semantics (Pustejovsky and Boguraev, 1995, p.2.) and thus for language learners, too (Kang, 2009). L2 learners “couple wrong complementation patterns with the wrong verb” (Celce-Murcia and Larsen-Freeman, 1999, p.645). However, earlier studies on semantic analysis of complementation have so far not delved much into these meaning differences that result from the verb taking different complements and they have not clarified how meaning differs with the same verb taking either one type of complement or another (Smith, 2009). In fact, as stated by Hubbard (1994), “syntax and semantics are closely interrelated (p.69)” and verb complementation, especially that of [to-INF] and [V-ing] patterns as stressed by Westney (1994) involves ‘complex syntactic-semantic relations’ (p.89). Thus, to provide further insights into this phenomenon regarding the syntactic and semantic properties of verbs, this under-investigated aspect of complementation was analyzed in this study with a focus on specifically the category of cognitive verbs.

2.3.Cognitive Verbs

In contemporary English, verbs such as *believe, know, assume, think*, and so on. are the representatives of a set of verbs which have been labelled as verbs of cognitive attitude (Cappelli, 2008), private verbs (Quirk et al., 1985; Biber, 1988; Palmer, 1988), verbs of belief (Papafragou et al., 2007), cognitive verbs (i.e. Bourke, 2007; Fetzer, 2008), primary B-type verbs (Dixon, 2006), propositional attitude predicates, mental verbs (Biber et al., 1999; Hare et al., 2003; Hinkel, 2004), mental state verbs (Spanoudis et al., 2007) and here that will be called cognitive verbs (Bourke, 2007; Fetzer, 2008).

Cognitive verbs refer to a class of verbs based on semantics of its members that concentrate on the verb’s private domain of reference and may denote the psychological disposition of the speaker or other discourse communities (Fetzer, 2008, p. 4; Fetzer and Johansson, 2010, p. 243). From a semantic viewpoint, cognitive verbs include “expressions of desire, belief and intention” (Spanoudis et al., 2007, p. 490). In other

words, they express the agent's stance towards the truth value of proposition on a scale from certainty (i.e. *know*, *believe*) to disbelief (i.e. *doubt*) (Klotz, 2007, p. 124). They are considered to be "a means of subjectification expressing the speakers' attitude towards proposition and force" (Fetzer, 2008, p. 1).

As has been revealed in the literature, cognitive verbs create challenges for language learners and they are hard to acquire for second language learners and even difficult to identify from context for adults who understand their meanings (Papafragou et al. 2007; Barak et al., 2012). Even in child language acquisition, cognitive verbs gradually develop (Naigles, 2000) and do not appear in child speech until the age of three (Shatz, et al., 1983, p. 317) due to various reasons such as the lack of cognitive and linguistic skills in early stages of development (Barak et al., 2012) and informational demands and necessity of conceptual development (Papafragou et al. 2007).

In this sense, cognitive verbs differ from other classes of verbs in the semantic conceptual properties as the concepts these verbs express are abstract, unobservable and quite complex (Papafragou et al., 2007, p. 126). They present a complex pattern of polysemy having prototypical and extended uses of meanings (Booth and Hall, 1995; Booth et al., 1997; Naigles, 2000; Verdaguer, 2010). This polysemous nature of cognitive verbs may create ambiguity in that a single verb realizes a number of senses that result mainly from semantic extension (Stojičić, 2008). For example, the verb *think* has been assigned the status of a polysemic construction having a variety of meanings such as *intend*, *believe* and *cogitate* and positions in the contexts when it co-occurs with first person subject (Aijmer, 1997, p. 10). As for the other cognitive verb *know*, it has a variety of senses and it occurs in many structures in each of which it conveys different meanings (Booth and Hall, 1995) as illustrated below:

- (12) I know that song. (*recognize*)
- (13) I don't know if that's gonna come out too well. (*conjecture*)
- (14) I don't know what you are saying. (*understand*)
- (15) I know you like that book. (*believe*)
- (16) You let me know if you want Mom to help you. (*tell*)
- (17) You know, the keys are over there. (*shared information*)

(Naigles, 2000, p. 247)

As illustrated above and revealed in online Collins English Dictionary where 48 entries are provided for *know* (https://www.collinsdictionary.com/dictionary/english/think_1), in one context such as in

1a, the verb *know* with a pattern (such as NP) refers to ‘recognition’, and in another context such as in 1c, the verb with wh-CL pattern refers to something else, i.e. ‘understanding’.

Apart from that, *know* and other cognitive verbs *such as believe, suppose, and expect* are parenthetical verbs when they co-occur with first-person subject at any position within the sentence (i.e. at the beginning, middle or end) and fulfil a wide range of discursive functions such as “signals guiding the hearer to a proper appreciation of the statement in its context, social, logical, or evidential” (Urmson, 1952, p. 495; Fetzer, 2008), mitigation of epistemic commitment, expression of emotional stance, and expression of illocutionary force (Griffiths, 2014).

Other cognitive verbs such as *remember* and *forget* can co-occur with both *to*-infinitive and *ing*- complements but the choice of the complement is perceived to yield totally a change in meaning as illustrated below and this case is called ‘Bolinger Principle’ in the literature. This principle was developed by American linguist Dwight Bolinger in 1968.

(18) He *forgot to* buy the books.

(19) He *forgot buying* the books.

(Celce-Murcia and Larsen-Freeman, 1999, p. 648)

As illustrated above, in (18), the act of buying has not been fulfilled (i.e. the books were not brought) whereas in (19), the buying has been fulfilled. In this respect, the use of *to*-INF as in (18) implies a sense of potentiality for action and indicates the unfulfilled and hypothetical events whereas *V-ing* pattern as in (19) gives a sense of actuality and denotes vivid and fulfilled events, which was pointed out by Bolinger (1968, p. 119-126) for the first time in Bolinger Principle. Even though these instances provide evidence for the meaning difference with the verbs taking *V-ing* and *to*-INF patterns in terms of potentiality versus actuality semantic aspect (Quirk, Greenbaum, Leech and Svartvik, 1985; Celce-Murcia and Larsen-Freeman, 1999; Yoon, 2016), Bolinger principle partially explains the meaning differences with the verbs allowing both *V-ing* and *to*-INF patterns and it does not explain all the instances of verbs allowing both types of patterns such as the verb *like* (Celce-Murcia and Larsen-Freeman, 1999, p. 649).

Based on his semantic classification of complement-taking verbs, Givón (1973) classifies cognitive verbs into three groups: factive, neg-factive and non-factive verbs. Accordingly, factive verbs presuppose the truth of their complement sentences (Givón,

1973, p. 2; Abbeduto and Rosenberg, 1985, p. 621). This class consists of verbs “*know, remember, forget, see, hear, guess, resent, suspect, understand, be happy, regret, be aware, learn, realize, discover, notice and find out*” (p. 893). In his further classification of factive verbs, Givón (2001) divides them into two groups: positive and negative. Positive factive verbs are comprised of *know, understand, regret, remember, forget, learn* and *see* (ibid.). They are defined as the verbs “whose complement is true or false when the main clause is either true or false (p.154)”. On the other hand, non-factive verbs do not presuppose the truth of their complements and include “*decide, agree, hope, be afraid, believe, think, doubt, be sure, feel, fear, assume, suppose, dream and imagine*” (p.893). As illustrated by Moore et al. (1989), the statement “John knows that it's raining” presupposes that it is in fact raining while the statement “John thinks that it's raining” implies that it may or may not be raining (p. 167). Regarding the difference between factive and non-factive verbs, Moore et al. (1989) states that speakers choose a certain mental verb depending on their subjective certainty about the proposition. Accordingly, the statement “*I know that John went to the store*” indicates a high degree of certainty on the part of the speaker that John did go to the store while the statement “*I think that John went to the store*” indicates less certainty (p. 168). The neg-factive verbs (e.g. *pretend*) presuppose the falsity of their complement sentences (Givón, 1973, p. 894). Among these classes, the factive verbs including specifically *know, remember, understand, forget, and regret* were analyzed within the scope of this research. They are among the high-frequency verbs as revealed in both child-speech in L1 acquisition studies (i.e. Shatz et al., 1983; Bloom et al., 1989; Booth et al., 1997; Kidd et al., 2010) and in frequency lists of corpuses in English such as in Longman Spoken and Written English Corpus (LSWE) (Biber et al., 1999). For example, in the largest freely-available corpus of English, i.e. Corpus of Contemporary American English (COCA) covering over 560 million words, the factive verbs and their occurrences are as follows: *know* (1,330,609), *understand* (217,568), *remember* (152,046), *forget* (65,672) and *regret* (13,565).

High-frequency verbs are worth exploration especially in cross-linguistic aspect since they have certain characteristics that need to be highlighted (Viber, 1996; as cited in Altenberg and Granger, 2001). Accordingly, they denote basic meanings mostly predominating various semantic fields and have their high-frequency equivalents in many languages (p.174). They have high degree of polysemy leading to two or more types of meaning extensions with varied patterns of complementation (Altenberg and Granger,

2001; Perek, 2015). Polysemy is argued to be “a semantic phenomenon and a common property of lexemes and it presupposes the realization of a number of senses by a single lexical unit” (Stojičić, 2008, p. 27). Such polysemous words tend to be problematic for language learners (Verspoor and Lowie, 2003). In his longitudinal study, Schmitt (1998) found out that even advanced proficiency-level L2 learners rarely knew multiple senses of polysemous words. Related to this finding, Verspoor and Lowie (2003, p. 548) conclude that learning the senses of polysemous words is “a slow and patchy process”. In this sense, first, such polysemous high-frequency verbs may have more abstract, general or grammaticalized uses due to universal tendency and second they may have specialized meanings, collocations and idiomatic uses due to language-specific tendencies (Altenberg and Granger, 2001, p. 174). They tend to be neglected in L2 instructional programs as soon as they have been taught, and thus even the advanced level learners may have incomplete knowledge of the verbs (Altenberg and Granger, 2001, p. 190, Hugon, 2008). Therefore, it is worth having an insight into how Turkish EFL learners’ interlanguage is shaped by high-frequency factive cognitive verbs and their complementation patterns.

In the following section, the bulk of empirical research surrounding complementation and specifically verbal complementation in native English and non-native English is provided.

2.4.Previous Research on Verbal Complementation in Native English

A line of research was concerned with developing a mechanism or rule-based system for estimating English verb subcategorization frames and calculating their frequencies from the perspective of computational linguistics (i.e. Ushioda, Evans, Gibson, and Waibel, 1993; Briscoe and Carroll, 1997). For example, Ushioda et al. (1993) tested the mechanism by utilizing a corpus of Wall street journal articles provided by Penn Treebank project and Briscoe and Carroll (1997) tested the system by making use of Susanne corpus, Spoken English Corpus (SEC) and The Lancaster-Oslo-Bergen Corpus of British English (LOB) corpora. Besides, large online lexical databases of English were created such as FrameNet (Filmore, Baker and Sato, 2002), Verbnet (e.g. Schuler, 2005), and WordNet (Miller, Beckwith, Fellbaum, Gross and Miller, 1993). They are both machine-readable databases and for human use, which provide information about the syntactic and semantic properties of nouns, verbs, adjectives and adverbs in

English (i.e. WordNet) and those of specifically verbs (i.e. VerbNet) and how words are used in semantically and syntactically annotated sentences (i.e. FrameNet).

The historical changes in English verb complementation have been the central focus of a group of researchers such as Davies (2013) who examined *into* [V-ing], *to* infinitive and gerund in a diachronic corpus and Biber and Gray (2013) who explored the decreasing use of finite verb phrases in the past two centuries. Chronological analysis of verbs has revealed that the verb in general either gains new types of complements or lose the existing ones and the context where it appears can change as has been evidenced in the study of Pesonen (2014) in which the use of the verb *rejoice* was found to have changed from 18th century to present day. *Rejoice* taking both sentential and nonsentential complements previously tends to appear much more with non-sentential complements in exclusively religious contexts in present-day English.

From diachronic perspective, in a study conducted by Rissanen (1991), *zero* complementizer used with four high-frequency verbs (i.e. *know*, *think*, *tell* and *say*) was analyzed in the Helsinki Corpus of English Texts. There was a spread in the use of *zero* complementizer. It was found to be more commonly typical of spoken expressions and occurred especially with the verbs *know* and *think* rather than *tell* or *say*. In contrast to the rapid increase in the use of *zero* complementizer in this study, the study conducted by Shank, Bogaert and Plevvoets (2016) demonstrated the opposite findings. In this research, three cognition verbs (i.e. *believe*, *suppose* and *think*) were diachronically analyzed in written and spoken corpora from 1560 to 2012 in terms of *that/zero* alternation. The study yielded steady decrease in *zero* complementizer use. Besides that, verbs differed in the decrease of *zero* use. Among three verbs, minimal decrease was observed with *suppose* and more with *think*. A dramatic decrease was observed in *zero* complementizer use with *believe* especially from 1780 up to present day.

Another line of research was conducted mainly in the field of psycholinguistics with a focus on sentence processing with the use of verb subcategorization information and verb bias (Roland and Jurafsky, 1998; 2002; Roland et al., 2000; Roland, 2001; Gahl et al., 2004; Wilson & Garnsey, 2009; Ferreira and Schotter, 2013). These studies relied on naturally occurring language in a variety of different corpuses and focused on the verb subcategorization frequencies in corpus data in comparison to experimental studies. For example, in their study, Roland and Jurafsky (1998) analysed four different data sources covering Brown Corpus, Wall Street Journal, Switchboard and sentence production data

obtained from the study of Connine et al. (1984). In another study, Buttery and Korhonen (2005) compared adult (BNC) and child speech (CHILDES) and found differences regarding complementation frequencies of verbs. The most frequent 100 verbs were examined and findings yielded differences in syntactic terms between two corpora, yielding richer subcategorization frames and higher frequency of mental verbs in adult speech and few or absent complex frames and higher frequency of action verbs in CHILDES. In another study, the verb bias, i.e. “the relative likelihood of the verb being used in sentences with different kinds of subcategorization frames” was examined in the sentence completions of native speakers of English through self-paced reading and eye-tracking tools to explore whether verb bias affected the sentence processing (Wilson and Garnsey, 2009, p. 369). In the study, the ambiguity about whether a noun phrase used immediately after the main verb in the sentence is the phrasal complement, i.e. direct object of the verb or the subject of the sentential complement (Wilson and Garnsey, 2009). The findings of the study yielded verb bias effect in sentences especially with direct object complements in terms of both sentence comprehension and reading times of sentences. Based on the findings of these studies, it is argued that the profile of complementation patterns and frequencies (i.e. bias) of a specific verb differ across different corpora and experimental norming studies such as sentence production or completion tasks depending on the verb sense (i.e. meaning) and discourse effects (Roland, 2001; Hare et al., 2003). Moreover, meanings of verbs differ across different genres and affects subcategorization profiles (Gahl et al., 2004).

Besides, a group of researchers were concerned with the analysis of individual verbs such as *make* (Altenberg and Granger, 2001), *waste* and *spend* (Rickman, 2015), *admit* (Cyckens & D’hoedt, 2015), *watch* (Broccias, 2015), *try* (Uusi-Mäkelä, 2013; Ross, 2013), and *scruple* (Savilampi, 2014). Considering specifically cognitive verbs, several verbs such as *think* with first person pronoun (Aijmer, 1997; Simon-Vandenberg, 2000; Fortanet, 2004), *believe*, *feel*, *guess*, *suspect*, *suppose*, and *think* (Fetzer, 2008) and *remember* and *forget* (Tao, 2003) were examined. The semantics and pragmatics of these verbs were analyzed in the corpus of English political discourse with a focus on the form, frequency and function in Fetzer’s (2008) study. Based on the findings of the study, political agents mostly used *think* and *believe* to speak both in behalf of themselves and political party as individual and collective identities. Other cognitive verbs including *feel*, *guess*, *suspect* and *suppose* were less frequently used to express low

degree of uncertainty. Moreover, as it is the case with *think*, the semantics of *believe* has been revealed to be ambivalent in argumentative discourse. Accordingly, it was shown that *believe* has a reference to truth but also permits epistemic uncertainty. In another research, Fortanet (2004) investigated specifically the cognitive verb *think* with first personal pronoun *I* in Michigan Corpus of American Spoken English (MICASE) in Discussions and Lectures in terms of complementation and functions. In his study, the author found six functions of *I think* with two complement types, one with *that*-clause and the other without, such as vagueness, approximation, uncertainty, hesitation, politeness and opinion. Other than these verbs, *remember* and *forget* were examined in spoken English in a study conducted by Tao (2003) and revealed to be similar in taking zero complement but different in terms of many aspects. Specifically, the study demonstrated the change in the use of the verb *remember* which was generally used to express memory into such a use in which it is used as a discourse particle in spoken language expressing epistemic stance. In addition, it also yielded that the verbs' uses are shaped by different complementation patterns as the patterns are pragmatically strengthened. As for the verb *forget*, it was found out that it had pragmatic uses in the form of 'don't + *forget* + to' to express 'a friendly suggestion' and in the form of '*forget* + *it*' to indicate 'impossibilities or inabilities' (p.89). Considering these uses of the verbs which were examined within the domain of the present study, it is worth shedding some light on the uses of these verbs and their meanings in L2 learners' language.

Apart from the aforementioned studies in English corpus, a number of studies contrastively examined cognitive verbs in Spanish and English (Verdaguer, 2010) and French and English (Fetzer and Johansson, 2010). For example, in Fetzer and Johansson (2010)'s study, the use of verbs *think* and *believe* in English and *penser* and *croire* in French were examined along with their complementation patterns in spoken argumentative discourse (i.e. political interviews) to reveal cross-linguistic dis/similarities in terms of frequency, form and functions. Findings yielded both similar occurrences of cognitive verbs in two languages and language-specific differences in selection of cognitive verb types. Accordingly, *think* had the highest frequency of use in English data while *believe* had the highest frequency of use in French data. Findings also yielded that *think* occurred with similar connectives in both data such as *and*, *but*, *because*, *no*, *so* and *yeah*. Furthermore, it was revealed that these verbs were quite frequent in argumentative discourse and fulfils important pragmatic functions in the form

of '*I think*' and '*I believe*' such as "signifying intersubjective positioning and intersubjective manoeuvring (p.261)". In Verdaguer's (2010) study, the verb *think* and *pensar* in English and Spanish were examined in BNC and Spanish corpus, which present a complex pattern of polysemy. Based on the analysis of data, the meanings and complementation patterns of these verbs in two languages were revealed and different contextual and collocational patterns were discussed with a focus on pragmatic functions. A summary of the studies on verbal complementation of individual verbs in Native English is displayed in Appendix A.

Besides these corpus-based studies, a number of experimental studies were also conducted with a focus on complementation use of undergraduate native speakers of English. For example, Connine et al. (1984) focused on undergraduates' verb use and verbal complementation preferences and proposed sixteen syntactic categories of verb complements used by the English native students. Fischer (1991) analysed mental, perception verbs used by undergraduate native speakers of English. Findings showed that verbs that are semantically intimately related are related in their syntax. Further, verb meaning and subcategorization are closely intertwined. Another research was that of Fisher et al. (1991) that examined the correlation between verb semantics and syntactic structure with a focus on verbs from semantic categories of cognition and perception verbs, motion verbs, location verbs and symmetrical verbs. They concluded that the subcategorization frames in which verbs appear are a consequence of several properties of the meaning of verbs. In another study, Trueswell et al. (1993) examined subcategorization information processing of undergraduate native speakers of English using sentence completion test. Findings revealed that subcategorization information was rapidly accessed after a verb is recognized and used in syntactic ambiguity resolution. Moreover, learners had processing difficulty with *that*-less sentence complements.

Among the acquisitional studies, Johnson and Wellman (1980) investigated pre-school children's understanding of mental verbs *remember*, *guess* and *know* and the findings yielded gradual development of children's understanding of distinctions among these verbs. In another study, Gleitman (1990) carried out a case study with a focus on a blind child's acquisition of verb meaning and complementation patterns. Among ten verbs (i.e. *look*, *see*, *give*, *put*, *get*, *hold*, *play*, *have*, *go*, and *come*) produced by the child, *put* and *look* were the verbs that were mostly used. *Put* occurred mostly with NP PP pattern. Different from these studies, Diessel and Tomasello (2001) examined the

development of finite complement clauses in English-speaking children's natural speech and the pragmatic functions of both complement clauses and complement-taking verbs used by children. Based on the results, sentential complements were found to be the earliest type of complement clause to emerge in child speech followed by if-clauses and wh-clauses. Considering complement taking verbs, fifty percent of all sentential complements occurred with formulaic use of cognitive verbs including *think*, *guess*, *bet*, *mean* and *know*. The complement-taking verb *see* was the only verb that frequently appeared with if-clauses. In another research on child language (English L1) acquisition, Owen Van Horne and Lin (2011) investigated the use of cognitive state verbs (CSVs) and complement clauses in 5-8 year-old children with specific language impairment (SLI) and their typically developing (TD) peers. Children in all three groups had similar performance in all measures. Children with SLI used fewer different verbs and were less likely to combine low-frequency verbs with a complement clause than their TD peers due to limitation in lexical knowledge.

2.5.Previous Research on L2 Learners' Use of Verbal Complementation

One line of previous research on L2 learners' use of verbal complementation was on learning of verbal complementation. These interlanguage studies analyzed the phenomenon of verbal complementation specifically accuracy order of complementation types by Spanish and Persian L2 learners of English (Anderson, 1983), Finnish L2 learners (Schwarte, 1982), and Arabic L2 learners of English (Nadra, 1983) based on generative transformational approach. These studies established accuracy order for different complement types which might be affected by factivity, frequency of use in the particular language, markedness, the length of structures, avoidance, semantic information complements convey. They concluded that L2 learners had similar difficulties in learning sentential complements and made errors that were attributed to the effect of L1 transfer and ignorance of L2 system. Different from these studies, Choi Lai-Kun (1996) analyzed the acquisition of finiteness in verb complementation, i.e. that-CL and to-INF patterns by Cantonese learners of English from syntactic-semantic mapping perspective. It was revealed that to a large extent, the learners acquired the patterns but they had difficulties and made errors related to the use of verbs with particular patterns. These errors are attributed to "immature mastery of argument structure of the verbs under investigation" and syntactic-semantic relations and verb semantics (p.117-119)". Besides

these studies, De Souza (2011) investigated the acquisition of transitivity in verbs of manner of movement (*run, walk, march, jump, and fly*) by Brazilian Portuguese speaking learners of English in comparison to native speakers of English. To reveal the possible influence of L1 in L2 as Portuguese L1 lacked caused motion alternation, these subjects were compared with native speakers of Portuguese. The findings of the study showed that high proficiency level L2 learners and English native speakers performed similarly whereas low proficiency level L2 learners and Portuguese native speakers performed similarly. The author found that L1 affects learners' performances and caused-motion alternations do appear in L2 learners' repertoire at later stages of interlanguage development. Apart from these studies, focusing on six different clause types including complement taking predicates, main clauses, relative clauses, coordinate clauses, and non-finite clauses, Vercellotti and Packer (2016) suggests a developmental order on the basis of the analysis of free-production speaking tasks of Arabic, Chinese and Korean ESL learners. They proposed that the developmental order for the clause types is adverbial, nonfinite, relative and complement-taking clauses. In addition, by comparing the low-intermediate, high-intermediate and low-advanced learners, they found that adverbial clauses were the main clause at the lowest proficiency level while nonfinite clauses were predominant at the high-intermediate level.

Another line of a wide range of studies investigated the effect of verb subcategorization information and verb bias information on L2 sentence processing from psycholinguistic perspective (e.g. Dussias & Scaltz, 2007; Lee et al, 2013). For example, Dussias and Scaltz (2007) examined whether verb's subcategorization bias constrained L2 sentence processing of Spanish L2 speakers of English and revealed that they were able to use their lexical-semantic information about the subcategorization frame of verbs in the L2 while interpreting the L2 sentences. Moreover, they also found that L2 speakers used the verbal information from both L1 and L2 to resolve ambiguities resulting from the use of NPs following the verb in the sentence as a direct object or the subject of the sentential complement. In another study, Lee et al. (2013) focused on Korean L2 speakers of English and compared them with English native speakers and analyzed ten direct object bias verbs and ten sentential complementation bias verbs. Their findings yielded differences in the performance of high and low proficiency groups. High proficient L2 learners performed similar to English native speakers and made use of verb bias information in L2 whereas low proficiency group did not.

Besides these studies focusing on L2 complementation learning and subcategorization bias in L2 sentence comprehension, a majority of studies analyzed specifically the two verb complementation patterns, i.e. V-ing and *to*-infinitive used by English language learners with different L1, such as Thai learners in written data (Kitikanan, 2011; Keawchaum and Pongpairaj, 2017), Arabic learners in written tasks (Almulla, 2015), Spanish learners in written discourse (Schwartz and Causarano, 2007; Martinez-Garcia and Wulff, 2012), Korean learners in argumentative essays (Yoon, 2016) German learners of English (Gries and Wulff, 2009), Arabic, Chinese, Italian, Japanese, Korean, Turkish, French, Russian and Slovak learners in oral data (Vercellotti and Jong, 2013), L2 learners from 25 different language backgrounds through instruction (Vawser, 1988) and solely *to*-infinitive in Korean learners' essays (Kim and Yoo, 2015). Findings revealed inaccurate uses of verb complementation patterns, and the occurrence of more errors with gerundial complements compared to infinitival complements. Specifically, in the study of Schwartz and Causarano, problems experienced by L2 learners related to the use of these two complementation patterns included verb-tense, subject-verb agreement, omission (i.e. the use of bare form of the pattern without 'to'), insertion (redundant use of 'to'), substitution, incorrect verb form, and word order (e.g. reversing 'to' and 'not' as in 'leaved his family to not have rules'). Based on the arguments proposed by the authors, the lack of target language input, the lack of output on behalf of the learner, language interference and frequency of exposure to the target language might have caused the learners make errors in the use of these patterns specifically the gerundial patterns.

In addition to the analysis of these two verbal complements (i.e. *to*-clauses and *ing*-clauses), Biber and Xeppen (1998) analyzed two other complement clauses, that are, *that*-clauses and *wh*-clauses in native corpus of four registers (i.e. academic prose, conversation, fiction and news reportage) and essays of L2 learners with French, Spanish, Chinese and Japanese L1 in terms of frequency of complement types. Findings revealed that overall similar patterns of use were observed in all groups. L2 learners made much more use of *that*- clauses and *to*-clauses whereas they rarely employed *wh*- clauses and *ing*-clauses. L2 learner groups differed from one another and from native English data in frequent use of *hope* and *like* due to the L1 effect. In addition, few errors were detected in all L2 groups' essays which included the incorrect use of a *to*- complement instead of *that*- complement or *ing*- complement.

What all these aforementioned studies have in common is that their main foci were the types of verb complementation patterns; not the verb itself or their specific verb senses. These studies mostly analyzed syntactic patterns of verbs and they lacked providing comprehensive analysis of both syntactic and semantic properties of verbs. However, here, our main concern is to shed light on the behavior of verbs used in different senses and with different complementation patterns preferred by L2 learners of English. Although there exist many studies in native English that investigated particular verbs in terms of syntactic and semantic features as illustrated in the previous section (Section 2.4), L2 learners' use of a particular verb in English from this aspect has not been much explored yet. Among few studies, Altenberg and Granger (2001), Tono (2004) and Saeed and Fareh (2011) can be stated. Altenberg and Granger (2001) analyzed specifically high-frequency verb *make* used by Swedish and French learners of English in their essays with a comparison to native data. They found that EFL learners had difficulty in the use of *make* in different complementation patterns due to inter-lingual and intra-lingual factors and inadequate teaching. Compared to English native counterparts, EFL learners misused certain complementation patterns with the specified verb, underused and overused some other patterns compared to native learners. Similarly, focusing on the high frequency verbs (*bring, buy, eat, get, go, like, make, take, think, and want*), Tono (2004) investigated the verb complementation use of Japanese learners of English with a comparison to Japanese L1, and English L1 data. The author analyzed L2 learners' free compositions and L1 Japanese and L1 English corpus of textbooks and found that L2 learners mostly chose the patterns that were presented in their L2 textbooks, which demonstrated that exposure to the target patterns in the input had impact on their production. Further, L2 learners' misuse of patterns were attributed to L2 inherent verb semantics and crosslinguistic influence (i.e. the differences in patterns and frequencies between L1 and L2 and L2 inherent factors). In another study, Saeed and Fareh (2011) analyzed the use of high frequency verbs by Arab upper-intermediate EFL learners through a questionnaire including grammaticality judgment, recognition and production parts. Different from the current study which focused on cognitive verbs, the authors focused on 'verbs of senses' i.e. *taste, smell, sound, feel* and *look* in terms of their uses as copula or main verb, idiomatic use, or metaphorical use. They observed that Arab EFL learners had difficulty in the use of these verbs considering their semantic and syntactic features due to metaphorical and idiomatic uses. *Taste* was found to be the most difficult verb for learners

at recognition level whereas it was *sound* at production level. Different from the present study, the authors in this study did not aim to find out the types of complementation patterns in terms of syntactic variation or the verb meanings in terms of semantic extensions. Hence, there is a need for more research to be conducted with the verb behavior in the learner language.

As it has been revealed in the related literature, verb complementation is error-prone in L2 learning and the sources of complementation problems vary across the studies conducted in different L2 settings. These sources include language interference, the lack of target language input and training, lack of opportunity for output on behalf of the L2 learner, incomplete knowledge, inherent verb semantics and avoidance due to ambiguity of construction (Hubbard and Hix, 1988; Schwartz and Causarano, 2007). Moreover, L2 learners' verbal complementation use is affected by translation from L1, overgeneralization, interlingual transfer (Kitikanan, 2011), and the lack of input in grammar textbooks (Martinez-Garcia and Wulff, 2012).

Considering studies in Turkish context, Uçkun (2012) investigated English polysemous verbs and their verb complementation patterns used by Turkish learners of English majoring at ELT department and college teachers of English through sentence completion tasks both in presence and absence of context in comparison with their use in Turkish version of tasks. Different from the current study, she specifically focused on the verbs including *recognize, find, believe, accept, announce, admit, predict, indicate, declare, report, add, bet, suggest, feel, recall, observe, confirm* and *anticipate*. In her study, it was found out that the patterns of verb subcategorization of L2 learners are affected by semantic constraints, topic of the context, inter-lingual and intra-lingual influences, L1 knowledge, inherent verb semantics, developmental factors and classroom target language input which can cause misuse. Other than this study, different from the current study, Bozdağ and Badem (2017) mainly examined the communication verbs and the verb complementation patterns of specifically *mention* and *offer* in Turkish EFL learners' argumentative essays in comparison to English native speakers. Their study yielded differences in the frequencies of the most common communication verbs in both corpora and overuse of *mention* and underuse of *offer* by Turkish EFL learners. Considering verb complementation patterns used with *mention* and *offer*, their study showed that Turkish EFL learners did not use the patterns in a native-like fashion and they used *mention* ungrammatically with V about, V to and null complement. Given that

none of the factive cognitive verbs investigated in the present study were examined in these two studies, it is worth highlighting the factive verb complementation use of Turkish learners in their L2. A summary of the studies on verbal complementation in L2 English is displayed in Appendix B.

As has been understood from the aforementioned studies on verbal complementation conducted in different settings with L2 learners from various L1 background, the previous studies highlighted either syntactic side or the semantic side of the verb complementation and this research is innovative in that it comprehensively investigates the factive cognitive verbs in terms of verb meanings and the related verb complementation patterns. In this regard, to address the relevant gap in the literature, this study is a contribution to the emerging literature on L2 verb complementation focusing on Turkish EFL learners' state of knowledge and use of factive cognitive verbs and verb complementation patterns from syntactic and semantic aspects. What is more, here, in the current research, new insights are gained through the development and administration of four types of tests to reveal the achievement levels of learners at recognition and production levels. Drawing our attention to the importance of 'lexicon', Gass and Selinker (2008) assert that it plays a major role in comprehension and in language learning (p. 450). In order to have complete knowledge of a word in L2, both receptive and productive knowledge are essential (Gass and Selinker, 2008; p. 451). Receptive knowledge refers to "the words that are recognised when heard or read" (Milton, 2009, p. 13) and it specifically involves the following types of knowledge:

- "recognizing the word in writing or orally
- knowing the general meaning
- knowing the specific meaning in a specific context of use
- knowing the components of the word's parts (*e.g. over-extend-ed*)
- knowing the possible negative and/or positive connotations (*e.g. overextended with negative connotation*)"

(Gass and Selinker, 2008, p. 451-452)

Apart from receptive knowledge, productive knowledge refers to "the words that can be called to mind and used in speech or writing (Milton, 2009, p.13)" and it covers specifically the following types of knowledge:

- "knowing how to accurately pronounce a word or correctly spell it
- knowing the precise meaning in a variety of contexts
- knowing what is acceptable and what is not in the absence of a highly specific context

- knowing the precise context of use”.

(Gass and Selinker, 2008, p. 452)

All in all, as Milton (2009) states, language knowledge is not something like “a directly accessible quality and we rely on learners to display their knowledge in some way so it can be measured (p. 6)”. At this point, both receptive and productive knowledge of words enable L2 learners produce a variety of general and specific meanings and use the words in different contexts, and they use and correctly pronounce and spell them. Considering the importance of these two dimensions in L2 word knowledge, this research gave voice to both the receptive and productive knowledge of L2 learners with regard to the factive cognitive verbal complementation, which has not been explored yet.

CHAPTER 3

3. METHODOLOGY

3.1. Introduction

The objective of the current research is to examine the Turkish L2 learners' recognition and production of factive cognitive verb complementation patterns and verb senses. In the light of this objective, the following research questions were scrutinized:

1. What are the achievement levels of Turkish EFL learners regarding factive cognitive verb (*i.e. know, regret, remember, forget, and understand*) complementation patterns in recognition and production tests?
2. What are the preferences of Turkish EFL learners regarding factive cognitive verb complementation patterns and their corresponding verb senses?

With regard to the aim and the research questions, in this chapter, an overview of the research design, participants of the study, data collection tools, data collection procedure and data analysis is presented. Also, in this chapter, the test development procedure, pilot study and the reliability and validity of the tests were explained. Lastly, necessary information about the quantitative and the qualitative data analyses was provided in this chapter.

3.2. Research Design

This study adopted an embedded mixed-methods research design in which quantitative and qualitative methods were applied in combination and it gives better insights into an understanding of the research problem (Creswell, 2012, p.535). Quantitative data were collected through two receptive tests and two productive tests and qualitative data were collected through the two productive tests. In this type of research design, quantitative and qualitative datasets are analyzed separately and they address different research questions (Creswell, 2012, p. 545). In this sense, the quantitative data in the present study addresses the first research question which aimed to reveal the achievement levels of L2 learners regarding factive verb complementation use according to word-levels based on the calculation of test scores. The qualitative data addresses the second research question which targeted at exploring and identifying the L2 learners' choices of verb complementation patterns and verb senses.

3.3. Participants of the Study

The participants of the study were comprised of 1st, 2nd, 3rd and 4th grade Turkish university students enrolled in English Language Teaching (ELT) Program at Anadolu University in Turkey. They were chosen on a voluntary basis and given consent forms to fill in prior to the administration of tests (For consent forms, see a sample in Appendix C). A total of 360 students, 90 from each grade, contributed to the study at the beginning of the study. However, the number decreased during the data collection procedure and the study ended up with 269 participants. So, the study is based on the data gathered from 269 participants.

Students in this program get courses such as Contextual Grammar I in the autumn term and Contextual Grammar II in the spring term in their first year of education, Linguistics-I in autumn term, Linguistics-II and Grammar Teaching in the spring term in their second year of education. In Contextual Grammar I course, the book ‘Grammar Sense 4 Advanced Grammar and Writing’ written by Bland, Savage and Mayer in 2012 is used and in Contextual Grammar II course, ‘Grammar Dimension: Form Meaning and Use’ written by Frodesen and Eyring (2007) is used as coursepacks. In these coursepacks, learners are provided with complementation patterns associated with mental activity verbs in a list, which are not elaborated regarding the meaning and pattern variations. Besides, they are presented with only a few numbers of examples.

Apart from that, since the L2 learners’ English proficiency level and interlanguage development may vary individually regardless of their year of study, the participants were given Vocabulary Levels Test (VLT) (Schmitt, N., Schmitt, D., and Clapham, 2001) to be grouped according to their vocabulary level. According to the results of the test, the participants were grouped into five different word levels (2000, Academic Word List (AWL), 3000, 5000 and 10000 word levels) (see Table 3.1. below).

Table 3.1. *Participants of the study*

Word-level	2000	AWL	3000	5000	10000	Total
Number of participants	60	58	74	72	5	269

Figure 3.1. below demonstrates the percentages of participants’ distribution across five word-levels.

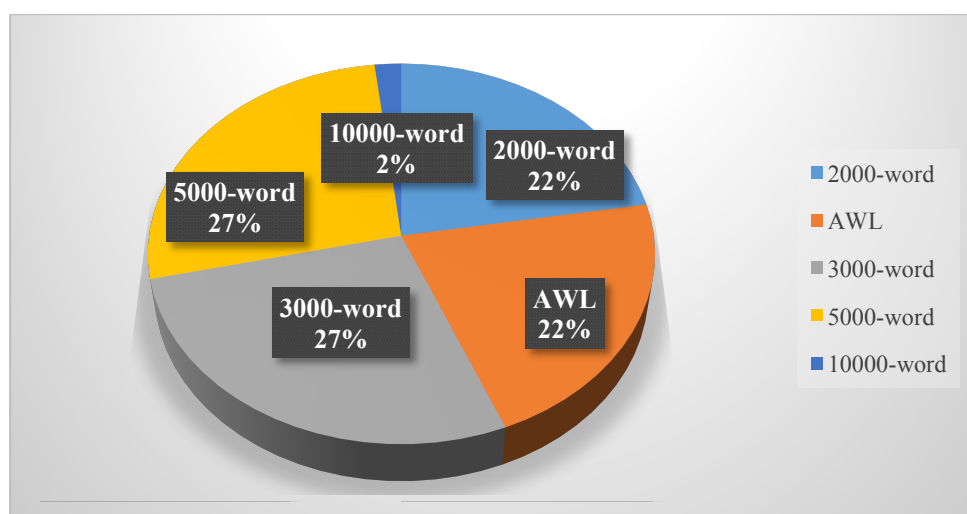


Figure 3.1. *Distribution of participants across VLT levels*

As it is clear in Figure 3.1. above, each level is comprised of at least 20% of all participants except 10000-word level which comprises only 2% of all students.

3.4. The Choice of Verb Complementation Patterns and Verb Senses

In order to determine the factive cognitive verbs' senses and the verb complementation patterns occurring with these verbs, two sources, that are, Valency Dictionary of English and VerbNet were checked. Valency Dictionary of English was developed by Herbst and his colleagues (2004) and it is "a dictionary of the complementation patterns of English verbs, nouns and adjectives" (ibid, p. xxiii). This dictionary was intentionally chosen for analysis as a native control data since it provides an extensive syntactic analysis of formal properties of verbs, nouns and adjectives in English as well as their semantic and collocational properties (Herbst et al., 2004, p. xxviii). Accordingly, it is based on the Bank of English Corpus covering 320 million words and reflecting authentic present-day English (ibid.). Moreover, it is especially important as it gives information about what a specific word means when it combines with certain complements and how patterns differ in meaning, frequency and collocational patterns along with example sentences (Herbst et al., 2004). Specifically, in the dictionary, a verb entry possesses four components which are comprised of the complement inventory (i.e. complementation patterns given for the verb), example sentences given for the valency patterns, information on meaning, and idiomatic phrasal verbs (ibid.). In addition, the online verb lexicon VerbNet developed by Schuler (2005) was the other source that was utilized as a reference data for checking syntactic and

semantic properties of the selected cognitive verbs and their sense distinctions. This lexical database is specifically chosen since it is said to be the largest online verb lexicon currently available for English and provides explicit and a very comprehensive account of syntactic frames and semantic properties of verbs with a focus on individual verb senses and their distinctions. Specifically, in VerbNet, each verb class is described entirely by selectional restrictions on arguments, thematic roles and frames consisting of syntactic descriptions or frames and semantic predicates with a temporal function (<https://verbs.colorado.edu/~mpalmer/projects/verbnet.html>).

Herbst and his colleagues (2004) point out that “the words that are relatively frequent in the language are also those taught to and used by foreign learners (p. xli)”. Drawing our attention to the importance of ‘frequency’ information, they assert that “frequency is a crucial criterion in the selection of verb complementation patterns and the verb senses that need to be taught to L2 learners (p.xli)”. In this respect, the verb senses and patterns were determined based on the frequency information provided in the description of the verbs in valency dictionary as illustrated below.

- D2 **+ to-INF**
 B You should *remember* to replace your child's toothbrush every three months or so. = *Remember* to keep the seeds well away from children as they are poisonous.
- D3 **+ V-ing (frequent)**
 A I *remember* sitting on bundles and suitcases, waiting for the train that would take us we didn't know where.
- D4 **+ (that)-CL_{P(it)} (very frequent)**
 A I've even been woken in the middle of the night to be given an ice cream because Mama suddenly *remembered* that Belle had been allowed one that afternoon.
 B There are plenty of restaurants to choose

Figure 3.2. Frequency information of ‘remember’ in Valency Dictionary of English (Herbst et al., 2004, p. 674)

On the basis of the frequency information in Valency Dictionary of English, the frequent patterns including [V-ing], [(zero) that-CL], [to-INF], [about NP] and [NP] were selected within the scope of the study.

3.5. Data Collection Tools

For the purposes of the study, four types of tests were developed as data collection instruments comprised of Free Production Test, Sentence Completion Test, Grammaticality Judgment Test and Fill-in-the Blank Test.

Depending on the selection of the verb complementation patterns and verb senses based on the frequency information in Valency Dictionary of English and VerbNet, Corpus of Contemporary American English (COCA) was utilized to get extracts that represented every complementation pattern and verb meaning from a variety of sources (i.e. spoken language, newspaper, magazine, academic texts, and fiction). Moreover, these databases were taken as a basis for meaning and complementation analysis while examining the responses of participants to the tests which required them to freely produce sentences including the selected verbs. Test items were constructed and then checked on the basis of the guidelines developed by Brown (1996), which included a number of checklists for item format analysis to determine whether the test measures what it intends to measure and how well items are formatted.

For content validity, expert opinions were gathered from three subject-matter experts consisting of two English native speaker lecturers and one practicing teacher of English (instructor at the same institution where the study was conducted) about both overall organization and wording of test items and instructions as well as the effectiveness of items.

In the following sections, the data gathering tools developed in the present study were explained in detail.

3.5.1. Free production test

Free-Production Test was designed to measure the complement type language learners used with each verb in question and the verb sense they knew at production level. This test is an uncontrolled test in which participants were asked to freely write two sentences with each verb given and write down the meaning of the verb. An example item of this test was illustrated below:

(20) Remember:

Sentence 1: _____ (e.g. I can't remember where I parked my car.)

Verb meaning: _____ (e.g. recall to mind)

(21) Forget:

Sentence 1: _____ (e.g. *Forget your troubles, come on, be happy!*)

Verb meaning: _____ (e.g. *dismiss*)

This test was designed in order to provide better insights into different verb senses and complementation patterns specific to each factive cognitive verb that learners can produce.

3.5.2. Sentence completion test

Sentence Completion Test was designed to gather information about Turkish EFL learners' performance regarding the use of verbal complementation patterns at production level. In this test, each item includes a sentence fragment along with contextual information extracted from COCA which illustrates the use of selected cognitive verbs permitting multiple complements. The reason behind selection of test items from COCA is that the researcher aimed to include the language that reflect the naturally occurring language as it is used by English native speakers rather than giving sentences that are made up by the researcher. In this respect, COCA was specifically chosen among other present-day English language corpora such as BNC or MICASE since it is "the largest freely-available corpus of English" which consists of more than 560 millions of words in spoken and written language equally divided among the text types including fiction, newspaper, magazine, spoken language and academic texts (<http://corpus.byu.edu/coca>). Accordingly, it includes the samples of English language dating back to 1990 up to 2017 and it is the most widely used corpus of English. Four items were developed for each of five cognitive verbs.

Participants were asked to complete sentence fragments with any kind of complementation patterns in which a pronoun and the cognitive verb are provided following its associated context. The following excerpts obtained from COCA illustrate items in the test.

(22) Ryan: Michael! Dude, you don't answer your cell phone? I left you like five messages. I need your help, buddy. I have a major situation.

Josh: Sorry, who is this?

Ryan: It's Ryan. Your neighbor? Come on, Michael, you remember _____ *me* _____

Josh: My name's not Michael. (COCA: FIC, 2013)

(23) Focus is really important in life. I would have to say my favorite aspect of yoga is the focusing aspect in yoga. I only focus on yoga when I am practicing. I just forget ____ (*about everything*)

outside of yoga) _____, but when I practice yoga I focus on all of the details of yoga during my practice. (COCA: ACAD, 2015)

3.5.3. Grammaticality judgment test

Grammaticality Judgment Test was developed to test Turkish EFL learners' knowledge of complementation patterns associated with factive cognitive verbs under investigation. This test highlights to what extent learners are aware of the complementation patterns accurately used with cognitive verbs in the target language. Each item in the test was extracted from a variety of registers (i.e. fiction, spoken, newspaper, magazine and academic texts) included in COCA that illustrates the use of cognitive verbs in naturally occurring language in each register.

Participants were instructed to read each item in the test and to make judgements about the acceptability of sentences. If they felt that the sentence seemed natural and was acceptable, they would respond as acceptable, i.e. 'correct', otherwise unacceptable, i.e. 'incorrect', or not sure. Here are two instances from GJT below.

(24) They understand the country can't go through this again.

*a. **Correct** b. Not sure c. Incorrect*

(25) Do you ever regret in not having been more committed to practice or to physical fitness?

*a. Correct b. Not sure c. **Incorrect***

3.5.4. Fill-in-the-blank test

Fill-in-the-blank Test was designed to measure learners' state of knowledge regarding factive cognitive verbs at recognition level when they were provided with the complementation patterns. Specifically, sentence fragments included the complement type along without cognitive verb. Participants were provided with a box of verbs which includes six distractor verbs other than five cognitive verbs under investigation and they were asked to fill in the blanks with an appropriate verb given in this box with necessary changes in its form as illustrated below.

know	love	remember	express	hate
forget	indicate	regret	understand	suffer

*(26) Describe a lesson you taught that went well, and explain why it went well. How have you helped to raise student achievement, and how did you ____ (**know**) ____ students were learning? (COCA: ACAD, 2015)*

(27) Curry: So how will you spend yours? The average refund for the 2006 tax season will be just over \$2,600.

Christina: I spent my refund very quickly on vacation.

Kate: Probably spend it on clothes, shopping, what I usually spend my refund on. I do ____(**regret**)____ how I spent my refund. I could have -- I could have probably saved the money instead of spending it. (COCA: SPOK., 2007)

Two items were developed for each factive verb under investigation.

All four tests developed for the purposes of the study are displayed in Table 3.2 below.

Table 3.2. An overview of test types

<i>Test Types</i>	<i>Purpose</i>	<i>Research question</i>	<i>No. of items</i>
Grammaticality Judgment Test (see Appendix D)	To measure learners' state of knowledge regarding factive cognitive verbs and complementation patterns <u>at recognition level</u>	What are the achievement levels of Turkish EFL learners regarding factive cognitive verb (<i>i.e. know, regret, remember, forget, and understand</i>) complementation patterns in recognition and production tests?	20
Fill-in-the-Blank Test (see Appendix E)	To measure learners' state of knowledge <u>at recognition level</u> regarding factive cognitive verbs when complementation patterns are provided		10
Sentence Completion Test (see Appendix F)	To measure learners' <u>use</u> of verb complementation patterns <u>at production level</u> when cognitive verbs are provided	What are the achievement levels of Turkish EFL learners regarding factive cognitive verb (<i>i.e. know, regret, remember, forget, and understand</i>) complementation patterns in recognition and production tests?	20
Free-Production Test (see Appendix G)	To measure learners' <u>use</u> of factive cognitive verbs and associated complementation patterns <u>at production level</u>	& What are the preferences of Turkish EFL learners regarding factive cognitive verb complementation patterns and their corresponding verb senses?	10

Test items were checked based on guidelines developed by Brown (1996). Brown offers a number of checklists for item format analysis to determine whether the test measures what it intends to measure and how well items are formatted regarding the purpose and the content of items (ibid.). The checklists developed by Brown (1996, p.

50-58) and used in the current research were given in Appendix H and I. Instructions were written for each test type.

For content validity, expert opinions were gathered from three subject-matter experts consisting of two English native speaker lecturers and one practicing teacher of English (instructor at the same institution where the study was conducted). They were asked to provide feedback on both overall organization and wording of test items and instructions as well as the effectiveness of each item in measuring the construct in question. One native speaker lecturer was consulted online through e-mails whereas the other native speaker and non-native practicing teacher of English at the faculty of Education were consulted face-to-face separately. Here are some of the decisions that were made based on their feedback:

- Some words in several test items were found to be difficult for students to know or remember. Therefore, they were changed with their synonyms which were expected to be easier for them to know/remember. In addition, some words/patterns were found to be inaccurate and inappropriate in the context where they occurred. Thus, instead of these words/patterns, accurate versions were written (e.g. instead of “slice of rice”, “portion of rice” was written).
- Some extracts that were drawn from COCA included dialogues in which the speakers’ names were provided. To standardize these dialogues, nicknames were given for the speakers in the dialogues instead of using the real names of the speakers.
- Some extracts obtained from COCA included extra information given in parenthesis whereas the rest of extracts did not have such parenthetical information. To standardize the test items, these parts were omitted.
- Instructions given in some tests were found to be vague. Thus, for clarification, the instructions were revised and made simple and clear.

Based on the analyses of test items by native and non-native lecturers and their feedback, the items and instructions in tests were revised and the latest version of sets of tests were constructed. An overview of test development procedure is displayed in Figure 3.3. below:

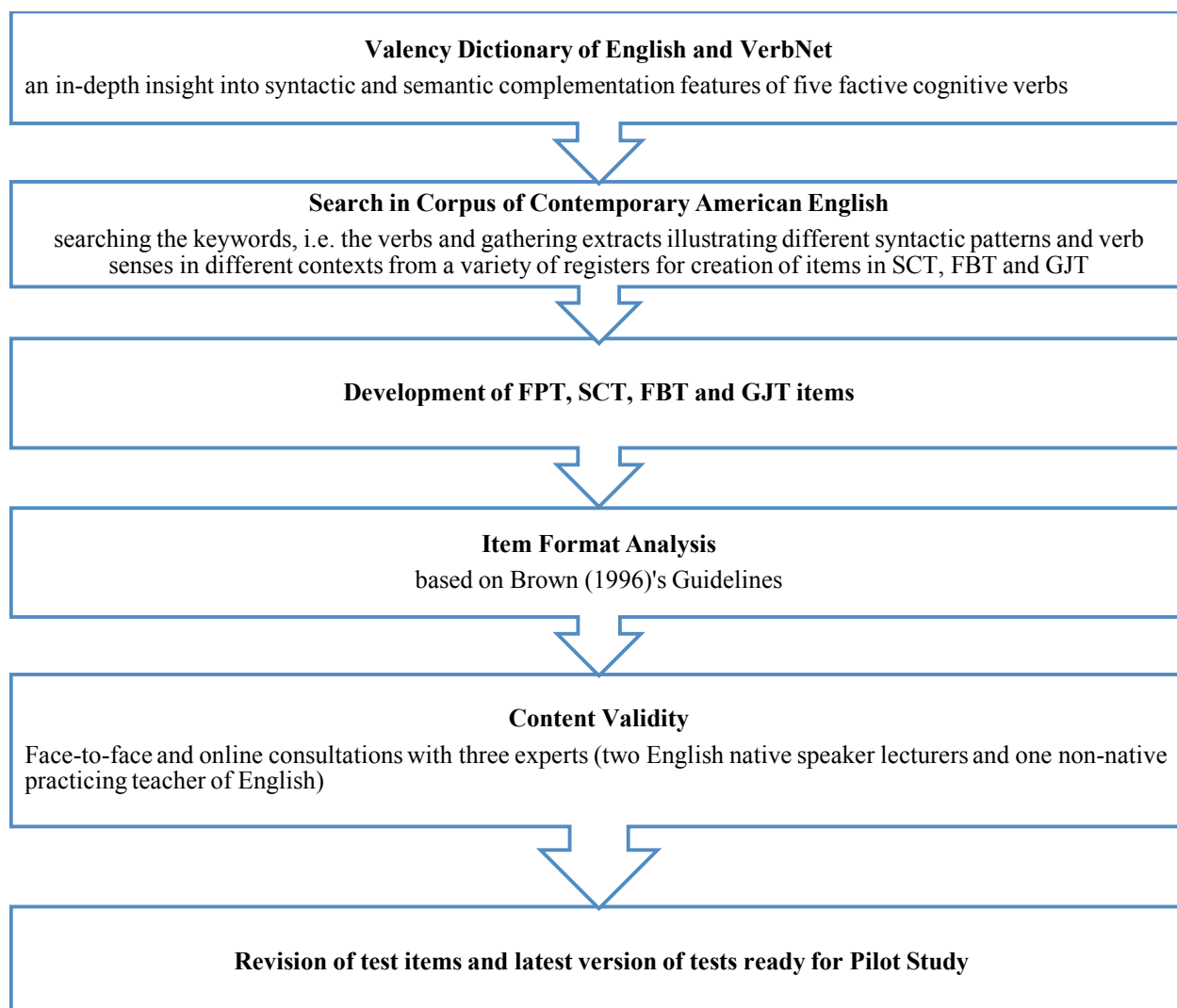


Figure 3.3. *Test development procedure*

3.6. Piloting

In order to test whether the test items that were developed within the scope of the research worked or not, a pilot study was conducted prior to the administration of tests to 269 participants in the main study. For pilot study, 46 L2 learners (11 students from each of 3rd and 4th grade, 12 students from each of 1st and 2nd grade) participated in the research and took the tests in the classroom context in two weeks at 2016-2017 Academic year in Spring term prior to the actual administration in the 2017-2018 Academic year in Autumn Term. Learners were asked to use nicknames instead of their names to make them feel secure.

After the administration of tests in pilot study, based on the students' responses, the reliability of the tests was measured through Kuder-Richardson formula 20 (KR-20).

KR-20 was used specifically with the tests which had binary variables, i.e. GJT, FBT, and SCT except FPT which does not include binary variables. Based on the findings obtained from the calculation of KR-20 formula for each test, it was revealed that GJT and FBT tests had high reliability values (i.e. 0,87 and 0,80 respectively) and SCT test had moderate degree of reliability (0,78).

For item analysis conducted to determine the effectiveness of items in each test and to select the best ones for the latest and improved versions of tests, item facility (IF) and item discrimination (ID) indices were calculated. The items that fall within the range of .30 and .70 were regarded as acceptable (Brown, 1996, p. 70). In this regard, items that fell within the allowable IF range (.30 and .70) were accepted in the current study (see Appendix J for IF indices of all test items). In terms of ID analysis, among items that have acceptable IF value, only the ones that had the highest ID indexes were selected for retention in revised version of tests (See Appendix J for ID indices of all items). In addition, the items with ID indices that were below .19 were eliminated from tests based on Ebel and Frisbie's (1991) ID range guidelines. On the basis of IF and ID analyses, in total, twelve items were omitted in all tests. Then, based on the findings of pilot study, necessary omissions, additions and changes were made and the last versions of the tests were prepared.

3.7. Data Collection Procedure

For the purposes of the current research, data were gathered from multiple sources for triangulation and to increase the validity and to shed light upon learner language regarding learners' knowledge and the use of cognitive verbs with respect to complementation patterns and senses at both recognition and production levels.

Firstly, four tests with different item formats were developed within the scope of the current research to gather information about Turkish EFL learners' state of knowledge regarding verbal complementation at recognition level and their use of complements occurring with the cognitive verbs at production level. For administration of tests at the Faculty of Education where the study was conducted, ethical procedure was carried out and we applied Institutional Review Board for approval of the research and received the report of approval.

As a first step, a 'Vocabulary Levels Test' (VLT) developed by Nation (1983) and revised by Schmitt, N., Schmitt, D., and Clapham (2001) was administered to participants

(90 from each year of education) to determine their vocabulary levels and to group the learners from different grades based on their levels since they are not equal across and within grade in terms of their state of knowledge and language proficiency (See Appendix K for all VLT items). The test took about 20 to 50 minutes. According to the results of the test, the participants were grouped into five different word levels (2000, Academic Word List (AWL), 3000, 5000 and 10000 word levels).

Then, the participants took the tests as in the following order:

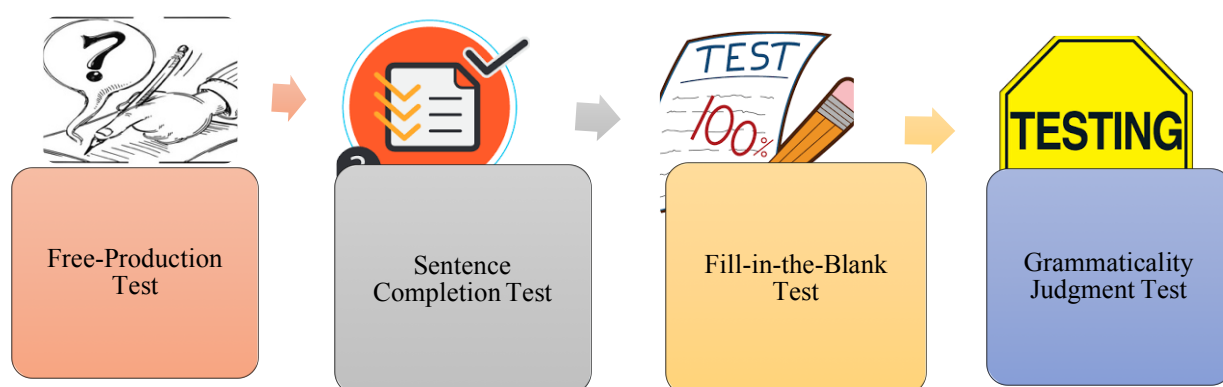


Figure 3.4. *Data collection: The sequence of administration of tests*

In order to reduce the possible risk of exposing L2 learners to the verb complementation use in receptive tests and affecting their production, the order of the tests intentionally started with production tests based on the expert opinions.

3.8. Reliability and Validity of Data Collection Tools

The reliability and the validity of the tests developed within the scope of this research were checked through several tests and analyses. In order to reveal whether the test items worked with a large number of participants in the main study, item analysis including item facility and item difficulty was carried out. Then, to measure the internal consistency of tests, the reliability analysis was performed through KR-20 Formula. Also, Cohen's Kappa was run for interrater reliability analysis.

3.8.1. Item analysis of tests

Item analysis was carried out to determine the effectiveness of items in each test after administration of four tests to 269 students in the main study. For this purpose, both

the item facility (IF) and item discrimination (ID) were calculated. IF was calculated to determine the percentages of participants who gave correct answers to the given items. IF index can range between 0 (zero) and 1 (one) for different items (Brown, 1996, p. 65). The closer the item is to the value of 1, the easier it is for participants. Based on this, 1 point was given for every correct response and 0 for every incorrect response in Excel program and item facility was calculated automatically through the program. According to Brown, ideal item has an average IF value of .50 but items barely have an IF value of .50. Considering this, items that fall within the range of .30 and .70 are regarded as acceptable (Brown, 1996, p. 70). As indicated in Appendix L, all items in GJT, FBT, and SCT were found to be within the acceptable values, i.e. between .30 and .70.

Apart from IF, item discrimination (ID) indices were also calculated through Excel program to find out to what extent an item separates high-scorers that performed well from low-scorers who performed poorly (Brown, 1996). ID indices range between +1.00 and -1.00 (Brown, 1996, p.68). In evaluation of ID indices of items in the current study, Ebel and Frisbie's (1991, p.232) ID range guidelines were followed as provided below.

Table 3.3. *ID values proposed by Ebel and Frisbie (1991)*

Index of Discrimination	Item Evaluation
0.40 and up	Very good
0.30 to 0.39	Reasonably good but possibly subject to improvement
0.20 to 0.29	Marginal items, usually needing and being subject to improvement
Below 0.19	Poor items, to be rejected or improved by revision

Based on the analysis of tests, all the items in FBT were found to be 'very good' items as their ID indices were found to be over 0.40 (see Appendix L). In GJT, half of the items, i.e. 10 items, were found to be 'very good' items, i.e. Item 2, 6,7,8,9,11,12,15, 18 and 20. The rest of the items, i.e. the other half, were between the ranges of .30 and .39. In SCT, eleven items were 'very good' items including Item 2, 5,7, 8, 10,11,13,16, 17,18 and 19. The nine of the items were between .30 and .39, which means they were reasonably good.

3.8.2. The reliability analysis of tests

Internal consistency of a test shows the degree to which participants' scores on individual items within a test are consistent with their total score (Weir, 2005, p.203). This kind of test is used on condition that the items measure a common factor and they are scored right or wrong as categorical scores and the responses are not affected by speed (Creswell, 2012, p.162). In the current study, Kuder-Richardson formula 20 (KR-20) was used to measure the reliability of tests. It is the most commonly used and reported formula by researchers and it is accepted as the most accurate estimate of reliability (Brown, 1996; Weir, 2005) and it is a method of reliability that is suitable only for the tests with dichotomous items which means that the answer of an item is either right or wrong (usually scored as either zero (0.00) or one (1.00) (Bademci, 2011). KR-20 scores range from 0 which means no reliability to 1 which means perfect reliability. This means that the closer the value is to 1, the more reliable the test is. Specifically, based on the reliability criteria proposed by Salvucci, Walter, Conley, Fink and Saba (1997, p.350), the following ranges of internal consistency coefficients indicate the following degrees.

- “Less than 0.5, the reliability is low,
- Between 0.5 and 0.8, the reliability is moderate,
- Greater than 0.8, the reliability is high.”

Table 3.4. below presents KR-20 reliability coefficients obtained from the analysis of tests.

Table 3.4. *KR-20 reliability coefficients of tests*

Test Type	KR-20
GJT	0,72
FBT	0,71
SCT	0,72

Based on the reliability coefficients of the tests as demonstrated in the table above, it was revealed that all the tests have moderate reliability values.

3.8.3. Interrater reliability analysis

Cohen's Kappa was used to calculate interrater reliability of tests. It is a kind of statistical technique used to estimate interrater agreement between two raters who code

the data for categorical items (Kılıç, 2015, p. 142) and it is easy to score and practical in interpretation and a commonly used statistic (Bilgen and Doğan, 2017, p.66). Interrater reliability analysis was performed for specifically, the two tests, FPT and SCT items since these tests required the researchers determine the correctness and appropriateness of verb complementation patterns and senses produced by students.

Cohen's kappa value ranges from -1 to +1 in which +1 depicts the perfect agreement between the raters and -1 represents perfect disagreement (Kılıç, 2015, p.142). The kappa values and the strength of agreement they represent were determined based on Landis and Koch's (1977, p.165) model as indicated below.

Table 3.5. *Kappa Statistics proposed by Landis and Koch (1977)*

Kappa Statistics	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

Based on Table 3.5. above, the kappa statistics for each item in FPT and SCT were determined and provided in Appendix M.

Considering the interrater agreement between the researcher and the Turkish researcher, there was substantial agreement between two raters for four items in SCT, that were, Item 1 ($\kappa=.77$), Item 2 ($\kappa=.80$), Item 4 ($\kappa=.75$), and Item 6 ($\kappa=.77$) and almost perfect agreement for the rest of items. In addition, there was substantial agreement between two raters for nine items in FPT, that were, Item 1 ($\kappa=.70$), Item 2 ($\kappa=.77$), Item 3 ($\kappa=.77$), Item 4 ($\kappa=.77$), Item 6 ($\kappa=.75$), Item 9 ($\kappa=.75$), Item 13 ($\kappa=.64$), Item 14 ($\kappa=.64$), and Item 18 ($\kappa=.77$) and almost perfect agreement for the rest of items.

As for the interrater agreement between the researcher and the American native speaker of English, it was found out that there was almost perfect agreement between the two raters for all the items in SCT in terms of acceptability of patterns and senses produced by the students as the Kappa values of all these items were over .81 on the basis of Landis and Koch's (1977) model. As for the FPT, it was revealed that there was almost

perfect agreement between the raters for nine items and substantial agreement for one item in terms of pattern and meaning acceptability. The Kappa Statistics of the items in production tests were depicted in Table in Appendix N.

3.9. Data Analysis

Data analysis included both the quantitative and qualitative analyses of receptive and productive tests considering L2 learners' factive verb complementation use. In the following part, first, the quantitative data analysis was explained and then in the next part, the qualitative data analysis was presented in detail.

3.9.1. Quantitative data analysis

All the tests that were developed within the scope of this research were quantitatively analyzed to calculate the raw and overall mean scores of participants on the basis of their test performances. 5 points were given for each correct answer in GJT test and a total of 100 points for 20 items were obtained on condition that participant gave correct answers for all items. In Fill-in-the Blank Test, 10 points were given per item. Next, based on the responses given to SCT, 5 points were given for each of 20 items for each accurate and appropriate answer and a total of 100 points were obtained. In this test, the correct choices were examined in terms of the use of 'expected pattern' and the use of 'different pattern' since the test items in SCT included the verb in question used within a particular context and the participants were expected to use the pattern which is expected in the answer by taking the context into account. Even if they did not use the expected pattern, different choices that are correctly used in this specific context were accepted as correct. Lastly, in Free Production Test, 10 points were given per item. Out of 10 points per item, 5 points were given for an accurate and proper sentence which included the correct choice of cognitive verb complementation pattern and 5 points were given for each correct verb meaning specific to the sentence they created. Overall, a total of 100 points were obtained from this test. No matter even if any student provided 2 similar sentences with one and the same meaning for any selected verb, s/he would get the point. Table 3.6. below demonstrates the scoring system in the four tests below.

Table 3.6. Scoring in tests

Test	No. of Items	Scoring	
		<i>Per item</i>	<i>Total score</i>
<i>Free-Production Test (FPT)</i>	10	10	100
<i>Sentence Completion Test (SCT)</i>	20	5	100
<i>Fill-in-the Blank Test (FBT)</i>	10	10	100
<i>Grammaticality Judgment Test (GJT)</i>	20	5	100

Besides the calculation of raw scores through descriptive statistics, the frequencies and percentages of verb complementation patterns and senses identified in the students' production tests, i.e. FPT and SCT, were calculated to reveal the variation of patterns and senses in their productions and to find out students' preferences.

Apart from that, Multivariate analysis of variance (MANOVA) was performed in order to compare the means of students across five different word-levels across four test types and to find out whether there were statistically significant differences across different groups in terms of their test performances. MANOVA was specifically used since there is one categorical independent variable and more than one dependent variable and it controls for the risk of Type 1 error and determines the effects of independent variables on several dependent variables (Pallant, 2007, p.275). Here, in this study, the dependent and the independent variables are as in the following one:

Dependent variables: test scores obtained from tests (GJT, FBT, SCT and FPT)

Independent variable: five groups of learners based on their word-levels obtained from VLT (2000, AWL, 3000, 5000 and 10000 word-level)

One-way ANOVA were conducted to find out the difference between the performances of four groups on each test type one by one. If the differences between the mean scores of participants across different word-levels were meaningful or not. Follow-up tests, that were, post hoc tests were performed to make multiple comparisons and to determine which groups contributed to the overall multivariate significance. For this purpose, Bonferroni Adjustment was used which is a kind of test used for correcting the significance level when multiple comparisons are made for reducing the chances of obtaining false-positive results.

3.9.2. Qualitative data analysis

The production tests were qualitatively analyzed to explore how verb complementation patterns were used with the factive cognitive verbs. During this procedure, all the sentences participants produced in SCT and FBT were put into computer-readable form and carefully read in separate worksheets in the Excel program and manually analyzed in terms of verb complementation patterns and verb senses. All the patterns appearing with each factive cognitive verb and the verb senses in learners' productions were annotated on the basis of the Valency Dictionary of English and VerbNet. All the complementation patterns and senses of the five factive cognitive verbs provided in these sources along with examples are displayed in Appendix O. In addition to these sources, online dictionaries (such as Collins Cobuild, Cambridge, Merriam Webster, Oxford) and the corpus of present-day English language, i.e. COCA were also checked while identifying the patterns and senses manually. During this phase of the study, the correct and incorrect choices of verb complementation patterns and senses were highlighted in different colors in the Excel program. For example, the incorrect choices of verb complementation patterns were colored in red and the wrong verb sense was colored in orange. Besides, notes were taken regarding the problematic uses.

Apart from that, for interrater reliability analysis, interrater agreement was performed twice with different raters: one between the researcher and a Turkish researcher who is expert in the field of verb complementation and who is working at the same institution where the research was conducted and the other between the researcher and an American native speaker who is an instructor at a state university in Turkey. For this purpose, 30 % of the data were individually analyzed by the researcher and the Turkish researcher and 20 % of the data were analyzed by the researcher and the American native speaker at the very beginning of the data analysis procedure. During this procedure, the raters individually analyzed verb complementation patterns and verb senses that were produced and they determined whether the patterns and senses were correctly and appropriately used. Then, the researcher checked her answers first with the Turkish researcher's answers and then with the native speaker's answers during two separate meetings and at each meeting, the researchers resolved discrepancies on the disagreed items. The flow chart below displays the phases pursued during data collection and analysis.

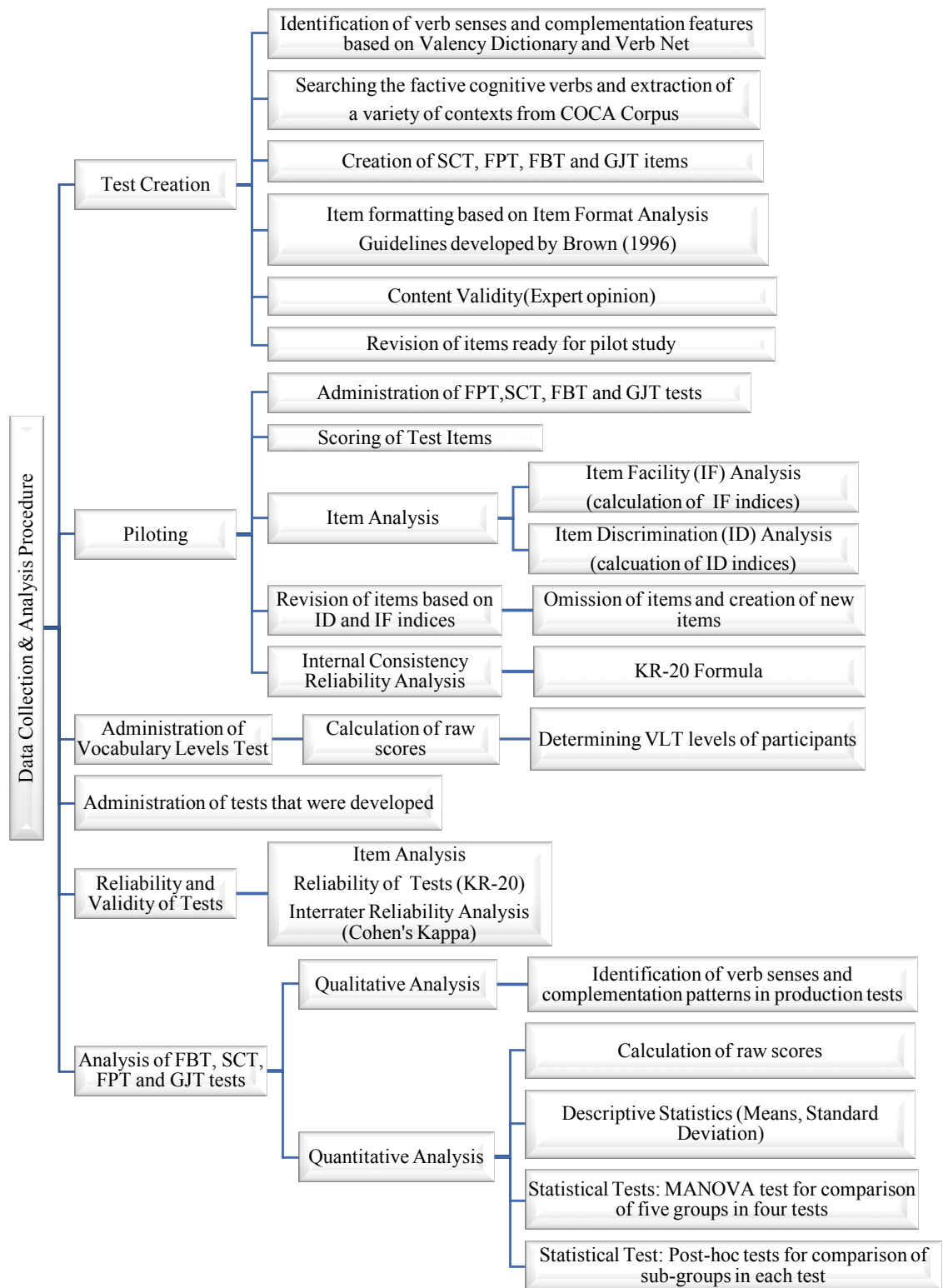


Figure 3.5. Data collection and analysis procedure

CHAPTER 4

4. RESULTS

4.1. Introduction

This study was designed to explore the receptive and productive knowledge of Turkish learners of English regarding factive verb (*i.e. know, remember, forget, regret and understand*) complementation patterns and verb senses. The following research questions were addressed in the current research:

1. What are the achievement levels of Turkish EFL learners regarding factive cognitive verb (*i.e. know, regret, remember, forget, and understand*) complementation patterns in recognition and production tests?
2. What are the preferences of Turkish EFL learners regarding factive cognitive verb complementation patterns and their corresponding verb senses?

For the purposes of the study, four types of tests were developed to measure learners' state of knowledge at recognition level and their choices of five factive cognitive verbs at production level in terms of complementation patterns and senses and they were administered to 269 participants.

In this chapter, the findings obtained from quantitative and qualitative data analyses were presented in accordance with the research questions. Addressing the first research question, the first section provides detailed information about the achievement levels of the Turkish L2 learners in receptive and productive tests regarding factive verb complementation use. In this section, specifically, the results of the quantitative analysis were explained indicating the overall mean scores obtained from the recognition and production tests, and the comparison across five different word-levels in terms of verb complementation use. Then, in the second section, the statistical test results were provided to show whether students across different word-levels differed from one another in the verb complementation use.

In the third part of the chapter, addressing the second research question, the findings obtained from qualitative analysis of data were presented. Specifically, the choices of verb complementation patterns and the verb senses produced by the participants in production tests were explained considering various uses (*i.e. correct, incorrect and problematic uses*) and they were illustrated through numerous examples from the tests.

4.2. The Achievement Levels of L2 Learners in Receptive and Productive Tests Regarding Factive Verb Complementation Use

In order to reveal the achievement levels of L2 learners in receptive (Grammaticality Judgment test and Fill-in-the-blank test) and productive tests (Free Production test and Sentence Completion test) regarding factive verb complementation use, the raw scores obtained from each test by the students across five word-levels (2000, Academic Word List (AWL), 3000, 5000 and 10000-word) were calculated based on a total score of 100 and their overall mean scores in four tests were computed as displayed in Appendix P and visualized in Figure 4.1 below.

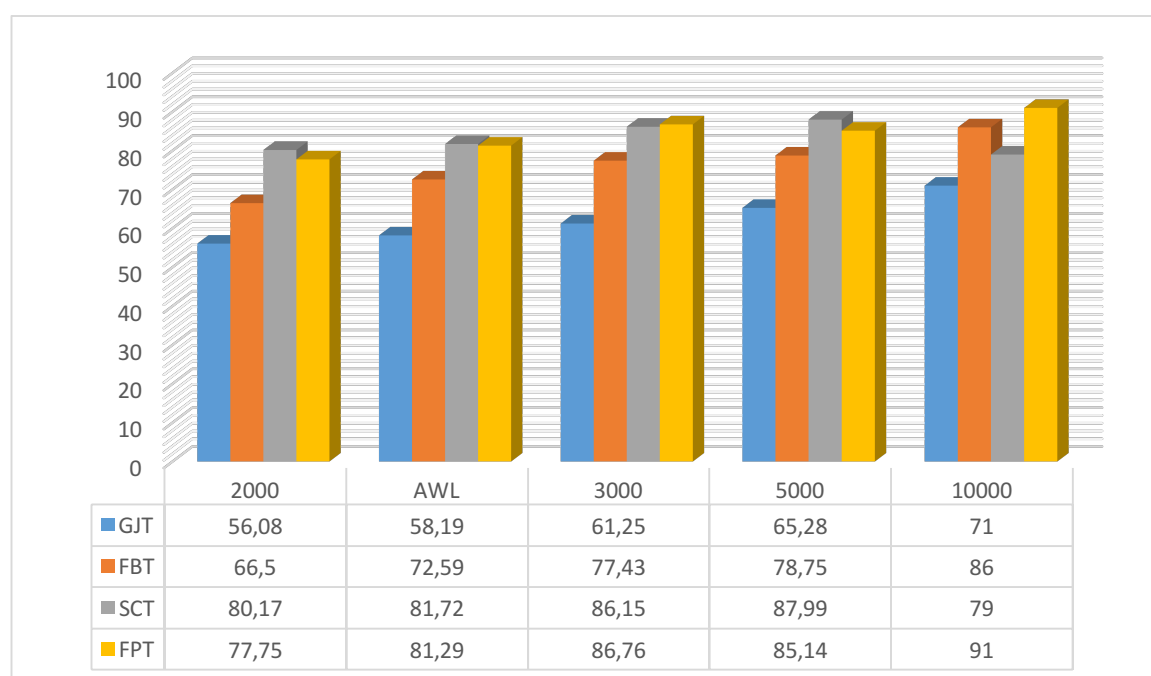


Figure 4.1. Mean scores of students across five VLT levels

As depicted in Figure 4.1., based on the analysis of overall mean scores of students obtained from each test, L2 learners seemed to perform better in the productive tests, SCT and FPT compared to the receptive tests, i.e. GJT and FBT. It was observed that the lowest mean scores were obtained from Grammaticality Judgment Test (GJT) ($\bar{x}$ =60.67; SD=15.46) whereas the highest mean scores were obtained from Sentence Completion Test (SCT) ($\bar{x}$ =84.22; SD=13.47). As for the rest of the tests, the following results were obtained: Fill-in-the-blank test ($\bar{x}$ =74.46; SD=19.76) and Free-production test ($\bar{x}$ =83.22; SD=16.99). In order to find out whether there was a statistically significant difference

across the mean scores in four different tests, one-way repeated measures ANOVA was conducted. The statistical test results showed that there was a significant main effect of test type on the learners' verb complementation use ($F_{(3,804)}=145.692, p=.000, \eta_p^2=.352$). Table 4.1. below demonstrates the statistical test results of the comparison across four tests.

Table 4.1. Comparison among four test types (One-way repeated Measures ANOVA)

	N	$\bar{x}$	SD	<i>p</i>
GJT	269	60.67	15.463	.000*
FBT	269	74.46	19.760	.000*
FPT	269	83.22	16.994	.000*
SCT	269	84.22	13.471	.000*

*Significant at the level of **.05**

GJT: Grammaticality Judgment Test

FBT: Fill-in-the-blank Test

FPT: Free Production Test

SCT: Sentence Completion Test

To reveal the source of the difference, Bonferroni post-hoc test was performed and it was revealed that there were statistically significant differences between each test type except between sentence completion and free-production tests. (See Appendix R for one-way repeated measures ANOVA test results and for pairwise comparisons).

4.3. The Comparison Among the L2 Learners According to Vocabulary Levels Regarding Verb Complementation Use in Receptive and Productive Tests

Based on the analysis of overall mean scores of students obtained from each test (See Figure 4.1. above), the lower the VLT level is, the lower the overall mean score is. In all tests, the students with the lower VLT level got scores lower than the other groups while the students with the higher VLT level got the highest scores except for sentence completion test. In sentence completion test, 10000 word-level students got the lowest mean score. Specifically, in this test, both 2000-word and 10000-word level students performed similarly with a slight difference as the former group did slightly better than the latter group.

In order to find out whether there were statistically significant differences among learners from five different word-levels in terms of receptive and productive test

performances, Multivariate analysis of variance (MANOVA) was performed to compare the means of students across five different word-levels across four tests.

Overall, there were statistically significant differences in the test scores of students across different word-levels. According to the MANOVA (See Appendix S), the multivariate result was significant for VLT level at the .05 significance level ($F_{(2,655)} = .155$, $p = .000$; *Pillai's Trace* = .000; $\eta^2 = .039$). As it is displaced in Table 4.2. below, based on an overview of tests of between-subject-effects, the learners across different word-levels differed on all dependent variables, i.e. four tests. That is to say, VLT level has a significant effect on students' performances in each of four tests, that were, GJT ($p = .003^*$), FBT ($p = .002^*$) and SCT ($p = .004^*$) tests and FPT ($p = .015^*$).

Table 4.2.. *The comparison among L2 learners from five VLT levels based on their receptive and productive tests*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	η_p^2
VLT Level	GJT	3698.247	4	924.562	4.042	.003*	.058
	FBT	6650.109	4	1662.527	4.479	.002*	.064
	SCT	2779.789	4	694.947	4.001	.004*	.057
	FPT	3503.994	4	875.999	3.130	.015*	.045

Computed using alpha and significant = .05

GJT: Grammaticality Judgment Test

FBT: Fill-in-the-blank Test

SCT: Sentence Completion Test

FPT: Free Production Test

As the MANOVA test results yielded significant differences across different VLT levels in terms of overall mean scores in four tests, follow-up tests, that were, post hoc tests were also performed to make multiple comparisons and to determine which groups contributed to the overall multivariate significance and where the significant difference lied. For the purposes of the research, Bonferroni Adjustment was used as a post hoc test, which is a kind of test employed for correcting the significance level when multiple comparisons are made “for reducing the chances of obtaining false-positive results” (Napierala, 2012). Table 4.3. and 4.4. below display the post hoc test results.

Table 4.3. Multiple comparisons across five VLT levels in recognition tests

VLT				GJT								FBT								
2000		AWL		3000		5000		10000		2000		AWL		3000		5000		10000		
MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	
2000	-	-	-2.11	1.000	-	.549	-9.19	.006*	-14.92	.350	-	-	-6.09	.874	-10.93	.012*	-12.25	.003*	-19.50	.306
AWL	2.11	1.000	-	-	-	1.000	-7.09	.084	-12.81	.703	6.09	.874	-	-	-4.85	1.000	-6.16	.709	-13.41	1.000
3000	5.07	.549	2.96	1.000	-	-	-4.13	1.000	-9.85	1.000	10.93	.012*	4.85	1.000	-	-	-1.32	1.000	-8.57	1.000
5000	9.19	.006*	7.09	.084	4.13	1.000	-	-	-5.72	1.000	12.25	.003*	6.16	.709	1.32	1.000	-	-	-7.25	1.000
10000	14.92	.350	12.81	.703	9.85	1.000	5.72	1.000	-	-	19.50	.306	13.41	1.000	8.57	1.000	7.25	1.000	-	-

Table 4.4. Multiple comparisons across five VLT levels in production tests

VLT			SCT										FPT									
			2000		AWL		3000		5000		10000		2000		AWL		3000		5000		10000	
			MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.	MD	Sig.
2000	-	-	-1.56	1.000	-	.095	-7.82	.008*	1.17	1.000	-	-	-3.54	1.000	-9.01	.022*	-7.39	.121	-13.25	.900		
AWL	1.56	1.000	-	-	-	.567	-6.26	.075	2.72	-14.67	3.54	1.000	-	-	-5.46	.637	-3.85	1.000	-9.71	1.000		
3000	5.98	.095	4.42	.567	-	-	-1.84	1.000	7.15	1.000	9.01	.022*	5.46	.637	-	-	1.62	1.000	-4.24	1.000		
5000	7.82	.008*	6.26	.075	1.84	1.000	-	-	8.99	1.000	7.39	.121	3.85	1.000	-1.62	1.000	-	-	-5.86	1.000		
10000	-1.17	1.000	-2.72	1.000	-	1.000	-8.99	1.000	-	-	13.25	.900	9.71	1.000	4.24	1.000	5.86	1.000	-	-		

Based on the multiple comparisons across five word levels for recognition tests (i.e. Grammaticality Judgment Test and Fill-in-the blank Test) as depicted in Table 4.3. and for production tests (i.e. Sentence Completion Test and Free Production Test) as depicted in Table 4.4. above, the following results were observed.

Considering the post hoc test results for *grammaticality judgment test* (GJT), there is a statistically significant difference between the achievement levels of 2000-word and 5000-word levels ($p=.006$). 5000-word level students performed significantly better than the 2000-word level students (See Appendix T for details).

As for the post hoc test result for *fill-in-the blank test* (FBT), there is a statistically significant difference between the scores of 2000-word and 3000-word levels ($p=.012$) and between the scores of 2000-word and 5000-word levels ($p=.003$). It has been revealed that both 3000-word ($\bar{x}=77.43$, $SD=15.79$) and 5000-word level students ($\bar{x}=78.75$, $SD=19.56$) performed significantly better compared to 2000-word level students ($\bar{x}=66.50$, $SD=21.69$) in FBT (See Appendix U for details).

As far as the post hoc test result for *sentence completion test* (SCT) is concerned, there is a statistically significant difference between the achievement levels of 2000-word and 5000-word levels ($p=.008$). This means that 5000-word level students ($\bar{x}=87.99$, $SD=13.41$) performed significantly better than 2000-word level students ($\bar{x}=80.17$, $SD=14.75$) (See Appendix V for details).

Lastly, the post hoc test result for *free-production test* (FPT) demonstrated that the mean scores for FPT were statistically significant between 2000-word and 3000-word levels ($p=.022$). In other words, 3000-word level students ($\bar{x}=86.76$, $SD=14.86$) performed significantly better than 2000-word level students ($\bar{x}=77.75$, $SD=16.58$) in FPT (See Appendix Y for details).

Based on the findings of the data analysis obtained from these multiple comparisons, it is clear that students' test performances differed across different word-levels in four tests. Higher word level learners performed better than the lower word level students.

In the following section, the verb complementation patterns and the verb senses that were produced by the participants in the production tests were explained and illustrated.

4.4. The Factive Cognitive Verb Complementation Patterns and Senses Preferred by L2 Learners in Their Production

In order to explore the L2 learners' choices of verb complementation patterns and senses, the data obtained from two production tests, that were, SCT and FPT, were qualitatively analyzed and verb complementation patterns and senses used by the participants were identified and categorized.

Findings of the qualitative analysis of production tests showed that there were four categories of use. These categories are consisted of the following uses:

- a. the 'correct choice' of verb complementation patterns category,
- b. the 'incorrect choice' of verb complementation use category,
- c. the 'problematic use' category,
- d. 'no answer' category.

The correct use represented the instances in which an accurate verb complementation pattern was used by the L2 learners and the verb was used in a correct sense.

The incorrect choice of pattern category represented the verb complementation patterns that are not among the acceptable patterns occurring with the factive verb under investigation and produced incorrectly by the students.

Problematic use category included the instances in which there was a problem related to verb complementation pattern or senses, or, both.

Specifically, the problems included the use of wrong verb senses, mismatch between the pattern used and the verb meaning and the problematic use of *wh-CL* complementation pattern.

As for the 'no answer' category, there were instances in which no sentence was produced by the students and the item was left blank.

Based on this categorization of verb complementation use in productive tests, the Figure 4.2. as provided below demonstrates the overall picture in sentence completion test regarding the correct choices, incorrect choices, no answer category and problematic uses.

(See Appendix Z for the detailed distribution of four categories of verb complementation use in terms of frequency and percentages)



Figure 4.2. The use of factive verb complementation patterns in SCT

As displayed in Figure 4.2., factive verbs differed in terms of verb complementation use based on the participants' responses to SCT. Among the verbs, *remember* was the verb which had the highest percentage of acceptable use comprising 88 % of all its uses whereas *regret* was the verb which had the least numbers of correct uses, comprising 62.17 % of all its uses. In contrast to correct uses, *regret* was the verb which had the highest percentage of incorrect use among all four categories of its use comprising 17.35 % whereas *remember* had the lowest percentage of incorrect choices (i.e. 0.36 %) among all four categories of its uses. Considering the problems related to the use of verbs, *understand* was found to be the verb which had far more problematic use (i.e. 21 %) compared to other verbs whereas *remember* was the verb which had the least frequent problematic use. In addition, the percentages of the items in which no answer was provided for each verb ranged from 7.43 for the verb *understand* to 8.82 for the verb *forget*.

As for the analysis of free production test, Table 4.5. below displays the overall distribution of the verb complementation patterns in FPT based on different types of uses.

Table 4.5. *The overall distribution of verb complementation patterns in FPT*

Verbs	Correct choice		Incorrect choice		Problematic		No answer		Total	
	N	%	N	%	N	%	N	%	N	%
know	450	16.72	7	0.26	70	2.60	11	0.40	538	20
understand	451	16.76	2	0.07	35	1.30	50	1.85	538	20
regret	239	8.88	126	4.68	87	3.23	86	3.19	538	20
remember	436	16.20	6	0.22	31	1.15	65	2.41	538	20
forget	431	16.02	-	-	40	1.48	67	2.49	538	20
Total	2007	74.60	141	5.24	263	9.77	279	10.37	2690	100

As has been demonstrated in Table 4.5. above, correct choices of verb complementation patterns were 74.60 % of all productions in FPT whereas incorrect choices of verb complementation patterns were 5.24 % of all productions. Problems appeared in 9.77 % of all verb complementation patterns produced by students. In addition, 10.37 % of items were left blank in total and no verb complementation pattern was provided.

An insight into the use of individual verbs has shown that the verb *regret* differed from the rest of the cognitive verbs in terms of four categories of uses. The lowest percentage of correct choices of complementation patterns was observed in the use of the verb *regret* compared to other verbs. The highest percentage of incorrect verb complementation pattern choices was observed in the use of *regret* (4.68 %). In addition, the percentage of problematic use was found to be high especially in the use of the verb *regret* (i.e. 3.23 %). Apart from that, it was the verb *regret* which had the highest numbers of items (i.e. 86 instances, 3.19%) that were left blank and no answer was provided.

As for the rest of the verbs, i.e. *know*, *understand*, *remember* and *forget*, the range of acceptable verb complementation patterns was between 16.02 % and 16.76 %. The percentages of unacceptable (ranging from 0 % to 0.26 %) and problematic (ranging from 1.15 % to 1.48%) uses were also similar among these four verbs except for the problematic use of the verb *know* (2.60 %).

In the next section, the correct choices of L2 learners regarding verb complementation patterns and senses were explained and illustrated.

4.4.1. The correct choices of L2 learners regarding verb complementation patterns and senses

To explore the L2 learners' correct choices of verb complementation patterns, the two production tests were examined with a focus on the context of use in more-controlled test, i.e. sentence completion test and the context-free use in the less-controlled test, i.e. free-production test. The test items in more controlled test (i.e. SCT) included the verb in question used within a particular context and required a specific pattern and thus the choice of both this expected pattern and different choices that were correctly and properly used in that particular context were accepted as correct. So, the correct choices in this test were examined in terms of the use of 'expected patterns' and the use of 'different choices'. As for the free-production test, the correct choices were examined in terms of the use of an accurate and appropriate pattern that the verb takes as its complementation pattern.

4.4.1.1. The correct uses of the verb 'know'

The analysis of the correct choices of patterns with the verb *know* revealed that in controlled production test L2 learners produced different choices rather than providing

the pattern expected in the answer. For example, in the following context in e.g. 28 (item 12), the expected pattern was [zero that-CL] and the verb meaning in this context was supposed to refer to ‘*to possess something as information*’. However, rather than providing the expected verb sense and the corresponding complementation pattern, different choices of patterns were preferred by the students such as [NP] and the verb was used in another sense as illustrated below:

(28) (SCT-Item 12) Ms. Watson: But Natalee was in there when I saw him near the blackjack table,
I just remember seeing him and wondering what he was doing hanging out with my friends.
Hansen: Did he create any suspicions?
Ms. Watson: Not really. I just was curious to see who the boy was. I didn't -- wasn't really suspicious.
I *knew* _____.

Expected answer: I knew he was going to come out with us later. [zero that-CL]

Students' answers: I knew his face from somewhere [NP] (2000 level)
him [NP] (5000 level)
people whom he was with. [NP] (3000 level)

As depicted in the context in e.g. 28 above, the verb was complemented in such a way that the sense conveyed was *to know someone* referring to ‘*a person whom somebody has met or encountered before*’ using [NP].

Overall, in more controlled sentence completion test, in half of the cases (i.e. 50.63 %), students used the expected patterns with the verb *know* and in 30.57 % of the cases they preferred different types of patterns. (See Figure 4.2. above)

Apart from that, one noticeable finding was that learners showed a strong preference for [NP] with the verb *know* in all items. [NP] was observed in more than half of the cases among all other complementation pattern types (See Appendix Z).

As for free production test results, as it is the case with SCT, though in Valency Dictionary of English, it is shown that the ‘frequent’ patterns in ‘information’ sense are [wh-CL] and [that-CL], in learners’ productions, it was revealed that remarkably [NP] was chosen over other types of patterns (89 occurrences, i.e. 20.45 %) as exemplified below:

(29) I don't know the answer of this question. (3000 level)
(30) Do you know the meaning of "desk"? (3000 level)

This finding suggests that, in both context-free and context-bounded tests, mainly [NP] was chosen over other patterns with *know* by the learners. Among the learners from different word-levels, specifically 3000-word level students preferred this pattern more frequently than the other groups.

In some instances, L2 learners used the verb *know* with correct choices of patterns, however, they completed the sentences in such a way that the completed part was out of context as illustrated below:

(31) (Item 3- SCT)

Sally: I need to get back up there. I'm nervous as a cat when I'm away from Mamma.

Jack: Wait. Take this biscuit with you so you have something to nibble on later.

Sally: Thank you for coming. You got Truly to take care of the horses?

Jack: The horses are taken care of. Let me know _____. So I will stir up a meal for you.

Expected answer: Let me know when you'll be home. [wh-CL]

Students' answers: Let me know your name(a) (2000 level)

the reason (b) (5000 level)

how to use (c) (3000 level)

what happened (d)(3000 level)

if you got a problem (e) (AWL level)

As illustrated in e.g. 31 above, L2 learners completed the verb with correct choices of patterns such as [NP] in a and b, [wh-to-INF] in c, [wh-CL] in d and e. But, the completed part is irrelevant and it does not make any sense considering the preceding and the following parts. In this respect, it is clear that the verb was not completed meaningfully despite the correct choice of the verb complementation patterns.

Apart from that, another remarkable finding was that L2 learners used the verb *know* mainly in one particular sense, that is, *information* as illustrated below.

(32) People know that Einstein invented the theory of relativity. (2000level) [that-CL]

(33) Do you know how this machine works? (3000 level) [wh-CL]

(34) What do you know about his earlier life? (AWL-level) [about NP]

As it is obvious in the extracts above, the verb was used to refer to have information about something with correct choices of patterns. In terms of percentages, in more than half of the cases (59.31 %) in free production test, L2 learners used *know* in this sense.

In a small number of instances (39 out of 435 instances) in free-production test, L2 learners used *know* to refer to ‘*have a certain skill or to have learnt how to do something*’ with correct choices of either [NP] or [wh to-INF] pattern as exemplified below:

(35) Do you know any other language? (3000 level) [NP]

(36) She doesn't know how to cook. (5000 level) [wh to-INF]

Apart from that, L2 learners especially 3000 word-level learners showed tendency to use the verb *know* to refer to ‘*have met or encountered somebody or to have seen a place or to have read something*’ in their productions slightly more than the other groups as illustrated below:

(37) I don't know neither my father nor my mother.

(38) Do you know each other?

(39) I know these streets well enough.

As it is clear in the examples, L2 learners used *know* to refer to a person as in (37) and (38), and a place as in (39). In this sense category, the possible verb complementation patterns were either [NP] or [to NP]. Only the former was chosen by the learners.

Moreover, some other senses such as ‘recognize, i.e. be aware of certain qualities or characteristics in someone or something’ which requires the use of patterns such as [for NP], [as NP], [NP to-INF] were not produced by the participants in their context-free texts except one instance found in the data (e.g. Ayşe is *known for her honesty*) (See Appendix A1).

4.4.1.2. The correct uses of the verb ‘understand’

Considering the verb *understand*, a remarkable finding regarding the correct choices of patterns in controlled production (in SCT) was that different choices were preferred twice more often than the expected patterns by the learners. For example, in item 6, the expected pattern was [that-CL]. However, rather than using the expected pattern, different patterns were preferred by the participants with the verb used in the same sense as illustrated below:

(40) (Item 6-SCT) English/ELA teachers should work closely together, and with other professionals as necessary, to develop protocols for responding to various types of violent writing. Teachers, counselors, and administrators should work together to create a supportive process for assessing and working with students whose writing includes elements of domestic violence and/or self-abuse.

All teachers must *understand* _____

Expected answer: All teachers must understand that they are legally bound to report students to the Department of Social Services in cases where student autobiographical texts detail prior or current abuse, provided prior abuse has not already been reported. [that-CL]

Students' answers: ..they should cooperate for student's sakes (3000) [zero that-CL]
why they should work closely together (2000) [wh-CL]
the importance of working together. (5000) [NP]

As shown in the examples above, L2 learners completed the sentence with different choices of patterns and used the verb in the sense of ‘*comprehending or considering logical*’. Among these different choices, *NP* was the only pattern that was preferred to a great extent (i.e. 164 out of 212 occurrences) in this verb sense in this context. In the free-production test, too, [NP] was chosen over other complementation patterns in more than half of the instances (57,93 %). Among the participants from different VLT levels, specifically 3000-word level students tended to use this pattern much more frequently (82 out of 260 instances) than the other groups.

Other than this, the verb *understand* was expected to be used in the sense of ‘comprehending’ in all four items in the controlled production in SCT. In only item 19, the verb was used in another sense as exemplified below:

(41) (Item 19-SCT)

Ms. T. Stone: I'm trying to keep strong for Ryan.

Couric: Your little boy...four-year-old Ryan. Does he understand _____.

Ms. T. Stone: He really hasn't asked any questions about the situation. He has seen his dad on the newspapers and magazines, but he really hasn't asked a whole lot.

Expected answer: Does he understand what's going on? [wh-CL]

Students' answers: Does he understand anything about the situation (a) (3000 level)
that his father is dead (b) (AWL level)
you and your husband are divorced (c)? (5000 level)

In e.g. 41 (item 19) above, the expected pattern was [wh-CL] pattern with the sense of ‘comprehend’. However, as shown above in learners’ completions, L2 learners used *understand* in this specific context to refer to “*to know/have been told about it*” by using different types of patterns [NP], [that-CL] and [zero that-CL] respectively. In (a), Couric asks Stone whether Ryan has heard about the situation (a), his father who was arrested (b) and the divorce of his father and mother (c).

As it has been revealed in SCT, in free production test, too, *understand* was used in a restricted sense. In 99,54 % of the cases, the verb was used in the sense of ‘*comprehending*’. On the other hand, in only two sentences produced by AWL-word and 5000-word level students, the verb conveyed the meaning of ‘*know/heard about it*’ as illustrated below:

(42) I understand you fell down the stairs. (5000 level)

(43) Understood. (AWL level)

An insight into the ‘comprehend’ sense category showed that the verb was used in different sub-senses by the participants as illustrated below:

(44) I can understand the language which they speak. (AWL)

(45) I understand Japanese words but I can't speak it. (5000 level)

As depicted in 17 and 18 above, the verb was used by the L2 learners with [NP] pattern in the sense of ‘*knowing a language or the meanings of words in a language*’ (27 out of 433 instances).

Apart from this sense, in context-free production, L2 learners used *understand* in the sense of ‘*understanding someone or knowing what or how somebody feels*’ with correct choices of patterns such as [NP] pattern or [wh-CL] pattern (85 out of 433 instances).

(46) She can understand my feelings. (3000 level)

(47) I understand you! Try to be relax. (5000 level)

(48) I understand why you love her. (AWL level)

(49) You don't understand what I feel. (AWL level)

For the extracts above, the students gave ‘*to feel sympathy*’, ‘*to feel someone and their emotions*’ or ‘*empathise*’ as the verb sense for the sentences they produced with *understand*.

To summarize, taking the verb senses into account, the findings demonstrated that to a large extent, L2 learners used *understand* in very restricted sense, i.e. to refer to ‘comprehend’.

See Appendix A2 for the verb complementation pattern distribution of *understand* based on verb senses.

Other than those aforementioned points, it was revealed that in Item 13 in sentence completion test, even though the choice of the pattern and the verb sense were correct, many L2 learners produced sentences which does not match either the following part or preceding part, or, both.

(50) (Item 13-SCT) Marlee: Where was Tillie when you talked to her?

Richard: She called from Las Vegas, but she was leaving there. Said she'd lost several thousand dollars and the people she was with were doing even worse. She was going with them to L. A. and then maybe up to San Francisco.

Marlee: I don't understand _____

Richard: Who has a problem with Tillie? I wanted what we did on our wedding anniversary to be your idea, that's all.

The expected answer: I don't understand why you have such a problem with Tillie.

Students' answers: I don't understand what happened to her (3000 level)

why she does this (5000 level)

who stole her money (AWL level)

The expected pattern in (50) above was [wh-CL] with the verb meaning 'comprehending'. However, as illustrated above, although the expected [wh-CL] pattern was correctly chosen, the completed part does not make any sense considering the preceding and/or the following sentences in the context.

4.4.1.3. The correct uses of the verb 'regret'

As it is the case with the verb *understand*, among the correct choices in controlled production, the instances of different choices used with *regret* were found to be as almost twice as the expected patterns. For example, in item 9, the verb was supposed to be used in the sense of "*feeling guilty about the situation over which the experiencer had responsibility*". And, the extract was supposed to be completed with [wh-CL] pattern. However, L2 learners tended to use [V-ing] (i.e. 110 out of 147 instances) rather than choosing the expected pattern as exemplified below:

(51) (Item 9-SCT) I regret _____ and I do apologize to the people who I've offended because... they were ill-timed and out-of-order comments. I very rarely say things that I don't mean, but I'm not going to get into a debate about my opinions. Today, it's an attempt to publicly apologize to anybody I've offended.

Expected answer: I regret what I did. [wh-CL]

Students' answers:

I regret not choosing my words wisely (5000 level)

offending people (AWL level)

having said my utterances harshly (3000 level)

} [V-ing]

As it is depicted in the extract in e.g. 51 above, L2 learners used *regret* in the same sense to refer to ‘*feeling guilty about the situation/remorse for an action that was within the experiencer’s control*’ but choose a different pattern (i.e. [V-ing]) rather than [wh-CL].

Another noticeable finding was that the expected to-INF pattern in item 18 was not preferred by any of the L2 learners in sentence completion test. Rather, V-ing was chosen over other patterns by the students as given in the example (98 out of 128 instances):

(52) (Item 18-SCT) At night I put the cage in the box. When I lay down to sleep, I looked through the glass doors and noticed the moon in the sky and frost on the ground. There was not a single stirring of the bird within the box. I regret _____. Next morning, by the time I took the cage out of the box it was past eight o'clock. The bird must have been awake for a long time in the box, yet it displayed no discontent.

Expected answer: I regret to say that I got up late again next morning. [to-INF]

Students’ answers: I regret putting the bird cage in box. (2000 level)

I regret having taken its freedom away (5000 level)

In e.g. 52 (item 18) above, the verb *regret* was expected to be completed with [to-INF] pattern in which the verb referred to ‘feel remorse for/guilty about an action or a situation the experiencer had control over’. Nonetheless, no any instance of [to-INF] was found in students’ productions. Instead, the students tended to use [V-ing] pattern.

Considering the verb senses, in production tests, L2 learners were found to use *regret* in a restricted sense “to feel remorse for something that the experiencer had control” and tended to choose mainly [V-ing] pattern rather than other choices such as [wh-CL], [that-CL] and [NP].

(53) She regrets having made so many mistakes in her early ages. (AWL level)

(54) I regret not doing my homework yesterday. (3000 level)

(55) I regret accepting his offer. (5000 level)

Among the L2 learners from different word-levels, 5000 word-level participants tended to use *regret* in this sense more than the rest of the groups. See Appendix A3 for the verb complementation pattern distribution of *regret* based on verb senses.

4.4.1.4. The correct uses of the verb ‘remember’

Similar to the uses of the verbs *understand* and *regret*, the analysis of the use of *remember* demonstrated that L2 learners preferred different choices of complementation patterns almost twice more often than the expected patterns in the controlled production test (i.e. SCT). One noticeable finding with regard to this point was that the expected pattern [V-ing] in Item 5 and Item 10 was not chosen by the L2 learners. Instead, they preferred different choices of patterns as illustrated in e.g. (56) and (57) below:

(56) (Item 5-SCT) Kotb: You can see like all the kids have gazillion cameras and it's amazing.

Gifford: That's the world we live in.

Kotb: They're capturing the moment.

Gifford: I remember _____.

Expected answer: ...I remember going to see the Beatles and just actually watching and actually just listening and screaming. [V-ing]

*Students' answers: I remember about the old-time cameras (3000 level) [about NP]
that we didn't have things like that (2000 level) [that-CL]
the old days we didn't have a chance (5000 level) [NP]*

(57) (Item-10-SCT) Alice in Wonderland, Tom Sawyer, Little Women, she was writing their titles when there came a loud noise from the peaceful streets, men shouting, and a strange hissing sound. Outside the open window, a city truck was passing a path of leaves and branches in a pearly fog shot through with rainbows. She remembers _____.

Expected answer: She remembers thinking she did not deserve to come upon such beauty. [V-ing]

Students' answers:

*She remembers somebody screaming for help (3000 level) [NP V-ing]
that she felt enthusiasm/ every little detail of that day (AWL level) [that-CL]
how she was feeling when these happened (5000 level) [wh-CL]*

The sentences in (56) and (57) were expected to be completed with [V-ing] pattern. However, as exemplified above, L2 learners' productions showed a tendency to choose different patterns rather than the expected pattern while using the verb in the sense of “remembering a thing or event or remembering having done something” in both items. Moreover, among different word-level students, 3000 and 5000-word level learners preferred using these patterns more frequently than the other groups.

Regarding the frequency information in Valency Dictionary of English, it is demonstrated that [V-ing] is a frequent pattern used with *remember* in this verb sense in English. In contrast to this information, the current study revealed the non-choice of [V-ing] pattern by L2 learners.

Additionally, in both contexts in these items, among different choices of patterns, [NP] was the only pattern that was predominantly chosen by the learners (303 out of 408 instances) over other types.

As it is the case with [V-ing] pattern, [wh-CL] pattern which is a frequent pattern in English on the basis of frequency information in Valency Dictionary of English, was not much preferred by L2 learners in context-dependent test (15 out of 229 instances). Rather, different patterns were chosen as illustrated below:

(58) (Item 14-SCT) My story was also the story of X cities in general. Since I've been in the band and I've traveled around these cities. I remember _____. But the good news, things are starting to come around.

Expected answer: I remember how excited I was to get to Wichita and everybody's singing' Wichita Lineman. [wh-CL]

Students' answers: I remember all bad memories in these cities (2000 level) [NP]

that we weren't having good time (5000 level) [that-CL]

things went really bad. (2000 level) [zero that-CL]

In e.g. (58) (Item 14) above, it is clear that different types of patterns were chosen by the learners and even if the expected pattern was not used in this context, the verb sense conveyed in both cases was the same, which is 'to express the idea of not forgetting an experience referring to a past moment'. Among these different choices, [NP] was chosen over the rest of choices by L2 learners in many instances (142 out of 214 different choices).

As it is the case with SCT, in FPT, too, L2 learners chose [NP] with *remember* over the other patterns (61,98 %) even though this pattern is not a frequently used pattern with *remember* in any sense according to Valency Dictionary of English.

Apart from that, [that-CL] pattern was not much preferred by the learners with the verb *remember* as the other choices (23 out of 413 instances) in free-production test. In fact, the [that-CL] pattern is a 'very frequent' pattern in English occurring with *remember* in both of its verb senses (i.e. remembering a person or something experienced in the past (i.e. experience) and remembering to do something (i.e. task) according to Valency

Dictionary of English. However, an insight into the instances in free production test showed that L2 learners chose this pattern mainly in the sense of remembering a person or an event experienced as illustrated below:

(59) I remembered that she gave me this flower in my birthday. (2000 level)

(60) I remember that you were a teacher. (AWL level)

(61) He does not remember that he was with me last night. (3000 level)

See Appendix A4 for the verb complementation pattern distribution of *remember* based on verb senses.

Briefly, based on the correct choices in both production tests, rather than choosing the patterns frequently used with *remember* in English according to Valency Dictionary of English, L2 learners predominantly selected [NP] in all senses. Further, the verb sense analysis in free production tests showed that *remember* was used mainly in the sense of “not forgetting somebody who has been encountered or something that has been experienced in the past” (86,68%) and less in the sense of ‘task’ (i.e. ‘not forgetting something that has to be done in the sense that one does/did not forget to do it’) (13,31 %).

4.4.1.5. The correct uses of the verb ‘forget’

As it is the case with the verb *understand*, *remember*, and *regret*, among the correct choices in controlled production (i.e. SCT), L2 learners employed different choices of verb complementation patterns with the verb *forget* rather than the expected patterns in the sentence completion test especially in the cases where [PrepN] in item 4 and [that-CL] in item 8 were required. Here is item 4 below:

(62) (Item 4-SCT)

Focus is really important in life. I would have to say my favorite aspect of yoga is the focusing aspect in yoga. I only focus on yoga when I am practicing. I just forget _____ but when I practice yoga I focus on all of the details of yoga during my practice.

Expected answer: I just forget about everything outside of yoga. [PrepN]

Students’ answers: I just forget everything about the world. (5000 level) [NP]

what is happening in real life (10000 level) [wh-CL]

The verb *forget* in e.g. (62) above was expected to be completed with [PrepN] in the sense of “not remembering something or that something has to be done about

something". However, instead of using the expected [PrepN] pattern (17 out of 269 instances), L2 learners used different choices of patterns (216 out of 269 instances) by using the verb in the same sense. In fact, in this verb sense, [PrepN] is the pattern that is 'frequent' according to Valency Dictionary, however, it was chosen by L2 learners to a very limited extent. They mainly favored [NP] and to some extent [wh-CL] as illustrated below.

As it is the case with [PrepN], rather than using the expected [that-CL] pattern (10 out of 204) in item 8, L2 learners chose different choices of patterns as illustrated below:

(63) (Item 8-SCT) As music educators, sometimes we can easily get caught up in the musical and educational goals we have for our students and forget _____. When we share in a mutual understanding of one another, both our empathy toward one another and the music-making process may be enhanced.

Expected answer: ...forget that they have lives outside our classrooms. [that-CL]

Students' answers:forget their own needs and interests (3000 level) [NP]

what they want or need (5000 level) [wh-CL]

they may be getting under stress. (AWL level) [zero that-CL]

In (63) (item 8) above, even though the expected pattern was [that-CL] pattern different types of complementation patterns were chosen by the participants in all cases with the sense of '*not remembering something*'. In fact, according to the frequency information in Valency Dictionary of English, [that-CL] pattern is a 'very frequent' pattern in English occurring with *forget* in this verb sense. However, L2 learners chose mainly different types of patterns especially [NP] over the expected pattern (100 out of 194 different choices).

In some instances, as in item 17 in e.g. (64), L2 learners completed the verb *forget* with correct choices of patterns, however, the completed part does not make any sense considering preceding or following parts in the context as exemplified below:

(64) (Item 17-SCT) Make this year different. The best gift to yourself is to pace your days with our easy-to-make table decorations and unforgettable menu. With our helpful festive ideas, you can enjoy a truly peaceful season. And don't forget _____. Save that last portion of rice, slice of chocolatey dessert for your breakfast the next morning.

Expected answer: And don't forget to treat yourself to one final present. [to-INF]

Students' answers: ...don't forget you will never come back (3000 level)
your wallet. (5000 level)
the fifth of November (AWL level)

As it is exemplified in e.g. (64) above, the learners completed the verb with correct choices of patterns such as [that-CL] and [NP], but, the completed part does not make any sense regarding the context the verb occurred.

Similar to the findings of sentence completion test, in the free production test, [NP] was the predominantly chosen pattern compared to other choices comprising almost half of the cases (47,40 %) especially in the sense of 'remembering an experience'. In most of the cases, L2 learners produced sentences with this pattern specifically to refer to 'leave behind/not bring as illustrated below:

- (65) I forget my sandwich at the front porch this morning.... (5000 level)
(66) I forgot my bag at home. (3000 level)
(67) I forgot my keys. (AWL level)

The senses for the verb *forget* in these sentences were explained by the learners as follows: 'leave belongings on a place', 'not remembering to bring something', and 'leaving something unconsciously/bir şeyi bir yerde bırakmak/almayı unutmak (to leave something somewhere/forget to take)'.

Another remarkable finding of the study was that L2 learners used exclusively the verb *forget* often in imperative form. An insight into the all correct choices of patterns in their responses to free production test has shown that there were a total of 84 instances of verbs in imperative form as in the following ones:

- (68) Forget about the moments that I offended you by my words. (5000 level)
(69) Never forget the people who help you once. (3000 level)
(70) Don't forget to call me when you arrive at home. (AWL level)

See Appendix A5 for the verb complementation pattern distribution of *forget* based on verb senses.

So far, the correct choices of L2 learners regarding verb complementation patterns in production tests were explained and illustrated through examples from data with a focus on verb senses. In the following part, the incorrect choices and the problematic uses of verb complementation patterns are explained in the Sections 4.4.2. and 4.4.3. respectively below.

4.4.2. Incorrect choices of verb complementation patterns in production tests

The analysis of production tests has demonstrated that L2 learners used the factive verbs with incorrect choices of verb complementation patterns (5.53 % in sentence completion test and 5.24 % in free production test). Table 4.6. below depicts the different types of incorrect verb complementation pattern choices used with the factive verbs

Table 4.6. *Incorrect verb complementation patterns used with factive verbs*

Incorrect choices of patterns	Examples
[Bare INF]	<i>I know speak English.</i> <i>I just forget focus on other things.</i> <i>I regret not go to school.</i>
[Bare INF/V-ing]	<i>I regret have doing this.</i>
[V-ing]	<i>Let me know eating something.</i> <i>All teachers must understand reading them.</i>
[wh to-INF]	<i>She understands why to fail from lesson.</i>
[NP NP/wh-CL]	<i>Can you remember me what teacher wants?</i>
[V-past participle]	<i>I regret did last night.</i> <i>I just regret haven't read.</i>
[to V-ed/ V _{past} participle]	<i>Don't forget to not balanced.</i> <i>I regret not to broke your heart.</i>
[to V-ing/NP/wh-CL]	<i>I remember to being in love with travelling.</i> <i>I just forget to everything.</i> <i>I forget to what I'm gonna do.</i> <i>Don't forget to wearing your glasses</i> <i>He regretted to doing that.</i>

Among all these factive cognitive verbs, most incorrect choices of patterns were used with *regret* (303 instances). An insight into L2 learners' incorrect choices of patterns in production tests showed that various types of [PrepN] (216 instances) such as [about NP] [of V-ing], [for wh-CL] and [of wh-to-INF] which regret does not take as its complementation pattern in English were produced by the learners.

Table 4.7. below depicts a list of many different types of incorrect choices of [PrepN] complementation patterns used with the verb by the participants (See their frequencies in Appendix A6).

Table 4.7. *The incorrect verb complementation patterns used with ‘regret’*

Type	Example
[about NP] [about V-ing] [about wh-CL]	<i>I regret about what I did until today.</i> <i>I regret about being so rude.</i> <i>I regret about that decision I've made.</i>
[for NP] [for V-ing] [for wh-CL]	<i>I regret for the things I said.</i> <i>I regret for believing her.</i> <i>I regret for what I made in the past.</i> <i>I regret for not reading.</i>
[of NP] [of V-ing] [of wh to-INF]	<i>I regret of my comments.</i> <i>She regrets of changing the department.</i> <i>I don't regret of what to do in the past.</i>
[from NP]	<i>I don't regret from my decision at all.</i>
[because of NP/wh-CL]	<i>I regret because of what I did and said.</i> <i>I don't regret because of my words</i>

Apart from these [PrepN] patterns, Null complementation pattern was also preferred heavily by the participants (54 instances). *regret* is a verb that requires a direct object as its complementation pattern in English. Here are the instances of such patterns from students' productions.

- (71) You're going to *regret*. (2000 level)
(72) I just *regret because* I could not read them. (2000 level)
(73) I *regret as* I don't read it so far. (AWL level)
(74) I *regret after* I said such things. (3000 level)
(75) I always *regret when* I say something ridiculous. (5000 level)
(76) I'll *regret if* i do that. (AWL level)

As it is obvious in the sentences above, *regret* was used inaccurately without a direct object by the learners. Having a null complement, it was followed by *because*, *as*, *after*, *when* and *if-clauses*.

4.4.3. Problematic uses in students' productions

An insight into the problematic uses in production tests has revealed that there were different types of problems related to the use of verb complementation patterns and the verb senses. In this part, each of these problems is explained in detail and illustrated through the instances found in SCT and FPT.

Firstly, it has been revealed in the production tests that even though verb complementation patterns were accurately used in some of the sentences they did not match the verb sense conveyed through these patterns in the contexts. The following extract in e.g. (77) taken from the sentence completion test exemplifies this kind of use with the verb *regret*.

(77) (SCT- Item 9) *I regret* _____ And I do apologize to the people who I've offended because... they were ill-timed and out-of-order comments. I very rarely say things that I don't mean, but I'm not going to get into a debate about my opinions. Today, it's an attempt to publicly apologize to anybody I've offended.

Expected answer: I regret what I did. [wh-CL]

Students' answers:

<u><i>I regret</i></u> _____	}	[to-INF]
<u><i>to offend</i></u> (3000 level)		
<u><i>not to apologize</i></u> (3000 level)		
<u><i>to act you in a bad way.</i></u> (5000 level)		

In the extract in (77) above, *regret* was used in the sense that the experiencer feels regret about the things s/he said to people mentioned in the following part. The expected pattern was [wh-CL] pattern. Another possible pattern could have been [V-ing] as in *I regret saying this/such things*. In both cases, the act of saying had already been realized and the experiencer had control over these past events in this specific context. However, as illustrated above, the verb was complemented in such a way that the verb sense refers to 'feeling bad about something that has not been realized yet and that was outside the experiencer's control'. Thus, there was a mismatch between the pattern selected and the verb sense conveyed along with this pattern. Here is another example:

(78) (Item 18- SCT) At night I put the cage in the box. When I lay down to sleep, I looked through the glass doors and noticed the moon in the sky and frost on the ground. There was not a single stirring of the bird within the box. *I regret* _____. Next morning, by the time I took the cage out of the box it was past eight o'clock. The bird must have been awake for a long time in the box, yet it displayed no discontent.

Expected answer: I regret to say that I got up late again next morning. [to-INF]

Students' answer: I regret to put it in box. (AWL level)

In e.g. (78) (Item 18) above, the expected pattern was [to-INF] pattern. Another possible pattern could have been [V-ing] as in “*I regret putting the cage in the box*”. In both instances of these patterns senses, the act of putting has been previously realized. However, in the extract above, L2 learners incorrectly chose [to-INF] pattern with the sense of ‘feeling bad about something that has not been realized yet and that was outside the experiencer’s control’. In other words, the act of ‘putting’ have not been realized yet. In this respect, there was a mismatch between the pattern selected and the verb sense conveyed along with this pattern in both instances.

As it is the case with *regret*, similar findings were observed in the use of the verb *forget*. L2 learners chose a pattern which does not match the verb sense as exemplified below.

(79) (Item 20-SCT) Sunny Sidebar Company Representative: Avoid the sun between the hours of 10 A.M. and 3 P.M., when the sun's rays are the most intense. Protect yourself from the sun year round-even on cloudy days. Don't forget _____

Expected answer: Don't forget to put sunscreen on your lips, ears, and the back of your neck. [to-INF]

Students' answer: Don't forget using your sunshine cream. (3000 level)
using sunscreen (5000 level)

In the extract in (79) above, the expected pattern was [to-INF] and in this context, the verb sense is ‘remembering to do something, i.e. not do it’, which means that the act of using cream has not yet been realized. But L2 learners completed the verb with [V-ing] pattern, conveying the meaning that one does not remember what was done or experienced in the past’. In this respect, the pattern preferred by the learners does not give the sense that is expected in this context. Thus, there was a mismatch between the pattern used, i.e. [V-ing] and the verb sense required in this context.

Apart from that, it has been revealed that there is an ambiguity considering the verb sense conveyed in the sentences where seemingly accurate verb complementation patterns were used. Here are some instances of *forget* from FPT.

(80) They usually forget doing their homework. (AWL level) Verb sense: unutmak (forget)

(81) I forget to go to dormitory. (3000 level) Verb sense: unutmak (forget)

As it is clear from the extracts, the correct choice of pattern, i.e. [V-ing] was used with the verb *forget* and the verb senses were explained in Turkish as ‘*unutmak* (forget)’.

The sentences seem to be accurate in terms of the choice of verb complementation pattern. However, it is not clear whether the student knows the distinction between the two different senses of the verb taking [V-ing] and [to-INF] complementation patterns. While in the former pattern, the verb conveys the meaning of ‘*not remembering something experienced in the past*’, in the latter pattern, the verb conveys the meaning of ‘*not remembering to do something that has not been realized yet*’. In this regard, even if the pattern is correct, the verb sense provided through these sentences is undecided.

Similarly, there were instances of such use of the verb *remember* as illustrated below:

- (82) I remember to be in the competition. (AWL level) Verb sense: hatırlamak (remember)
 (83) Remember doing your homework (AWL level) Verb sense: unutmama (don't forget)

The sentences in (82) and (83) seem to be acceptable considering the verb complementation pattern use since the choices of [to-INF] and [V-ing] are both possible in the use of *remember*. The meaning difference between the use of the verb *remember* with [to-INF] (e.g. 82) referring to present and [V-ing] (e.g. 83) referring to past is not clear from the meanings stated by the students. Thus, it is not clear whether the students knew the difference and used the verbs intentionally with these particular complementation patterns or not. Therefore, the verb senses for these sentences were undecided.

Apart from ambiguity, another problem related to verb sense in FPT was that even though the pattern was accurately used, in the sense part, the verb meaning was not explained by the learners. Instead, the message implied through the whole sentence was provided as illustrated below:

- (84) You mustn't forget to buy your tickets before going to the theatre! Verb sense: warning ahead
 (5000 level)
 (85) Don't forget to bring my book. (3000 level) Verb sense: to remind sth
 (86) People of my country won't forget your betrayal (2000 level) Verb sense: forgive
 (87) I have not forgotten what you have done to us. (5000 level) Verb sense: revenge

As it is clear in the extracts above, (84) [to-INF], (85) [to-INF], (86) [NP], and (87) [wh-CL] are correct choices of patterns used with *forget*. However, the verb senses produced by the participants do not show what the verb *forget* denotes in the sentence

they produced. Rather, L2 learners seemed to explain what the sentence implies as a whole.

Similarly, for the verb *remember*, the verb senses in several sentences were given in that way as exemplified below.

- | | |
|--|----------------------------|
| (88) <i>Remember to lock the door.</i> (3000 level) | Verb sense: remind |
| (89) <i>Remember!</i> Do not go that black house. (2000 level) | Verb sense: uyarı (warn) |
| (90) <i>North remembers!</i> (5000 level) | Verb sense: taking revenge |

As it is the case with *forget*, not the verb sense but the messages given in the sentences were explained by the students.

The other problem related to verb senses revealed in free production tests was that wrong verb senses were produced by the students as illustrated below:

- | | |
|---|---|
| (91) He <i>regrets me</i> every time. (2000 level) | Verb sense: red etmek (refuse) |
| (92) I <i>regret doing this to you</i> (5000 level) | Verb sense: özür dilemek
(apologize) |
| (93) <i>Don't regret what you've just said</i> (5000 level) | Verb sense: deny |
| (94) She <i>regrets breaking up with her boyfriend</i> (3000 level) | Verb sense: özlemek (miss) |
| (95) We will make them <i>regret their day</i> (3000 level) | Verb sense: pişman etmek |
| (96) I <i>regret to bring painting.</i> (AWL level) | Verb sense: unutmak (forget) |

As it is clear in the examples above, even though the verb complementation patterns seemed to be accurately used, the verb senses were exceptionally unacceptable since *regret* does not possess verb senses such as miss (e.g. 94), refuse (e.g.91) or forget (e.g.96).

The following examples illustrate this case in the use of other factive verbs.

- | | |
|--|-------------------------------------|
| (97) You should <i>remember me</i> this important point. (10000 level) | Verb sense: hatırlatmak
(remind) |
| (98) I <i>understand your orders.</i> (5000 level) | Verb sense: itaat etmek
(obey) |
| (99) I <i>understand what you say.</i> (3000 level) | Verb sense: acquisition |
| (100) Would you <i>understand my excuses</i> (2000 level) | Verb sense: forgive |
| (101) I <i>understand importance of the ills.</i> (5000 level) | Verb sense: cover |

As illustrated above, wrong verb senses were provided by the L2 learners for the verbs *remember* and *understand*. This demonstrates that the students possess

misinformation about the verb senses. In addition, in (97) above, L2 learner produced an incorrect complementation pattern for *remember*, i.e. [NP NP].

Apart from pattern-meaning mismatch and the problems related to the verb senses produced, it has been observed that students had various types of problems related to the use of specifically [wh-CL] complementation pattern as displayed in Table 4.8. below.

Table 4.8. *Problematic wh-CL complementation patterns in students' productions*

Verbs	Examples
know	Do you <i>know what time is it?</i> Do you <i>know where the hell that remote?</i> Let me <i>know when need help / when you done / how you hungry are.</i> I <i>knew who kill Maria is.</i>
understand	I <i>understood what the lesson about.</i> I don't <i>understand what are you talking about.</i> I don't <i>understand what is your problem with her / what your problem with her.</i>
regret	I <i>regret what have i done</i>
forget	We <i>forget what we done so far.</i> I just <i>forget what should I do while not practicing yoga.</i>
remember	I can't <i>remember what was my old school like.</i> I cannot <i>remember where putting my keys.</i>

As it is obvious in the instances illustrated above, students experienced problems related to the formation of [wh-CL] complementation patterns such as the inversion of subject and verb in indirect questions and the lack of subject, or the copular or auxiliary verbs. In quantitative terms, L2 learners had problems in 10,01 % of whole [wh-CL] pattern use in their productions.

An insight into the problematic use of the pattern among different VLT groups showed that all word-level L2 learners erroneously used this pattern, but, specifically 2000-word level students tended to produce erroneous pattern much more frequently than the other groups.

Lastly, the analysis of the students' productions in FPT has revealed that L2 learners did not use the factive verb as the main verb in the sentence they produced. In addition, in some instances, L2 learners did not even use the factive verb in their answers.

Here are the example sentences produced by the learners as depicted in Table 4.9. below:

Table 4.9. *Instances of out of concern use of factive verbs*

Verbs	Adjective	Noun	Verb not used
know	They say that God is an all <i>knowing deity</i> . (3000 level)	-	I am thinking of going abroad.
understand	Your essay is so <i>understandable</i> . (AWL level)	I don't have basic <i>understanding</i> of math.	I see why you behave like this.
regret	I <i>feel regretful about</i> what I did yesterday. (2000 level)	Last <i>regret</i> makes no sense.	-
remember	She must <i>remembered</i> <i>person</i> here in association (3000 level)	His <i>rememberence</i> getting worse day by day.	I didn't know your name.
forget	It is a <i>forgotten tradition</i> . (5000 level)	Don't <i>be the forgotten</i> on this life.	-

To summarize, it has been revealed that different kinds of problems appeared in the verb complementation use in the students' production tests. Some of the problems were related to the verb complementation pattern choices such as pattern-meaning mismatch, incorrect formation of *wh-CL* complementation pattern such as the inversion of subject and verb in indirect questions and the lack of subject, or the copular or auxiliary verbs whereas some of the problems were related to the verb senses produced by the L2 learners such as the use of wrong verb sense, ambiguous verb sense use and the use of connotations.

CHAPTER 5

5. DISCUSSION, CONCLUSION AND SUGGESTIONS

5.1. Introduction

This chapter first presents the discussion of the findings in relation to the related literature and the possible reasons that might have yielded the findings obtained from the analysis of Turkish L2 learners' performances in both recognition and production tests regarding the factive cognitive verb complementation use. After that, the conclusion that is drawn on the basis of the results of the study is provided following the summary of the study. Finally, the educational implications are provided for the teachers and learners of English, material designers, textbook writers and curriculum developers. Additionally, further implications are presented regarding the points that need to be addressed in the future studies considering the verb complementation use in L2.

5.2. Discussion of the Findings

This present study was designed to explore the receptive and productive knowledge of Turkish L2 learners regarding factive cognitive verb complementation features. Specifically, it aimed to find out what L2 learners know about the English verb complementation and to what extent, and the problems experienced in L2 learning process as well as the sources of these problems. The findings of the study brought to light comprehensive information about participants' recognition and production of English factive cognitive verb complementation.

As far as the test performances of participants are concerned, the analysis of receptive and productive tests has yielded variation in the achievement levels of learners according to their vocabulary levels. Specifically, high VLT level students performed better than the low VLT level students in terms of choices of verb complementation patterns and related verb senses. This finding supports the claim that rich L2 lexical knowledge yields more accurate word-meaning comprehension and language use (Ringbom, 1987, p. 36; Odlin, 1989, p. 160; Wesche and Paribakht, 2010, p. 165). Also, the finding of the current study shows parallelism with the previous studies (Ard and Gass, 1987; Schwartz and Causarano, 2007; Lee et al., 2013; Vercellotti and Packer, 2016) in that the more proficiency increased, the more English native-like choices (i.e. correct choices of verb complementation patterns and related verb senses in the present study) were preferred by the L2 learners.

An insight into the comparison between receptive and productive tests demonstrated that better performances were observed in especially production tests, i.e. sentence completion and free-production test compared to recognition tests, i.e. grammaticality judgment and fill-in-the blank tests. One probable reason is that there was freedom in the choice of verb complementation patterns in FPT and to some extent in SCT which is more context-dependent. So, they probably preferred the patterns they already know. Regardless of the variation in their choices of patterns and senses, on condition that they produced a well-formed sentence including the verb under investigation used in a proper sense with a correct choice of pattern, they got points. However, in the receptive tests, they were expected to select between either a correct or incorrect choice. Thus, it is possible that the more flexible nature of production tests compared to receptive ones might have yielded more success in production tests. Moreover, the poor performance of learners at all word-levels in GJT compared to other test types may also stem from the unfamiliarity of participants with this test type. In addition, even the native speakers find it difficult to judge correctly the acceptability of a sentence in their native language. As Odlin (1994, p. 273-281) states, even native speaker intuition does not guarantee the accuracy in judgments of sentences as there exist inconsistencies in native speakers' judgments. As for the language learners, they are much more inconsistent in their judgments compared to native speakers (Bley-Vroman and Masterson, 1989, p.212). In the present study, in most cases, L2 learners chose the option 'not sure' and got zero point rather than selecting the options 'correct' or 'incorrect'. This seems to show their hesitations in their judgments and avoidance to provide an accurate answer. "Uncertainty is one of the key characteristics of learner intuitions" as Odlin (1994, p. 284) states. According to Ellis (1991), it is not clear what the learners rely on while making judgments. Intra- and inter-learner variations, processing factors, existing interlanguage, their perceived target language norms, grammatical knowledge, all affect their judgments. So, L2 learners' only GJT performances may not mirror what they know and produce in production tests.

When the correct choices of L2 learners in terms of verb complementation patterns are considered, it is obvious that some patterns were particularly chosen over other types of patterns with the identified factive verbs which can take both phrases and clauses as complementation patterns in both sentence completion and free-production tests. There is a strong preference for Noun Phrases, i.e. [NP] as complementation

patterns rather than clausal patterns for all factive cognitive verbs except *regret* in L2 learners' productions. One possible reason for this preference in correct choices of L2 learners may be related to the Principle of Least Effort. The Principle of Least Effort is defined by Zipf (1949, p.viii) as "the primary principle that governs our entire individual and collective behavior of all sorts, including our behavior of our language and preconceptions." The object of the economy principle in language is "to make things easy to our organs of speech, to economize time and effort in the work of expression" and to get rid of unnecessary words (Whitney, 1868, p.28). In this regard, this principle, also called Economy Principle, refers to the gain of maximum benefit with the minimum amount of effort (Zhou, 2012, p.100). Put differently, to minimize the efforts in communication, the speaker usually chooses the fewest words in order to communicate "rich messages" (Xiao, 2008, p. 34). This principle is universal and it displays itself in different ways in different languages (Zhou, 2012). In the current study, in the case of verb complementation, to economize the effort and to save time in expressions, L2 students might have completed the sentences with a short expression like NPs rather than making sentences through clauses such as [that-CL], [wh-CL], [V-ing] or [to-INF] patterns when they can be used for the same meaning.

Besides this possible reason, another possibility for the strong tendency to use [NP] as a verb complementation pattern might be the L2 learners' prior experiences with the verb in the target language. In a study focusing on the complementation pattern bias information on L2 sentence processing, Dussias and Scaltz (2007) state that L2 speakers' previous experiences with the verb in L1 and L2 might account for L2 learners' preference for a direct object or a sentential complement after direct-object or sentential-complement bias verbs. Considering our findings, the predominant use of a particular pattern might have its roots in the instructional settings or the language resources such as learning/teaching materials to which learners are exposed. That is, the amount of exposure to or the quality of input regarding verb complementation patterns may have affected their choices of patterns. In one study by Tono (2004), it was revealed that Japanese L2 learners mostly chose the patterns that they encountered in their L2 textbooks, which means that the frequency of the patterns was affected by exposure to the patterns in L2 textbooks. In another study, Martinez-Garcia and Wulff (2012) found that ESL textbooks written for the Spanish learners of English do not provide sufficient input and they lack comprehensive information about verb complementation. Considering our context, it is

not known to what extent language learning or teaching sources, i.e. textbooks designed for Turkish learners of English present information related to verb complementation. The mismatch between the frequencies of some patterns produced by the learners and those given as ‘frequent’ or ‘very frequent’ in English on the basis of frequency information in the source ‘Valency Dictionary of English’ suggests that Turkish L2 learners may not be presented with the patterns which are frequent in the target language. For example, [that-CL] is stated to be a ‘very frequent’ pattern occurring with the verb *forget* and *remember* in the valency source. However, learners very rarely used these verbs with this pattern. Apart from this finding, learners produced [wh-CL] and [V-ing] patterns in restricted numbers, which are stated to be ‘frequent’ patterns occurring with *remember*. Therefore, it would be ideal to explore whether or to what extent verb complementation patterns that are frequent in the target language are provided in Turkish EFL textbooks.

All these findings suggest that the lack of verb entry information in L2 learners’ mental lexicon and the lack of lexical-semantic information in the target language related to these particular verbs might have accounted for their tendency to favour one pattern over the others and the mismatch between their uses of verbs and the information in valency source.

Also, inherent and idiosyncratic features of verbs may be another source of reason for high frequency of particular verb complementation patterns with certain verbs in free-production tests. As stated by Choi Lai-Kun (1996), these verbs are inherently mental and the choice between different complements depends on the inherent semantic properties of these verbs (p.119). Even though most of the verbs can appear with multiple verb complementation patterns, they exhibit a bias and tend to co-occur with certain types much more than the others (Hare et al., 2003; Lee et al., 2013). In this respect, verb bias is defined as “the relevant cue that is manipulated” and refers to “the relative likelihood of the main verb being used in sentences with different kinds of complements (Wilson and Garnsey, 2009, p. 369)”. As stated by Lee et al. (2013), “verbs in all languages presumably have structural biases (p.763)”. For example, *understand* is a direct-object bias verb and it mostly appears with the NP complementation pattern (Wilson and Garnsey, 2009; Lee et al., 2013). Maybe that is why *understand* in the current research was used most remarkably with NPs by the learners.

Apart from that, one noticeable finding related to *forget* was that *forget* occurred in imperative in many instances. The verb in these instances appeared in negative and

combined with [to-INF] pattern (*i.e. don't forget to...*). Based on the evidence from spoken English in Tao's (2003, p. 88) study and a novel analysis in Lahey's (2015, p.300) study, such use of the verb expresses "a warning" or "friendly suggestion, whether it is intended as a true suggestion or not". Moreover, as it is asserted by these authors, *forget* is often associated with negative connotations (Tao, 2003, p.91)" and it occurs in negative discourse contexts to express displeasure, apologies, negligent behavior, warnings and wrongdoing on the basis of the analysis in COCA (Lahey, 2015, p.300). In the current study, the instances of *forget* with [to-INF] pattern in negative and in imperative form produced by the learners seem to express caution as in *don't forget to be economical (2000 level)*, *don't forget to obey the rules (5000 level)* and helpful recommendation as in *don't forget to let our students have some fun (AWL level)*, *don't forget to save yourself against sun's rays (AWL level)*. Moreover, as it is revealed in Turan et al.'s (2014) study, in the Turkish language too, all the instances of *forget* in sentence initial position appeared in imperative and negative and had the function of reminding or warning. So, regarding these features of *forget*, "much does seem idiosyncratic about the verb and verb complementation (Celce-Murcia and Larsen-Freeman, 1999, p. 646)".

Additionally, the rare or non-choice of many numbers of patterns with factive verbs such as *know* [of NP/V-ing] [N to-INF], [about N/V-ing], *remember* [NP as X(N/V-ing/Adj)], [to NP], *forget* [(zero)that-CL], [wh to-INF] might be related to the avoidance behavior of L2 learners. The learners may not have fully mastered various types of verb complementation patterns and thus they might not have preferred to use these patterns. As it is the case with the choice of patterns, the choice of verb senses might have been affected by this behavior. For example, in 99% of the cases in FPT, learners used the verb *understand* with the sense 'comprehend' whereas they almost did not use the verb in the sense of 'know/have heard about it'. It is possible that participants may not have necessary information about this sense and thus the lack of experience might have led uncertainty and avoidance. The avoidance behavior has also been revealed in ergative verb use of Turkish L2 learners in the study conducted by Can (2009) and multi-word verb use of Turkish L2 learners in Akbulut's (2018) study. Avoidance has also been observed among L2 learners from different language background such as Chinese (Liao and Fukuya, 2002) and Swedish (Laufer and Eliasson, 2008). Avoidance behavior among L2 learners is a language universal behavior not language specific (Can, 2009). In this respect, the restricted use of patterns and senses may be caused by the fear of making

mistakes, which might have led to avoidance of these patterns that they are unfamiliar with.

Considering the incorrect choices of verb complementation patterns, our findings support Pienemann's Hypothesis Space according to which "the processing procedures which are available at one stage constrain the range of structural hypotheses" within the frame of Processability Theory (Pienemann, 1999, p.231). In other words, to resolve the conflicts in interlanguage development until the particular stage is reached, learners deviate from the target norms and use the patterns that are available to them at their current level of processing and use solutions such as omission, violation and avoidance (p. 242). Here, in the case of verb complementation patterns, in order to solve confusion such as between [V-ing] and [to-INF], L2 learners employed the patterns which are available to them at their developmental stages such as using both patterns or neither. In this respect, interlanguage variation is determined by Hypothesis Space (p.239). For example, L2 learners were observed to choose incorrectly the bare infinitive instead of [to-INF], [V-ing] and [wh to-INF] (e.g. *know speak German*) or both [to-INF] and [V-ing] patterns (e.g. *regret not to going*), to V-ed (e.g. *forget to not balanced*), [PrepN (with NP)] instead of [PrepN (for NP)] (e.g. *She is known well with her beauty*). In some other instances, both the pattern and the related senses were incorrectly chosen such as the use of [PrepN that-CL] with *remember* with the sense 'remind' as explained by the learner (e.g. *I remembered to him that he had to visit...-AWL-level*) or [NP NP/wh-CL] with the verb sense 'remind' (e.g. *remember me what teacher wants-3000-level*). Similarly, focusing on Turkish EFL learners, Bozdağ and Badem (2017) revealed the incorrect choices of patterns with the verb *mention* such as *V about*, *V to* and null complementation pattern in their English argumentative essays. Apart from Turkish EFL learners, such incorrect choices were also observed among other L2 learners from different L1 backgrounds such as Arabic, Chinese, Korean, French, Italian and so on. who used erroneously the base form of the verbs or both patterns as in Vercellotti and Jong's (2013) study, Thai university students in Keawchaum and Pongpairoj's (2017) study, and Spanish L2 learners in the study of Schwartz and Causarano (2007). L2 learners' interlanguage competence is often incomplete as Odlin (1994, p. 283) states. In this respect, L2 learners' incomplete knowledge of the target language may have accounted for these incorrect choices. As Pienemann (1999) claims, there is a gradual transition

from nonnative speaker behavior to native speaker behavior within the frame of Processability Theory (p. 222).

An insight into the individual verbs has shown that L2 learners did not provide answers to the items in free-production test especially in which they were asked to produce sentences with the verb *regret*. The less use of *regret* compared to other factive verbs might be related to the relatively less frequent use of this verb in English in comparison to other verbs investigated in the current study. An insight into Corpus of Contemporary American English shows that *regret* has 13,565 occurrences whereas the rest of the verbs have at least 65,672 (i.e. *forget*) occurrences. Frequency is an important factor in that the more they come across with the naturally occurring language, the more they receive input and become aware of syntactic and semantic features of verbs. Moreover, as Schmidt (1990) states, frequency increases the likelihood of an item being noticed in the input (p. 143). Thus, the less frequency of the verb in the target language and thereby the less exposure to the target verb might have accounted for not favouring it in their uses. Moreover, it might have also triggered incorrect choices and the problematic uses of the verb in terms of verb complementation patterns.

Though *regret* was found less frequently in COCA it was not included among the verbs that cause difficulty for L2 learners in Valency Dictionary of English because it does not have complex complementation patterns. However, an insight into the choices of learners showed that learners chose numerous incorrect verb complementation patterns with *regret* such as different types of [PrepN] i.e. of/from/for/about+NP/V-ing/wh-CL, and [Null]+because/since/when/after. These incorrect choices seem to result from the cross-linguistic influence because the patterns chosen in the target language are quite similar to those used with the verb in Turkish language. The subjects appeared to literally translate the use of these patterns from their L1 to their L2 because the use of *regret* in two languages differ. Turkish language allows *regret* to take [PrepN] pattern and Null object whereas English language does not. Moreover, considering the use of especially *because*, *because of* and *for* after the verb *regret*, the contexts where the verb is used in Turkish language might have been influential in L2 productions since it generally occurs in contexts where the speaker explains the reason why s/he feels regret and produces a clause like ‘yüzünden/için/..dolayı’ (i.e. *because of*, *for/because*) explaining the cause. Besides, there were instances where Turkish students used the auxiliary –to be erroneously with *regret* as in the following examples: You should *be regret* because of

your rude words (AWL level) / My brother *was regret* to go there (2000 level). These incorrect uses also appear to stem from cross-linguistic influence since *regret* is formed as a verb using the free auxiliary verb in L1, i.e. -to be (ol-). So, that may be why they probably used the verb as in English with verb -to be. In this respect, this attitude of Turkish L2 learners of English supports the idea that cross-linguistic influence is a real and central phenomenon and an important aspect of L2 learning process (Odlin, 1989, p.3-161; Gass and Selinker, 1992, p. 7). As Corder (1992, p. 29) argues, mother tongue plays a part at every stage of L2 acquisition process such as at the start of L2 learning, in the process of learning, and in the use of the target language in communication. In some cases, “the speaker is using certain aspects of his mother tongue to express his meaning because his interlanguage lacks the means to do it (Corder, 1992, p. 26)”. As has been supported by linguists and scholars, learners rely on a working hypothesis that there is a word-for-word translation-equivalence between L1 and L2 (Wang and Shaw, 2008). However, syntactically possible combinations in learners’ L1 (see Table 5.1.) may not be possible in the target language.

Table 5.1. *Examples from Turkish National Corpus*

Turkish National Corpus	Patterns
... suç işledik. <i>Pişman olup</i> , doğru yolu seçtik.	Null complement
... soruyorum. Sorar sormaz da <i>pişman oluyorum</i> .	
Yaptım;, <i>asıl yapmasaydım pişman olurdum</i> .	
<i>Yerini bilmezsen pişman olursun</i> sonradan.	
... umarız <i>bu tercihinden pişman olmamıştır</i> .	
" <i>Yaşadığım hiçbir şeyden pişman değilim</i> ," dedi.	[PrepN] (from NP/V-ing)
...bu illete yakalanmaktan <i>pişman</i> olmazlar.	
<i>Bu şekilde bir itiraf yaptığım için pişman oldum</i> .	
<i>Dün için pişman olma!</i>	[PrepN] (for NP/V-ing)
... <i>verdiği karara pişman oldu</i> .	
<i>Dediğime pişman oldum</i> .	[PrepN] (to V-ing/wh-CL)

Other studies also can be mentioned as a support for our findings such as in Uçkun’s (2012) study even though English language does not allow the verbs *admit*, *accept* and *bet* to take null complement, Turkish students used them in that way in their L2 productions due to the L1 influence. Focusing on the Turkish EFL learners’ use of the verb *mention*, Bozdağ and Badem (2017) claim that incorrect choices of the patterns with

this verb such as V about, V to, and zero pattern may stem from syntactic transfer from their L1 to L2 lexicon. Cross-linguistic influence was also observed in different contexts in verb complementation use of Spanish learners of English (i.e. Martinez-Garcia and Wulff, 2012), Chinese learners of English (Chan, 2004), Albanian learners of English (Braçaj, 2018), German learners of English (i.e. Wulff and Gries, 2011) and Korean L2 learners (i.e. Kang, 2009; Yoon, 2016; Lee and Choe, 2013). Specifically, in Kang's study, it was revealed that Korean learners of English erroneously used preposition 'to' with the verbs such as *want*, *tell*, *warn* and *suggest* as the corresponding Korean verb requires dative postposition *e-ke*. In another study, Chinese learners used the verb *care* as a transitive verb and misused the verb *care* with an object due to the L1 influence (Chan, 2004). So, on the basis of the current findings and those of previous studies, L2 learners may have sought equivalent words or patterns across the linguistic systems and made use of their L1 knowledge, which may have led to erroneous uses.

As for the problems revealed in the learners' productions, there was mismatch between the verb senses and the complementation patterns produced by participants. L2 learners erroneously used [to-INF] pattern in the context which required [V-ing] pattern or vice versa. The erroneous uses of these two patterns have also been observed among many L2 learners of English from different L1 backgrounds such as German L2 learners (Gries and Wulff, 2009), Spanish L2 learners (Schwartz and Causarano, 2007), and Arabic, Chinese, Italian, Japanese, Korean, Turkish, French, Russian and Slovak learners (Vercellotti and Jong, 2013). The reason behind these mismatches between the two patterns may be related to the interlanguage development. According to Vosberg (2003, p. 323), [V-ing] pattern is more difficult to process than [to-INF] pattern. It is possible that in interlanguage development, language learners may have not internalized the specific uses of the two patterns and the differences in their uses from the cognitive view of L2 process. Moreover, the fact that [V-ing] and [to-INF] complementation patterns are taught together in the language learning materials and in language classes may have also contributed to these problematic uses. That may be the reason why some students had confusion in the selection of either pattern with the cognitive verbs in the present study. In addition, the lack of students' knowledge and awareness about the semantic compatibility between the verb sense and the complementation pattern might have accounted for this finding.

Moreover, the confusion between [V-ing] and [to-INF] patterns may be attributed to markedness. Markedness is explained in terms of saliency. In this respect, “an unmarked form is one that is more common, more usual in the world’s languages whereas a marked one is less common and less usual” (Gass and Selinker, 2008, p.179). Considering [V-ing] and [to-INF] patterns, infinitives are asserted to be far more common, salient and unmarked both in the world’s languages and in English language whereas [V-ing] pattern, also called ‘gerund’, is thought to be far less common and marked (Westney, 1994; Celce-Murcia and Larsen-Freeman, 1983; 1999, p. 641; Gries and Wulff, 2009). In this respect, this markedness degree of the two patterns reflects itself in L2 learning process (Gries and Wulff, 2009) and it is perceived that [V-ing] pattern is more difficult to process than [to-INF] pattern (Vosberg, 2003, p. 323) and it tends to cause the greatest problems for ESL/EFL learners (Westney, 1994, p.91; Celce-Murcia and Larsen Freeman, 1999; Schwartz and Causarano, 2007). Therefore, [V-ing] pattern requires special learning (Westney, 1994, p.91). In parallel with this view, in the current study, an insight into the comparison between V-ing and to-INF pattern in the production tests showed that L2 learners tended to choose to-INF patterns much more frequently than [V-ing] pattern with factive verbs. Though [V-ing] is frequent for the verb *remember* (Herbst et al., 2004), it is still not preferred by the learners.

Another type of problem observed in the verb complementation use of learners was related to the use of [wh-CL] complementation pattern. The [wh-CL] patterns produced did not include subject-verb inversion or the occurrence of auxiliaries or the non-occurrence of the verb in the complementation. [wh-CL] complementation pattern resembles wh- questions in English but differ in that the latter shows word-order inversion or the use of auxiliary *do* whereas the former does not (Givón, 2001, p. 156). In this respect, L2 learners might not be aware of this distinction or might have not learnt this difference. What is more, this problem related to the use of [wh-CL] may be attributed to developmental sequence in the order of language learning. Pienemann (2011) provides the order of the structures in second language acquisition (ESL) developmental schedule on the basis of processability theory. In this developmental sequence, it is indicated that [wh-CL] structure which Pienemann calls ‘cancel inversion’ (e.g. *I wonder where he is/ I wonder what he wants to eat*) is placed at last stage of the acquisition order (p. 51). This means that [wh-CL] complementation pattern is learnt at the last stage in ESL acquisition process. In this respect, as it is stated by Chan (2004), developmental sequence may be a

factor in learners' erroneous uses of structures (p.68). It is possible that L2 learners have not yet fully acquired this pattern in the L2 learning process.

As for the use of *that*/zero complementation by the learners, the results indicate that learners prefer *that*- complementizer to *zero* complementizer, which could be attributed to the verb or other factors like register or Complexity Principle. For example, with the verb *understand*, learners favored *that*- complementizer twice more often than *zero* complementizer in the context-dependent test, i.e. sentence completion test whereas with the verb *know*, L2 learners used the expected *zero* complementizer to a large extent (i.e. 114 instances) rather than *that*- complementizer (i.e. 25 instances). These findings support the previous studies (e.g. Rissanen, 1991; Biber, 1998; Celce-Murcia and Larsen Freeman, 1999.p. 654) in that *zero* complementizer is more commonly typical of spoken language or conversation whereas *that* complementizer is frequent and typical of academic prose based on corpus evidence. In this regard, register-differences may be a determining factor in the presence or absence of *that* complementizer. Besides that, L2 learners wrote complex sentences by using *that*- complementizer as in the following examples: '*All teachers must understand that that is not just a random words that appear on their worksheets*' (ID no: 4.2.6./ 5000 level student) and '*All teachers must understand that art is art and cannot be and should not be prevented or censored*' (ID no: 2.4.24. 3000 level student). L2 learners produced passive structures or relative clauses in the rest of the sentence following *that*- complementizer. *That*- complementizer use in such complex sentences can be explained, to some extent, by the Complexity Principle. According to the Complexity Principle, "in the case of more or less explicit constructional alternatives, the more explicit one(s) will tend to be preferred in cognitively more complex environments" (Rohdenburg, 2003, p. 205). Several factors such as the passive constructions, insertions, and the length of subjects, objects or subordinate clauses may contribute to the complexity of the sentence and the comprehensibility of the message conveyed to the readers or hearers (Rohdenburg, 2003, p.101). In such cases, based on this principle, the insertion of overt complementizer *that*- as an explicit alternative rather than [zero *that*-CL] pattern may decrease the complexity of sentence and processing load of message.

The findings of the present research have also shown the positive effect of medium through which language is conveyed on interlanguage development. In the learners' productions, it has been observed that a number of students wrote the same

sentences using the verbs ‘*know*’ and ‘*remember*’. A search on the internet showed that the students were familiar with these sentences as they watched Game of Thrones. This is an American fantasy-drama television series and it seems that our participants were influenced by the language used in this TV series. Here are the extracts drawn from the data:

- (102) The North *remembers!*
- (103) The house Mormont *remembers*.
- (104) *Remember remember* the fifth of November.
- (105) You *know* nothing Jon Snow.

The first sentence produced by the learners is actually the first episode of the second season of Game of Thrones and it is a repeated phrase among the Northerners in this episode. Most probably, the students watched this TV series in English and wrote these sentences as they were. This finding suggests that these kinds of sources contribute to the L2 learning. In relation to this, analysing child language development, Rice (1983) argues that conversational input through television viewing has an influence on syntactic learning in English language acquisition. In L2 learning, too, this source might have been influential in correct choice of the verb complementation patterns.

Consequently, a number of factors may have been influential in the variation in learners’ achievement levels, learners’ choices of patterns and senses, and incorrect and problematic uses. These factors include vocabulary knowledge, the exposure to input, the quality and amount of input, the lack of target language knowledge, the type of instruction, contextual factors, developmental factors, frequency, salience, markedness, cross-linguistic influence, verb bias, avoidance, economy principle in language and inherent features of verbs.

5.3. Conclusion

In this section, the summary of the study is presented and the conclusion drawn from the findings of the study is provided. Then, the implications are provided for both pedagogical purposes and further inquiries.

5.3.1. Summary of the study

The current paper aimed to explore the L2 learners’ receptive and productive knowledge of factive cognitive verb complementation in terms of verb complementation patterns and verb senses. For the purposes of the research, four different types of tests

were developed by the researcher. In order to construct the test items, the choice of the verb complementation patterns and the senses were determined based on mainly Valency Dictionary of English which was developed by Herbst and his colleagues in 2004 and online verb lexicon VerbNet developed by Schuler (2005). In addition, Corpus of Contemporary American English was utilized to gather extracts from a variety of contexts and registers (i.e. fiction, news, magazine, academic texts, spoken language) in construction of test items. For content validity of the tests, expert opinions were gathered. A pilot study was conducted with 46 students and the item analysis and reliability analysis of tests were carried out to measure the effectiveness of items and the internal consistency of tests. After the necessary revisions and changes on the basis of the findings of the pilot study, the tests were administered to a total of 269 Turkish L2 learners (1st, 2nd, 3rd and 4th grade) majoring in ELT Program at a state university.

Considering the first research question which aimed to reveal the achievement levels of participants in production and receptive tests in terms of verb complementation use, the overall mean scores of participants were calculated and the statistical tests were performed to compare the participants according to their word-levels. As far as the test performances of participants are concerned, it is evident that word-level has a significant effect on their knowledge of factive verb complementation patterns and senses as well as their production. It has been demonstrated that the lower the VLT level was, the lower the achievement level (i.e. the overall mean score) was except for sentence completion test. More specifically, in sentence completion test, 2000-word level learners performed slightly better than 10000-word level learners.

Taking the test types into account, L2 learners performed better in the production tests compared to recognition tests. L2 learners had more freedom in the choices of verb complementation patterns in uncontrolled tests, i.e. production tests regardless of the variety of pattern types and verb senses whereas they were more restricted in the controlled ones, i.e. recognition tests in the choice of patterns due to the context which required a specific verb sense and the use of a particular complementation pattern. In this respect, it can be concluded that L2 learners stuck to the patterns they knew best in the production tests as these tests were free and hence they became more successful in this type of test.

Considering L2 learners' choices of verb complementation patterns and verb senses specifically in production tests, which is addressed in the second research question,

it has been found out that L2 learners' preferences of verb complementation patterns were either correct, incorrect or problematic. In terms of correct choices, L2 learners preferred certain types of patterns and specific verb senses over the other types. A remarkable finding of the study showed that L2 learners did not choose the patterns which were stated to be very frequent in English according to the frequency information in Valency Dictionary of English. such as [that-CL], [V-ing] and [wh-CL] with the verb *remember*, and [that-CL] with *forget*. Rather, they notably chose [NP] pattern over the other different choices with the factive cognitive verbs used in all verb senses except *regret*. Among limited numbers of correct choices of patterns, [V-ing] pattern was predominantly chosen with *regret* in learners' productions.

As for the comparison among five verbs, learners chose incorrect verb complementation patterns especially with the verb *regret* regardless of the type of production tests. They used *regret* predominantly with the incorrect choice of [PrepN] pattern and null complementation pattern, i.e. without any object. The wrong choice of Prepositional Phrases included [about NP/wh-CL/V-ing] (e.g. *regret about being*), [of NP/V-ing], [for wh-CL/NP/V-ing] (e.g. *regret for the things*), [of wh to-INF] (e.g. *regret of what to do*) and [from NP] (e.g. *regret from my decision*). Apart from that, other incorrect choices produced with the factive verbs in general included [*to V-ed/V_{past participle}*] (e.g. *forget to not balanced*), [*to V-ing/NP/wh-CL*] (e.g. *remember to being in love*), [*Bare INF*] (e.g. *I know speak*), [*V-ing*] (e.g. *let me know eating something*), [*wh-to-INF*] (e.g. *understand why to fail*), and [*NP NP/wh-CL*] (e.g. *remember me this issue*).

In terms of problematic uses, various types of problems were observed such as pattern-meaning mismatch, problems related to the use of wh-CL complementation pattern, problems with the verb sense such as ambiguity in verb sense, wrong verb sense use. In some instances, the students used the adjective or noun form of the factive verbs identified.

In terms of verb senses in correct choices of patterns, L2 learners produced all the verbs in a particular type of meaning and they did not use the verbs in a variety of different senses. In almost all occurrences, *understand* was used in the sense of comprehension. *Know* was used in the sense of possessing something such as a fact as information in more than half of the cases. *Regret*, to a large extent, was used to refer to the feeling of remorse for something that the experiencer had control over. Regarding the verb *remember*, to a great extent, it was used in the sense of expressing the idea of not forgetting someone

encountered or something experienced in the past. *Forget* was mainly used in the sense of not remembering something experienced in the past in more than half of the instances. Based on these findings, it can be concluded that L2 learners' preferences of verb complementation are restricted in terms of variety of pattern types and verb senses.

Other than those verb sense and pattern analyses, one of the noticeable findings of the study was that in some contexts in controlled production test (i.e. sentence completion test) even though L2 learners used the factive verb in the correct sense and with the correct verb complementation pattern, they produced sentences that did not match the preceding and/or the following part in that particular context.

As an overall conclusion, L2 learners are more inclined to use the identified factive verbs with restricted types of patterns and senses and to produce some incorrect patterns and verb senses. Thus, they need to be aware of various senses of verbs and types of complementation patterns in order to use these verbs effectively in the target language.

5.3.2. Implications

5.3.2.1. Implications for pedagogical purposes

The findings of the current study are believed to shed a light on the regulations and revisions to be made in the language education covering specifically the courses, coursebooks, teaching materials and curriculum regarding the use of verb complementation patterns and corresponding senses. In this respect, a wide range of pedagogical implications are provided for both language learners, teachers and curriculum and material designers in this section.

First and foremost, increasing the L2-specific lexical knowledge of language learners could be a crucial implication for effective use of L2 verb complementation use considering the L2 learners' restricted choices of verb complementation patterns and senses. Lexical knowledge is comprised of many dimensions which could be listed as follows:

- accessibility (the ability to access a word in one's mental lexicon),
- morphophonology (knowledge of a word's derivations, inflections, pronunciation and spelling)
- syntax (knowledge of the word's syntactic constraints),
- semantics (knowledge of the meaning(s) of the word),
- collocation (knowledge of the collocational constraints of the word),
- association (knowledge of the word's associations with other words)

(Ringbom, 1987, p. 37)

As it is indicated above and by other scholars (e.g. Ringbom, 1987, p. 36; Odlin, 1989, Laufer, 1997, p. 31; Papadopoulou and Clahsen, 2003; Nassaji, 2004; Wesche and Paribakht, 2010), inadequate number of words in L2 learners' lexicon hinders L2 comprehension and thus rich L2 lexical knowledge is of utmost importance for better performance in language comprehension and production.

Apart from enriching the L2 knowledge of words in general, as another implication, it is important to foster the exploitation of specifically verbs' potential by L2 learners in terms of various meanings of verbs and different types of complementation patterns occurring with verbs. Knowledge of verbs is particularly influential because verbs "form the nucleus of sentences (Hubbard and Hix, 1988, p.95) and they "tend to place strong constraints on how the other words in a sentence can combine (Wilson and Garnsey, 2009, p.369)". Moreover, the knowledge of verb complementation features facilitates language comprehension and production in terms of fluency and accuracy (Hunston, 2002; Hare et al., 2003, p.281).

Thirdly, in addition to enriching L2 learners' mental lexicon in general and specifically verb knowledge, another implication is that it is important to maximize verb bias information in the target language for an L2 speaker to be successful in both L2 comprehension and production as it is demonstrated in the literature (Wilson and Garnsey, 2009, p. 383; Lee et al., 2013). Verb bias is defined as "the relevant cue that is manipulated is the relative likelihood of the main verb being used in sentences with different kinds of complements" and it affects the processing of syntactic structures (Wilson and Garnsey, 2009, p. 369-383). It should be kept in mind that verbs in all languages presumably have structural biases and prefer certain types much more than the others (Hare et al., 2003; Lee et al., 2013, p.763).

Next, as a crucial implication, as the sources of language input, course/textbook writers, material designers and language teachers should be informed about the preferences of learners, their incorrect choices and the problems experienced by learners related to verb complementation features as has been revealed in the current study. Coursebook writers and curriculum developers could emphasize on the verbs which are more problematic for L2 learners of English depending on the level of the students. Moreover, material designers could develop new teaching materials by making use of the detailed descriptions of complementation patterns and the related verb senses as well as their frequency information provided in valency dictionaries. It should be kept in mind

that verbs are versatile and may allow multiple verb complementation patterns (Quirk et al., 1985, p. 1168) and the frequencies of certain verb complementation patterns used with a particular verb in English that is used in a particular sense differ on the basis of the frequency information in Valency Dictionary of English (Herbst et al., 2004). To increase L2 learners' knowledge and awareness about such information and to enable them have target-like use of verb-complementation patterns and verb senses, the quality and the amount of input could be increased in L2 classrooms. The more they come across with the naturally occurring language, the more they receive input and become aware of syntactic and semantic features of verbs.

Additionally, the teachers can design more effective instructions to teach especially verb senses and complementation patterns in broad sense for the sake of interlanguage development taking the L2 learners' restricted choices of patterns and senses, their incorrect choices and the problematic uses in the present study into account. It "may have a priming effect in second language learning, increasing the likelihood of noticing features in input through the establishment of expectations (Schmidt, 1990, p. 143)". What is important here is the nature of instruction because in L2 settings, verb complementation is presented in non-systematic manner in the form of endless lists or it is ignored as has been stated by scholars and revealed in the earlier studies (i.e. Biber and Xeppen, 1998; Bourke, 2007; Schwartz and Causarano, 2007; Kang, 2009; Lee & Choe, 2013; Wang, 2014). Accordingly, [to-INF] clauses and [V-ing] clauses are frequently presented within a single unit along with exhaustive lists of verbs in textbooks as it is the case in our context in which they are given in one and the same unit in the coursepacks. But, such listing is not adequate for providing a comprehensive account of verb complementation (Wherrity, 2001) and it yields production errors (Petrovitz, 2001; Schwartz and Causarano, 2007). Therefore, the implication is that the syntactic and semantic features of verb complementation patterns must be systematically introduced and incorporated into the teaching by considering the syntactic and semantic complexities of verbs.

In this respect, one important implication is that adopting form-focused instruction could be effective in which attention is paid to both form and meaning as it is indicated in the literature (Jiang, 2004; Spada and Lightbown, 2008; Kang, 2009). Given that the relation between verb meaning and the corresponding verb complementation pattern is complex (Uçkun, 2012), the separation between form and meaning causes

problems for language learners (Little, 1994, p. 105). By adopting such an approach, the use of a verb with a particular pattern and the verb meaning associated with this pattern could be explicitly presented to the learners through instances within contexts along with implicit and explicit negative feedback. In this regard, this type of instruction could be beneficial in processing the syntactic and semantic features of verb complementation types and improving receptive and productive knowledge of learners.

As a supplementary to this type of aforementioned instruction, adopting a lexical approach in teaching verb complementation may be useful in the instructional settings. Within the lexical approach, “less attention is given to the individual words and traditional grammar structures but rather the attention is paid to the lexical items (i.e. words, polywords, collocations, sentence frames and institutionalised utterances) (Laufer, 1997, p. 255-260)”. This approach prioritizes ‘lexis’ and the behaviour of lexical items regarding their patterns in language teaching (Willis, D. and Willis, J., 1996, p. 63).

Stressing the suitability of this approach in complementation teaching, Hunston states the following expression:

If a syllabus is composed of lexical items instead of structures or notions, patterns will be what is taught about a word, because knowing a word means, among other things, knowing the patterns a word has.

(Hunston, 2002, p. 176)

In this regard, by teaching verbs along with patterns, a huge and significant part of the grammar of a language is covered (Hubbard, 1994, p. 65). Further, teaching the form and the meaning of a word without teaching its subcategorization, i.e. complementation features will prevent the student from thinking critically about how the word works in the language (Hubbard, 1994, *ibid.*).

In this respect, using task-based awareness-raising activities which include pattern instances within context could be very effective and useful for L2 learners. Tasks are used in L2 learning as “vehicles to elicit language production, negotiation of meaning, processing of input and focus on form (Van den Branden, 2006, p. 1)”. Tasks provide input for the learners and enable them notice the patterns when they come across (Hunston, 2002). In this respect, different types of spoken and written tasks could be designed for practice to lessen the processing demands of verb complementation.

For example, on the basis of an activity proposed by Laufer (1997, p.269) in a book, which is consistent with lexical approach, a listening text, i.e. a story could be used which includes many examples of the verb complementation patterns used with a particular de-lexicalized verb such as a cognitive verb. Learners could be asked to raise their hands when they notice the key verb and then write down the expression including this key verb. Learners' attention could be drawn to the specific uses of the verbs regarding patterns and meanings through such a consciousness-raising activity to help them improve their receptive and productive knowledge of verb complementation.

As for other tasks, acceptability judgment tasks could be developed as a written task to enable L2 learners practice the verb complementation use. These tasks could be formed on the basis of authentic language. Pictures or short videos could be used during these tasks along with a sentence that describe these pictures or videos and include a specific related verb occurring with a complementation pattern. L2 learners could be asked to judge the sentence considering both the verb complementation pattern and sense within that specific context. On the instances that L2 learners judge as incorrect, they could be asked to rewrite the sentences in a correct way. Such practices may help learners notice what they perceive to be the correct choice and what is correct in the target language. Further, they could enable them test their intuitions and knowledge (Odlin, 1994, p. 288).

Apart from that, based on the finding that L2 learners used verbs in restricted sense in the current study, speaking tasks could be designed with the use of video clips in the language classrooms, which can provide visual images from various contexts to make different meanings of the verbs clear, which may foster production of different verb senses as well as verb complementation patterns during conversation.

Other than those, reading tasks could be used in which the verbs and the complementation patterns are underlined in the texts and the learners' attention could be drawn to the relation between the verb meaning and the complementation pattern.

Willis and Willis (1996) provide a number of operations on samples of texts used in tasks. On the basis of some of these operations as provided below, L2 learners could be asked to perform the following actions while teaching verb complementation in the classroom settings:

Table 5.2. *Operations proposed by Willis, D. and Willis, J. (1996) and the corresponding tasks*

Operations proposed by Willis, D. and Willis, J. (1996)	Tasks that could be performed by the learners
<i>Identify</i>	Searching a text to identify a particular pattern or usage and figuring out the verb meanings associated with the pattern
<i>Classify</i>	Sorting the similarities and differences in verb complementation patterns on the basis of structural and semantic features of verbs
<i>Hypothesis testing/checking</i>	Making generalizations about a particular pattern and asking to check this against more language data
<i>Cross-language exploration</i>	Seeking the similarities, differences and variations between the verb complementation patterns used in mother tongue and those in the target language

Among the operations indicated in Table 5.2. above, cross-language exploration is of utmost importance when the findings of the current study are considered. As it is indicated by Willis, D. and Willis, J. (1996), similar activities can be designed for the problematic patterns such as *regret* found in our study. Therefore, by pinpointing to the possibility of transfer in tandem with the variation in L1 and L2 and the possible problems caused by cross-linguistic influence to help learners in L2 processing, language teachers will increase the awareness level of the students in the use of different verb patterns.

As for further implication, as a complementary approach to lexical approach as well as its aforementioned classroom applications in teaching verb complementation, adopting data-driven learning approach could also be very useful. The aim in this approach is to contextualize the language and make the information about authentic usage available to the learners (John, 1994, p.296). Such an approach is appropriate for teaching grammar and vocabulary and it is advantageous in that learners are autonomous having direct access to the data and figure out the meanings and uses (John, 1994, p.297). Regarding verb complementation, concordance lines reflecting language varieties such as spoken language, academic texts, magazines and so on. provided in the corpora could be brought to classrooms as handouts and they can be used to help learners examine various uses of patterns in these texts. Through such concordance extracts, the presentation of the verbs within contexts gives L2 learners opportunity to identify what the verb denotes and which patterns it takes. For example, a concordance-based activity

as illustrated below could be used to enable learners discover verb complementation patterns and meanings of verbs such as *remember*.

- a. Look at the contexts carefully and identify the patterns that appear with the verb *remember*.
- b. Read the extracts in detail and identify the verb's meaning in each context.

SPOK	I'll deliver my divided we stand speech. Hope to see you there. Remember to follow me on twitter on Facebook and here is some of what came on
SPOK	window. (Weather follows) DYLAN-DREYER# And if you're heading out, remember to find us on our SiriusXM Channel 108, which is the home of the
SPOK	not above the stove, but rather above the sink. You want to especially remember to keep them elevated, right? You want to keep it away from children.
NEWS	Know about something in Norfolk that someone is trying to keep secret? Drop him a line. 4183203 # Hey, remember that time that one of the most successful TV shows on the planet spent some of its hard-earned hype and money on a Facebook Live video of a piece of ice slowly melting? And then, ..
ACAD	Actually in this narrative, all of this was God's will via providence and then later, manifest destiny. # This is fiction; at best, a children's bedtime story. # Remember that Spanish/European colonialism was not a one-time event; there were hundreds of wars and...
MAG	everyone will meet in the old dragon pit. This is a good time to remember that Cersei blew up the main church and several ancillary buildings in the center of...
MAG	. # So why do I think this bill could well pass? First, remember that when a senator says he or she is opposed to the bill " in its current form, " that is code for, " change the current form, and I may no longer be opposed. "
SPOK	And at the same time, that we all live with this ambiguous relationship with our work, where we know on some level that it's not life or we don't really - or maybe I didn't even understand it at that time. I mean, I <u>remember</u> having an argument in the writer's room about why he was staying and what was making him stay there. And somebody said to me, well,
FIC	He did not call back. I left work a little early and drove out to the nursing home, arriving there just after dinner. Dad was watching a television show, and we chatted about it. He did not <u>remember</u> calling me. # These modern roses attract Japanese beetles by the millions,
FIC	His mother and sister had gone for a sail on the lake. Although he was only eight at the time, Whit would always <u>remember</u> what he and his grandmother talked about during their breakfast.

Extracts were gathered from COCA.

- a. Are there any differences or similarities among the meanings of the verb *remember* used with different complementation patterns?
- b. Choose an appropriate complementation pattern that best fits in the context where *remember* is used and complete the sentences in your own word(s) to agree with the content. (Extracts below are obtained from different registers in COCA.)
 1. Everybody was in a rush to get home before the roads got worse. During the drive back to my apartment, I **remember** _____. It was 7:37 on the clock in my car, sitting at the red light at the gate.
 2. I think whether it's an increase in reporting, an increase in violence, or some combination thereof, it should be a wake-up call for us across our communities that hate violence is not going away, it's certainly not decreasing. " **Remember** _____.
 3. I especially miss Plum. I hope my mom **remembers** _____. I know my dad won't. Please write back soon, okay?
 4. Helen: They didn't. I never heard -- well, like once I heard them argue.
Lee: Yeah.

Helen: But I remember how shocking it was to me and jarring.
 Lee: Yeah.
 Helen: I never heard it before.
 Lee: Do you **remember** _____?
 Helen: Money. It was about spending.

Figure 5.1. *A sample of concordance-based activity*

Besides the classroom practices and language learning and teaching materials, L2 learners could also be encouraged to watch English TV series or films to expose them to the English language use since the current study has revealed the positive impact of these language sources on their correct choices of verb complementation patterns (*i.e. the instances of forget and know from Game of Thrones*).

5.3.2.2. Further Suggestions

The core contribution of this dissertation is that L2 learners' both recognition and production of verb complementation were uncovered through four types of different tests (*i.e. two receptive and two productive tests*) that were developed within the frame of the study. In this respect, the current research opens the door for further research on verb complementation patterns used by L2 learners of English through this methodological contribution. Thus, as a first implication, the administration of the tests to the L2 learners from different native language backgrounds in other EFL or ESL contexts would be ideal for further analysis of the L2 learners' verb complementation use to make generalizations. Moreover, using the same methodology, L2 learners from different educational backgrounds such as L2 learners at primary or secondary education or at different proficiency levels and different ages can be explored.

Secondly, follow up studies could explore the verb complementation patterns in the spoken language of L2 learners. In the present study, both controlled (receptive tests) and uncontrolled written tasks (productive tests) were used to reveal L2 learners' verb complementation choices. Even though these tests were developed based on a wide range of language sources ranging from academic language to fiction, newspapers and spoken language on the basis of Corpus of Contemporary American English, the data were collected through a written medium. Hence, a completely uncontrolled task in spoken medium may elicit much more information about the productive knowledge of L2 learners. Put it differently, collecting spoken data through spontaneous conversations, interviews, or role-plays along with visuals (*e.g. pictures, images, or videos*) may provide

further evidence for the findings obtained from the tests. Also, think-aloud protocols could be conducted with the participants to elicit their thoughts and knowledge regarding their choices of verb complementation patterns and verb senses. Through surveys, more insights could be gained from the L2 learners' intuitions about the complementation use for better understanding of the problematic uses of the verb senses and verb complementation patterns. Further, differences and similarities between written and the spoken data in terms of syntactic and semantic features of verb complementation patterns could be explored.

As a third point, future research could be conducted to explore the complementation patterns and senses of other semantic classes of verbs other than cognitive ones to reveal whether there are differences in the use of verbs across different semantic classes.

As for another implication, verb complementation use of L2 learners could be examined contrastively in L1 and L2 productions to bring new insights into the cross-linguistic similarities and differences in verb complementation pattern choices in L1 and L2 and also to probe into the question whether or to what extent L2 learners' verb complementation preferences are influenced by their native language.

Further, as the current research focused on the complementation patterns following the verb and the senses of the verbs, the scope of the investigation of complementation could be extended to the analysis of other parts of speech such as nouns or adjectives or the investigation of the subjects in pre-verbal position.

Ultimately, longitudinal studies could be conducted by focusing on a particular group of learners or case studies could be carried out by focusing on one language learner to shed some light on the learning of verb lexicon in terms of verb complementation features and senses and the process of interlanguage development.

As a concluding remark, it is essential to state that any kind of study that focuses on the issue of verbs and their complementation features in the target language is of utmost value as the verb is the key that opens the door to the sentence, to the grammar and to the language in general. In this respect, any research that replicates the current research is a contribution to the related literature.

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APPENDICES

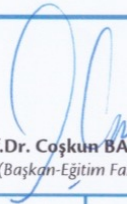
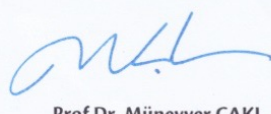
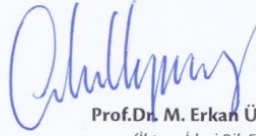
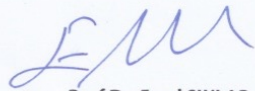
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ANADOLU ÜNİVERSİTESİ
SOSYAL VE BEŞERÎ BİLİMLER BİLİMSEL ARAŞTIRMA VE YAYIN ETİĞİ KURULU
KARAR BELGESİ

ÇALIŞMANIN TÜRÜ:	Doktora Tez Çalışması
KONU:	Eğitim Bilimleri
BAŞLIK:	İngilizceyi Yabancı Dil Olarak Öğrenen Türk Öğrencilerin Anla-, Bil-, Hatırla-, Unut- ve Tahmin Et- Eylemlerini Bağlam İçinde Kullanma Bilgi ve Beceri Düzeylerinin İncelenmesi
PROJE/TEZ YÜRÜTÜCÜSÜ:	Prof. Dr. İlknur KEÇİK
TEZ YAZARI:	Serap ATASEVER BELLİ
ALT KOMİSYON GÖRÜŞÜ:	-
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Appendix A. Prominent Studies on Individual Verbs in Native English

Verbs	Researchers	Subjects	Focus	Results
<i>make</i>	Altenberg and Granger, 2001	Swedish and French speaking learners' essays (ICLE Corpus) and native English essays (LOCNESS Corpus)	EFL learners' use of high frequency verb <i>make</i> and its complementation patterns	Great difficulty in the use of the verb and in its different complements by EFL learners even advanced level ones - due to interlingual and intralingual factors and inadequate teaching misuse, underuse and overuse of some patterns underuse by French EFL learners overuse by Swedish ones compared to native speakers. In terms of complementation, causative and delexical uses are common: causative most common in Swedish data followed by French and English native data. Underuse of delexical structures by both groups compared to native data
<i>waste and spend</i>	Rickman, 2015	BNC corpus and The Corpus of Late Modern English Texts	complementation features of waste in <i>waste no time + (in) + V-ing</i>	semantics of <i>waste no time + (in) + V-ing</i> - not clear-cut idiomaticity – ambiguous and idiomatic nature of the pattern revealed leading to cognitive complexity decrease in preposition use with this pattern over 100 years
<i>admit</i>	Cuyckens and D'hoedt, 2015	Old Bailey Corpus, Corpus of Late Modern English Texts, Wordbanks Online	Corpus-based analysis of complementation features of the verb <i>admit</i> (syntactic and semantic analysis)	Frequency of complementation patterns (i.e. (that-) clause, to- infinitive, ing-complement) across different corpora- highest in Wordbanks <i>admit</i> acts as speech act –occurring with finite complement clauses denoting 'wrongdoing' –occurring with non-finite complement clauses
<i>watch</i>	Broccias, 2015	British National Corpus	Exploration of boundaries of complementation patterns associated with <i>watch</i>	Complementation patterns vary from NP+bare infinitive, NP+ing to <i>as</i> -clauses
<i>think</i>	Fortanet, 2004	MICASE Corpus- Discussion and Lectures	<i>think</i> with first personal pronoun <i>I</i> in spoken corpus in terms of complementation and functions	<i>that</i> -clause and zero-that complement use six functions of vagueness, approximation, uncertainty, hesitation, politeness and opinion
<i>think and pensar</i>	Verdaguer, 2010	British National Corpus (BNC) and Spanish corpus	contrastive analysis of the polysemous mental verb <i>think</i> in	similar syntactic patterns in two languages- the meanings and complementation patterns of think and pensar in different contextual and collocational patterns

			English and <i>pensar</i> in Spanish in terms of contextual patterns and pragmatic functions	<i>think</i> having two central meanings in English (cogitation with wh-clause, that-clause, NP or PP-of/about and opinion with that-clause or so or to- infinitive, of and as NP) and peripheral meaning extentions <i>pensar</i> - closest equivalent of English <i>think</i> in its cogitation sense and specifically <i>creer</i> is more common in opinion sense
<i>think</i> and <i>believe</i> in English and <i>penser</i> and <i>croire</i> in French	Fetzer and Johansson, 2010	political interviews English and French Spoken argumentative discourse	contrastive analysis of <i>think</i> and <i>believe</i> in French and English cross-linguistic analysis	cross-linguistic dis/similarities in terms of frequency, form and functions <i>think</i> - highest frequency in English data <i>believe</i> - highest frequency in French data similar occurrences of cognitive verbs in two languages think occurring with similar connectives in both data such as <i>and</i> , <i>but</i> , <i>because</i> , <i>no</i> , <i>so</i> and <i>yeah</i> . both verbs fulfilling important pragmatic functions in argumentative discourse
<i>believe</i> , <i>feel</i> , <i>guess</i> , <i>suspect</i> , <i>suppose</i> , <i>think</i>	Fetzer, 2008	English political discourse In monologic genre of speech and dialogic genre of interview	semantics and pragmatics, analysis of form, frequency and function of selected verbs	<i>I/We think</i> and <i>I/We believe</i> more frequent and used to speak both in behalf of themselves and political party as individual and collective identities with first-person plural self reference - boosting epistemic commitment with other-party subjects - empathy and emotive commitment <i>feel</i> , <i>regret</i> , <i>suspect</i> and <i>suppose</i> - less frequent and used to express low degree of uncertainty semantics of <i>believe</i> -ambivalent in argumentative discourse
<i>think</i> with first person pronoun	Aijmer 1997	London Lund Corpus of Spoken English	parenthetical <i>I think</i> with a focus on syntactic, semantic, prosodic, and functional properties	Polysemous nature of I think- meanings: believe, intend and cogitate Pragmatic element-expressing epistemic modality: tentative/deliberative function: expressing uncertainty or reassurance or softening function Tentative function- far most frequent in corpus <i>I think</i> with zero <i>that</i> complement -far more frequent With <i>that</i> - complement, I think- more likely to express objective and informative style
<i>think</i> with first person pronoun	Simon-Vandenberg 2000	British National Corpus Spoken data Political discourse and causal conversation	exploration of the uses and functions of I think in political interviews in comparison to informal conversation	'I think' has multiple meanings (i.e. authoritative, deliberative, tentative and hesitant) that need to be distinguished based on syntax, intonation, collocation, nature of proposition, wider context of surrounding text, extra-linguistic context, cultural meanings of genres and status and power of interlocutors. More common in political interview compared to conversation mostly in initial syntactic position in both genres In intonation, <i>I think</i> is unstressed or non-nuclear in both genres.

Appendix B: Prominent Studies on L2 learners' Verbal Complementation

Researchers Year of Study	Subjects	Focus	Findings
Anderson (1983)	Spanish and Persian L2 learners of English	Accuracy order of sentential complements (i.e. gerunds, infinitives and that- or zero-that finite clauses) through Data: multiple-choice and translation tests	Same accuracy order of complementation patterns and order of difficulty for both L2 groups Finite clauses were the easiest patterns for both groups while gerund and possessive –ing were the most difficult patterns for both groups Overall better performance of Persian L2 learners compared to Spanish learners and errors were due to L1 influence and translation from L1.
Biber and Xeppen (1998)	French, Spanish, Chinese and Japanese L2 learners and native English corpus	comparison of traditional grammars/textbooks and the actual patterns of use in corpus of native student texts (Longman Grammar Corpus-British data-conversation, fiction, news reportage, and academic prose) and L2 student texts (Longman Learners Corpus: opinion, descriptive essays, and personal/business letters) Data: four types of complement clauses (that-, gerund, infinitive, wh- complements)	Similarities across all language groups in terms of patterns of use Extremely common use of that- clauses and to-clauses and rare use of wh-clauses and ing-clauses in native and L2 learner data that-clauses mostly with think, know, say to- clauses with specifically verb 'want' Errors produced that- complement often in opinion and descriptive essays Omission of <i>that</i> in common verbs in personal/business letters of L2 students
Tono (2004)	Japanese learners of English	Exploration of verb subcategorization use of Japanese learners of English and comparison among Japanese L1, English L2 and English L1 data Verbs examined: Ten high frequency verbs (<i>bring, buy, eat, get, go, like, make, take, think, and want</i>) Data: Japanese learners' free compositions, L1 Japanese corpus and Native English corpus of textbooks	The learners' misuse of patterns was found to stem from L2 inherent verb semantics and crosslinguistic influence (i.e. the differences in patterns and frequencies between L1 and L2 and L2 inherent factors) L2 learners mostly chose the patterns that were presented in their L2 textbooks, which demonstrated that exposure to the target patterns in the input had impact on their production.
Schwartz and Causarano (2007)	Spanish L2 learners	Analysis of the use of infinitive and gerund constructions (frequency of occurrence and errors) in English by native speakers of Spanish from functional linguistics perspective Three proficiency levels: advanced, hi-intermediate, and intermediate based on Michigan Placement Test Data: writing assignments (i.e. five paragraph typed essays)	Significantly higher frequency of infinitives than the frequency of gerunds in the writing samples of L2 learners from all proficiency level. A tendency for more errors to occur with gerunds constructions as opposed to infinitive constructions Problems were observed related to the use of these two complementation patterns: verb-tense, subject-verb agreement, omission (i.e. the use of bare form of the pattern without 'to'), insertion (redundant use of 'to'), substitution, incorrect verb form (using present participle form of the verb instead of using the bare form of the verb as in 'liked to seen'), and word order (e.g. reversing 'to' and 'not' as in 'leaved his family to not have

			rules’).
Gries and Wulff (2009)	German learners of English University-level and British native corpus	to investigate the to-inf and V-ing verb complementation patterns used by German advanced learners of English on the basis of Construction Grammar verbs analyzed <i>were start, stop, avoid, consider, finish, enjoy, manage, try, attempt, continue, like, and fail</i> Data:sentence completion task&acceptability-rating task	In the sentence-completion task: the verbs’ collexemic preferences in the sentence fragment had the strongest as well as the expected effect on sentence completion. In the acceptability-rating task: L2 learners rated the sentences better “when the sentential structure is compatible with the main verb’s collexemic distinctiveness (p.180)”.
Saeed and Fareh (2011)	Arab upper-intermediate EFL learners	to explore the use of high frequency verbs by Arab upper-intermediate EFL learners ‘verbs of senses’ i.e. <i>taste, smell, sound, feel</i> and <i>look</i> in terms of their uses as copula or main verb, idiomatic use, or metaphorical use. Data collection:a questionnaire including grammaticality judgment, recognition and production parts	Arab EFL learners had difficulty in the use of the verbs considering their semantic and syntactic features due to metaphorical and idiomatic uses. Better performance was observed in recognition task compared to production part. <i>Taste</i> was the most difficult verb for learners at recognition level while it was <i>sound</i> at production level.
Kitikanan (2011)	Thai L2 learners	examine the ability of 108 EFL Thai learners in using gerunds and to-infinitive and explore the factors affecting verb complementation sentence completion test in written data	Low proficiency on both types of verbal complements L2 learners had more incorrect uses of to-infinitives compared to gerunds
Martinez-Garcia and Wulff (2012)	Spanish EFL learners, German ESL learners and English native speakers	A case study of Spanish intermediate-level EFL learners’ use of infinitival and gerundial complementation in academic writing in comparison to German ESL learners and English native speakers in written discourse	Similarities among Spanish, German L2 learners and English native speakers in the use of gerundial complementation with certain verbs and infinitival complements with some certain verbs German learners were more like English native speakers in use of complementation patterns with certain verbs Overgeneralization tendencies in both L2 groups
Uçkun (2012)	Turkish EFL learners and teachers at Department of English Language and Literature	to explore the use of 20 polysemous verbs and verb subcategorization possibilities at production level by Turkish EFL learners and to compare with their use in Turkish version of the test	Turkish L2 learners performed better with sentential complement (SC) sense completions in SC-biased contexts In absence of context, they preferred to use SC-senses of verbs almost twice as often as DO-sense Better performance in Turkish version of tests in the use of direct objects following DO priming contexts compared to English version
Vercellotti and Jong (2013)	Arabic (3) Chinese (4), Italian (2), Japanese (3), Korean (5), Turkish (3), French, Russian, and Slovak	to examine the use of infinitival and gerundival verb complements in free production speech by 23 instructed high-intermediate L2 learners	Similar patterns of production and errors among all L2 learner groups Errors such as using neither marker or using both with verbs which allow either pattern more infinitival complement use than gerundival ones Verbs, such as forget, remember, and stop, that allow either complement but undergo a change in meaning were not used by the learners

Kim and Yoo (2015)	Korean college freshmen EFL learners	to examine accurate use of specifically to- infinitives by Korean EFL learners Learner corpus consisting of 815 essays	Learners accurately used to-infinitives in their essays to a great extent. Among 2,309 tokens, 171 tokens-errors while choosing complementation patterns due to lack of knowledge regarding sub-categorization
Vercellotti and Packer (2016)	Arabic, Chinese and Korean ESL learners (low and high intermediate and low-advanced)	to explore clause types produced by Arabic, Chinese and Korean ESL learners in free-production speaking tasks Clause types examined: complement taking predicates, main clauses, relative clauses, coordinate clauses, and non-finite clauses	Proficiency had an influence on their uses of finite and non-finite clauses. The higher the proficiency was, the higher the non-finite and relative clauses produced by learners were. The developmental order for the clause types is adverbial, nonfinite, relative and complement-taking clauses.
Yoon (2016)	Korean L2 learners of English	to investigate main verbs co-occurring with gerundial complements or to- infinitival complements in corpus of argumentative essays written by Korean L2 learners in comparison to LOCNESS Corpus	Korean L2 learners employed a greater variety of verbs in to- infinitival patterns and smaller sets of verbs with gerundial construction. to- infinitival constructions were used seven times higher than gerundial constructions in both L2 and native data
Bozdağ and Badem (2017)	Turkish learners of English in comparison to native speakers of English	to investigate communication verbs and the verb complementation patterns of specifically <i>mention</i> and <i>offer</i> in Turkish EFL learners' argumentative essays in comparison to English native speakers in LOCNESS data	Turkish EFL learners used communication verbs less frequently than native speakers of English in their essays. Specific analysis of <i>mention</i> and <i>offer</i> showed that they overused <i>mention</i> whereas they underused <i>offer</i> . EFL learners did not use the patterns in the target language in a native-like way and they used <i>mention</i> ungrammatically with V about, V to and null complement.
Keawchaum and Pongpairoj (2017)	Thai learners of English	to explore the use of gerund and infinitive complements in written tasks the use of word selection and grammaticality judgment tasks	High and low proficiency level EFL learners accurately used infinitive complements compared to gerunds to a great extent. Considering gerunds, high-proficiency group correctly used gerunds. However, low-proficiency group used gerunds accurately in less than half of the instances. Errors were also observed such as the use of bare form of the verb and the use of infinitive instead of gerund.

Appendix C: A SAMPLE CONSENT FORM

GÖNÜLLÜ KATILIM FORMU

Bu çalışma, “İngilizceyi Yabancı Dil Olarak Öğrenen Türk Öğrencilerin anla-, bil-, hatırla-, unut- ve pişman ol- Eylemlerini Bağlam İçinde Kullanma Bilgi ve Beceri Düzeylerinin İncelenmesi” başlıklı bir araştırma çalışması olup İngilizce Öğretmenliği Programı’nda okuyan ikinci ve dördüncü sınıf üniversite öğrencilerinin İngilizce’de belirli bir grup biliş eylemini (*bil-, anla-, pişman ol-, hatırla- ve unut-*) bağlam içinde kullanma becerilerini ortaya çıkarmayı amaçlamaktadır. Çalışma, Serap ATASEVER BELLİ tarafından yürütülmekte ve sonuçları ile geleceğin İngilizce öğretmen adayları olarak öğretecekleri hedef dildeki yapısal ve anlamsal çeşitliliği olan eylemlerin kullanılmasındaki farkındalık düzeylerine ışık tutulacaktır. Ayrıca, çalışma kapsamında incelenen sık kullanılan bu eylemlerin çeşitli bağlamlarda farklı yapı ve anlamlarda kullanımına ilişkin öğrencilerin farkındalık düzeylerinin arttırılması konusunda eğitim amaçlı uygulamaların geliştirilmesine katkı sağlayacaktır.

- Bu çalışmaya katılımınız gönüllülük esasına dayanmaktadır.
- Çalışmanın amacı doğrultusunda, karma desenli bir araştırma yapılarak Dilbilgisellik Değerlendirme Testi/ Boşluk Doldurma Testi/Cümle Tamamlama Testi/ Kurallı ve Anlamlı Serbest Cümle Yazma Testi yoluyla sizden veriler toplanacaktır.
- İsmınızı yazmak ya da kimliğinizi açığa çıkaracak 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 sanal veri saklama ve dosya depolama yöntemi ile korunacak ve araştırma bitiminde arşivlenecek veya imha edilecektir.
- Veri toplama sürecinde/süreçlerinde size rahatsızlık verebilecek herhangi bir soru/talep olmayacaktır. Yine de katılımınız sırasında herhangi bir sebepten rahatsızlık hissederseniz çalışmadan istediğiniz zamanda ayrılabilirsiniz. Çalışmadan ayrılmanız durumunda sizden toplanan veriler çalışmadan çıkarılacak ve imha edilecektir.

Gönüllü katılım formunu okumak ve değerlendirmek üzere ayırdığınız zaman için teşekkür ederim. Çalışma hakkındaki sorularınızı Anadolu Üniversitesi Yabancı Diller Eğitimi bölümünden Serap ATASEVER BELLİ’ ye yöneltebilirsiniz.

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Bu çalışmaya tamamen kendi rızamla, istediğim takdirde çalışmadan ayrılabileceğimi bilerek verdiğim bilgilerin bilimsel amaçlarla kullanılmasını kabul ediyorum. (*Lütfen bu formu doldurup imzaladıktan sonra veri toplayan kişiye veriniz.*)

Katılımcı Ad ve Soyadı:

İmza:

Tarih:

Appendix D: Grammaticality Judgment Test

Instruction: Read the sentences and decide whether the following statements sound accurate or not.

1. I don't understand why he's not helping us to find her.
a. Correct b. Not sure c. Incorrect
2. Don't forget of commenting on how far the two of you have come together.
a. Correct b. Not sure c. Incorrect
3. I regret I wasn't having conversations with him about how he was doing that.
a. Correct b. Not sure c. Incorrect
4. They understand the country can't go through this again.
a. Correct b. Not sure c. Incorrect
5. Don't forget to remember yourself as you are today... Full of hope...
a. Correct b. Not sure c. Incorrect
6. With my first-hand experience of being a parent, I now know how to communicating with parents.
a. Correct b. Not sure c. Incorrect
7. She understands of being an extra in one teen film is not going to be the end of it.
a. Correct b. Not sure c. Incorrect
8. You will never forget how do you feel right now.
a. Correct b. Not sure c. Incorrect
9. He is known of his contributions to engineering education and research activities in thermal sciences.
a. Correct b. Not sure c. Incorrect
10. But I truly regret doing this to you without your knowledge or permission.
a. Correct b. not sure c. Incorrect
11. I know that part of what kept me going was this concept of " trusting the process".
a. Correct b. Not sure c. Incorrect
12. At first you don't understand what does he mean.
a. Correct b. Not sure c. Incorrect
13. I just remember that the loudest thing I heard was not applause or cheering.
a. Correct b. Not sure c. Incorrect
14. She knows about some are working after school or on weekends.
a. Correct b. Not sure c. Incorrect

15. He regrets of having told his story to his cousin and to his wife.
a. Correct b. Not sure c. Incorrect
16. I know for a fact that you would not feel the need to tell him.
a. Correct b. Not sure c. Incorrect
17. Hey, do you remember me from an autograph session three years ago?
a. Correct b. Not sure c. Incorrect
18. Do you ever regret in not having been more committed to practice or to physical fitness?
a. Correct b. Not sure c. Incorrect
19. Forget about what music education will look like in the next one hundred years.
a. Correct b. Not sure c. Incorrect
20. I should have remembered about to use the local terminal.
a. Correct b. Not sure c. Incorrect

Appendix E: Fill-in-the-Blank Test

Instruction: Fill in the blanks with the appropriate verb given in the box below with necessary changes in its form.

BE CAREFUL: Some verbs can be used several times (more than once or twice) while others might not be used at all.

know	regret	dislike	remember	express
forget	indicate	understand	suffer	

1. Describe a lesson you taught that went well, and explain why it went well. How have you helped to raise student achievement, and how did you know students were learning?
2. Matthew: Yes, I'd like to send you the contract and the details of the performance bond if you're interested, but I hope you understand that I can't do so unless you've accepted the project.
Thra: Am I to understand that the work is being done overseas?
Matthew: Yes, you would have to go abroad.
3. Curry: So how will you spend yours? The average refund for the 2006 tax season will be just over \$2,600.
Christina: I spent my refund very quickly on vacation.
Kate: Probably spend it on clothes, shopping, what I usually spend my refund on. I do regret how I spent my refund. I could have -- I could have probably saved the money instead of spending it.
4. We feel we're not good enough at what we do. And we are quick to list all the reasons why we don't deserve praise: " Why me? " we ask. We forget we each have an essential quality that makes us special and worthy, and if we're lacking any necessary element, we can make up for it in some way.

5. Whatever may have been the literary scene in this country between the beginning of the century and 1914, it remains in my mind a complete blank? I can not remember any poet then alive who contributed to my education?
6. The fifth day in Paris, you are tired, the walk through the city made your feet blister. Even while the trip has been fascinating, you can not help but feel alien to this culture that in theory shouldn't be far removed from yours. You don't understand French, Carlos is the only one who speaks it well. You've lost your way on the metro a number of times.
7. Michael Keaton: His theme music behind him is majestic and symphonic and really...
Terry Gross: Yeah.
Michael Keaton: Like he's flying and beautiful. I was just listening to that music, which is a great music, you know - great. And when you hear it, it's not that it sounds dated because it's really good it actually, but you think, oh, I forgot it was that kind of music you know. Cause I really liked it in " Babel " and I actually wanted to know what that instrument was.
8. Wogfound: He is the oddest monkey. Have you ever known a creature like him?
Katabasis: I never have, no.
Wogfound: And do you know how he sleeps?
Katabasis: I know nothing of the kind.
9. Ophelia: Where do you go on vacation?
Snyder: The beach. I love to travel, but I don't get to much. I regret that I didn't travel more when I was young, before I had a family.
10. Mills will forever be remembered for winning gold in the 10,000 meters at the 1964 Tokyo Games, catching and passing the world's two greatest distance runners, Australia's Ron Clarke and Tunisia's Mohammad Gammoudi, in the final 100 meters.

Appendix F: Free-Production Test

Make two (2) complete sentences in English for each verb below and write down the meaning of the verb in English/Turkish in each sentence.

1. KNOW

Sentence 1 _____

Verb Meaning: _____

Sentence 2 _____

Verb Meaning: _____

2. UNDERSTAND

Sentence 1 _____

Verb Meaning: _____

Sentence 2 _____

Verb Meaning: _____

3. REGRET

Sentence 1 _____

Verb Meaning: _____

Sentence 2 _____

Verb Meaning: _____

4. REMEMBER

Sentence 1 _____

Verb Meaning: _____

Sentence 2 _____

Verb Meaning: _____

5. FORGET

Sentence 1 _____

Verb Meaning: _____

Sentence 2 _____

Verb Meaning: _____

Appendix G: Sentence Completion Test

Instruction: Read the extracts and complete the sentences in your own word(s) to agree with the content.

1. Ryan: Michael! Dude, you don't answer your cell phone? I left you like five messages. I need your help, buddy. I have a major situation.
Josh: Sorry, who is this?
Ryan: It's Ryan. Your neighbor? Come on, Michael, you remember me.
Josh: My name's not Michael.
2. Zoe: I've read so little. I never had time. I wish I'd read War and Peace, I wish I'd read Oliver Twist and MobyDick and Pride and Prejudice, all those wonderful books. I just regret not having done more in my life. I've hardly traveled at all. "
Emma: It's not possible to do everything. No one can do everything.
Zoe: I ought to have traveled, at least.
3. Sally: I need to get back up there. I'm nervous as a cat when I'm away from Mamma. Jack: Wait. Take this biscuit with you so you have something to nibble on later.
Sally: Thank you for coming. You got Truly to take care of the horses?
Jack: The horses are taken care of. Let me know when you'll be home. So I'll prepare meal for you.
4. Focus is really important in life. I would have to say my favorite aspect of yoga is the focusing aspect in yoga. I only focus on yoga when I am practicing. I just forget about everything outside of yoga, but when I practice yoga I focus on all of the details of yoga during my practice.
5. Kotb: You can see like all the kids have gazillion cameras and it's amazing.
Gifford: That's the world we live in.
Kotb: They're capturing the moment.

Gifford: I remember going to see the Beatles and just actually watching and actually just listening and screaming.

6. English/ELA teachers should work closely together, and with other professionals as necessary, to develop protocols for responding to various types of violent writing. Teachers, counselors, and administrators should work together to create a supportive process for assessing and working with students whose writing includes elements of domestic violence and/or self-abuse.

All teachers must understand must understand that they are legally bound to report students to the Department of Social Services in cases where student autobiographical texts detail prior or current abuse, provided prior abuse has not already been reported.

7. You know, in the old days if you were fighting a war, they had a sealed envelope that is brought over by a whole group of very powerful military people and it's put into a safe. Now, you put something out over the Internet, you don't know who is reading it or who is watching it because we're in a different age.
8. As music educators, sometimes we can easily get caught up in the musical and educational goals we have for our students and forget that they have lives outside our classrooms. When we share in a mutual understanding of one another, both our empathy toward one another and the music-making process may be enhanced.
9. I regret what I said. And I do apologize to the people who I've offended because... they were ill-timed and out-of-order comments. I very rarely say things that I don't mean, but I'm not going to get into a debate about my opinions. Today, it's an attempt to publicly apologize to anybody I've offended.

10. Alice in Wonderland, Tom Sawyer, Little Women, she was writing their titles when there came a loud noise from the peaceful streets, men shouting, and a strange hissing sound. Outside the open window, a city truck was passing a path of leaves and branches in a pearly fog shot through with rainbows. She remembers thinking she did not deserve to come upon such beauty, that she already had her child inside her, which was far and away beauty enough.

11. Judith: What advice would you offer?

Paul: I'd say, " If you really want to do it, go for it. It's your life, no one else's.

Judith: Would you tell your younger self the same thing, if you could?

Paul: You can't relive the past, and I don't regret those experiences. Opportunities like that don't come every day. I knew I was lucky. And I tried to use the experience to my benefit. Looking back, I made great friends.

12. Ms. Watson: But Natalee was in there when I saw him near the blackjack table, I just remember seeing him and wondering what he was doing hanging out with my friends.

Hansen: Did he create any suspicions?

Ms. Watson: Not really. I just was curious to see who the boy was. I didn't -- wasn't really suspicious. I knew he was going to come out with us later.

13. Marlee: Where was Tillie when you talked to her?

Richard: She called from Las Vegas, but she was leaving there. Said she'd lost several thousand dollars. She was going to L. A. and then maybe up to San Francisco.

Marlee: I don't understand why you have such a problem with Tillie.

Richard: Who has a problem with Tillie? I wanted what we did on our wedding anniversary to be your idea, that's all.

14. My story was also the story of X cities in general. Since I've been in the band and I've traveled around these cities. I remember how excited I was to get to Wichita and everybody's singing ' Wichita Lineman,' and then you get there and there's no city. But the good news, things are starting to come around.

15. Laura: Does she know this? That you own your own home, and how much you're making?

Arnold: Sherri...

Laura: I know your nose is wide open and all, but you haven't known her long. I'm just throwing up the caution sign. That's what big sisters do.

16. James: Humans would want an explanation for why the sun would suddenly turn into a black disc from a few seconds to as long as seven minutes.

Suzan: Look, I'm a scientist, and I understand what this is all about. It's just caused by the shadow of the moon.

17. Make this year different. The best gift to yourself is to pace your days with our easy-to-make table decorations and unforgettable menu. With our helpful festive ideas, you can enjoy a truly peaceful season. And don't forget to treat yourself to one final present. Save that last portion of rice, slice of chocolaty dessert for your breakfast the next morning.

18. At night I put the cage in the box. When I lay down to sleep, I looked through the glass doors and noticed the moon in the sky and frost on the ground. There was not a single stirring of the bird within the box. I regret to say that I got up late again next morning. Next morning, by the time I took the cage out of the box it was past eight o'clock. The bird must have been awake for a long time in the box, yet it displayed no discontent.

19. Ms. T. Stone: I'm trying to keep strong for Ryan.

Couric: Your little boy...four-year-old Ryan. Does he understand at all, Tricia, what's going on?

Ms. T. Stone: He really hasn't asked any questions about the situation. He has seen his dad on the newspapers and magazines, but he really hasn't asked a whole lot.

20. Sunny Sidebar Company Representative: Avoid the sun between the hours of 10 A.M. and 3 P.M., when the sun's rays are the most intense. Protect yourself from the sun year round-even on cloudy days. Don't forget to put sunscreen on your lips, ears, and the back of your neck.

Appendix H: Checklist for Item Format Analysis (Brown, 1996: 51-58)

General Guidelines for Most Item Formats		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 I: Checklist for Receptive and Productive Item Formats (Brown, 1996: 54-58)

a.	Guidelines for Receptive Item Formats	True-False	
		Yes	No
True / False			
1	Is the statement worded carefully enough that it can be judged without ambiguity?		
2	Have “absoluteness” clues been avoided?		
Multiple-choice			
3	Have all unintentional clues been avoided?		
4	Are all of the distractors plausible?		
5	Has needless redundancy been avoided in the options?		
6	Has the ordering of the options been carefully considered? Or are the correct answers randomly assigned?		
7	Have distractors such as “none of the above” and “ <i>a.</i> and <i>b.</i> only” been avoided?		
b.	Guidelines for Productive Item Formats		
Fill-in			
8	Is the required response concise?		
9	Is there sufficient context to convey the intent of the question to the students?		
10	Are the blanks of standard length?		
11	Does the main body of the question precede the blank?		
12	Has a list of acceptable responses been developed?		
Short-Response			
13	Is the item formatted so that only one relatively concise answer is possible?		
14	Is the item framed as a clear and direct question?		

Appendix J: Item Analysis of Tests (IF and ID Indices) (Pilot Study)

Tests																				
GJT	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 20
IF (<i>p</i>)	.52	.91	.55	.50	.50	.61	.44	.47	.69	.72	.47	.61	.55	.36	.75	.44	.13	.41	.50	.52
ID	.73	.10	.31	.73	.84	.73	.31	.84	.10	.10	.84	.63	.63	.31	-.21	.42	.31	.73	.42	.73
SCT	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 20
IF (<i>p</i>)	.51	.78	.69	.63	.63	.66	.66	.72	.90	.81	.81	.69	.57	.60	.60	.75	.69	.87	.54	.63
ID	.61	.30	.72	.72	.72	.72	.72	.72	.30	.51	.51	.51	.82	.51	.72	.41	.61	.30	.72	.30
FBT	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10										
IF (<i>p</i>)	.62	.45	.64	.62	.62	.62	.45	.48	.16	.56										
ID	.56	.40	.24	.72	.64	.56	.40	.72	.48	.56										

IF: item facility *p*: item difficulty ID: item discrimination

Appendix K: 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 değerlendirilmesi 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 | |

The 2,000 word level

1 copy		1 admire	
2 event	_____ end or highest point	2 complain	_____ make wider or longer
3 motor	_____ this moves a car	3 fix	_____ bring in for the first time
4 pity	_____ thing made to be like another	4 hire	_____ have a high opinion of someone
5 profit		5 introduce	
6 tip		6 stretch	
1 accident		1 arrange	
2 debt	_____ loud deep sound	2 develop	_____ grow
3 fortune	_____ something you must pay	3 lean	_____ put in order
4 pride	_____ having a high opinion of yourself	4 owe	_____ like more than something else
5 roar		5 prefer	
6 thread		6 seize	
1 coffee		1 blame	
2 disease	_____ money for work	2 elect	_____ make
3 justice	_____ a piece of clothing	3 jump	_____ choose by voting
4 skirt	_____ using the law in the right way	4 manufacture	_____ become like water
5 stage		5 melt	
6 wage		6 threaten	
1 clerk		1 ancient	
2 frame	_____ a drink	2 curious	_____ not easy
3 noise	_____ office worker	3 difficult	_____ very old
4 respect	_____ unwanted sound	4 entire	_____ related to God
5 theater		5 holy	
6 wine		6 social	
1 dozen		1 bitter	
2 empire	_____ chance	2 independent	_____ beautiful
3 gift	_____ twelve	3 lovely	_____ small
4 opportunity	_____ money paid to the government	4 merry	_____ liked by many people
5 relief		5 popular	
6 tax		6 slight	

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

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

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

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

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

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

The 3,000 word level

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

The 5,000 word level

1 analysis
2 curb _____ eagerness
3 gravel _____ loan to buy a house
4 mortgage _____ small stones mixed with sand
5 scar
6 zeal

1 cavalry
2 eve _____ small hill
3 ham _____ day or night before a holiday
4 mound
5 steak _____ soldiers who fight from horses
6 switch

1 circus
2 jungle _____ musical instrument
3 nomination _____ seat without a back or arms
4 sermon
5 stool _____ speech given by a priest in a church
6 trumpet

1 artillery
2 creed _____ a kind of tree
3 hydrogen _____ system of belief
4 maple _____ large gun on wheels
5 pork
6 streak

1 chart
2 forge _____ map
3 mansion _____ large beautiful house
4 outfit _____ place where metals are made and shaped
5 sample
6 volunteer

1 contemplate
2 extract _____ think about deeply
3 gamble _____ bring back to health
4 launch _____ make someone angry
5 provoke
6 revive

1 demonstrate
2 embarrass _____ have a rest
3 heave _____ break suddenly into small pieces
4 obscure
5 relax _____ make someone feel shy or nervous
6 shatter

1 correspond
2 embroider _____ exchange letters
3 lurk _____ hide and wait for someone
4 penetrate _____ feel angry about something
5 prescribe
6 resent

1 decent
2 frail _____ weak
3 harsh _____ concerning a city
4 incredible _____ difficult to believe
5 municipal
6 specific

1 adequate
2 internal _____ enough
3 mature _____ fully grown
4 profound _____ alone away from other things
5 solitary
6 tragic

The 10,000 word level

1 alabaster
 2 chandelier _____ small barrel
 3 dogma _____ soft white stone
 4 keg _____ tool for shaping wood
 5 rasp
 6 tentacle

1 dissipate
 2 flaunt _____ steal
 3 impede _____ scatter or vanish
 4 loot _____ twist the body about
 5 squirm _____ uncomfortably
 6 vie

1 benevolence
 2 convoy _____ kindness
 3 lien _____ set of musical notes
 4 octave _____ speed control for an engine
 5 stint
 6 throttle

1 contaminate
 2 cringe _____ write carelessly
 3 immerse _____ move back because of fear
 4 peek _____ put something under water
 5 relay
 6 scrawl

1 bourgeois
 2 brocade _____ middle class people
 3 consonant _____ row or level of something
 4 prelude _____ cloth with a pattern or gold or silver threads
 5 stupor
 6 tier

1 blurt
 2 dabble _____ walk in a proud way
 3 dent _____ kill by squeezing someone's throat
 4 pacify _____ say suddenly without thinking
 5 strangle
 6 swagger

1 alcove
 2 impetus _____ priest
 3 maggot _____ release from prison early
 4 parole _____ medicine to put on wounds
 5 salve
 6 vicar

1 illicit
 2 lewd _____ immense
 3 mammoth _____ against the law
 4 slick _____ wanting revenge
 5 temporal
 6 vindictive

1 alkali
 2 banter _____ light joking talk
 3 coop _____ a rank of British nobility
 4 mosaic _____ picture made of small pieces of glass or stone
 5 stealth
 6 viscount

1 indolent
 2 nocturnal _____ lazy
 3 obsolete _____ no longer used
 4 torrid _____ clever and tricky
 5 translucent
 6 wily

Appendix L. Item Analysis: Item Facility and Item Discrimination Indices of Items in the Main Study

GJT	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12	Item 13	Item 14	Item 15	Item 16	Item 17	Item18	Item 19	Item 20
IF (<i>p</i>)	.71	.73	.37	.49	.74	.67	.56	.52	.50	.81	.53	.58	.72	.59	.44	.38	.74	.47	.73	.61
ID	.31	.59	.30	.30	.34	.58	.44	.60	.44	.39	.43	.63	.35	.39	.58	.35	.39	.48	.39	.70
SCT																				
IF (<i>p</i>)	.90	.66	.74	.76	.85	.69	.65	.80	.73	.66	.76	.69	.55	.68	.67	.85	.79	.60	.84	.82
ID	.36	.45	.25	.34	.41	.30	.4	.4	.26	.42	.51	.30	.4	.31	.32	.45	.49	.49	.46	.38
FBT	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10										
IF (<i>p</i>)	.68	.51	.71	.75	.65	.69	.59	.70	.75	.73										
ID	.49	.61	.53	.49	.62	.45	.50	.60	.60	.50										

Appendix M. Interrater Reliability Analysis of SCT and FPT Items (between researcher and Turkish researcher)

Test type	Cohen's kappa	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SCT	κ	.77	.80	.88	.75	.88	.77	.89	1.0	.89	1.0	1.0	.88	1.0	1.0	.88	1.0	.86	.83	1.0	1.0
FPT	Cohen's kappa	1	2	3	4	5	6	7	8	9	10										
pattern	κ	.70	.77	1.0	.81	.75	1.0	.64	1.0	1.0	1.0										
sense	κ	.77	.77	.75	.83	1.0	.84	.64	.90	.77	.89										

Appendix N. Interrater Reliability Analysis of Production Tests (between the researcher and American Native Speaker)

SCT Item	Cohen's kappa	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Pattern	κ	1	.96	1	1	1	1	.89	1	1	1	1	1	1	.84	1	1	1	.96	1	1
Sense	κ	1	.83	1	1	1	1	.96	.95	1	1	1	1	.95	.84	1	1	.94	1	1	1
FPT Item	Cohen's kappa	1	2	3	4	5	6	7	8	9	10										
Pattern	κ	.65	1	1	1	1	1	.84	.89	1	1										
Sense	κ	1	1	1	1	1	.95	1	1	.65	1										

Appendix O. Verb complementation patterns and verb senses in Valency Dictionary of English

KNOW Verb sense INFORMATION ('possess something as information')	Valency patterns	Examples
	[N]Active/ [by N]	"I don't <i>know</i> ," he said softly , (only if clear from context) "I don't <i>know</i> for sure ," the boy said, (only if clear from context)
something such as a fact / something for a fact, i.e. be certain of it./that something is the case	[N] _{passive}	Do you know that for a fact? I doubt whether Ernie knew the names of more than a few of us. I don't know the answer to that question.
something such as a fact / something for a fact, i.e. be certain of it./that something is the case	[that-CL] _{passive (it)} FREQUENT	Would it surprise you to <i>know</i> that the first straw hat in America was made by a 12-year-old named Betsy Metcalf of Providence in Rhode Is- land? You don't even <i>know</i> for sure that that's where he went. I <i>know</i> for a fact Gretchen re- ally likes the girl. He <i>knew</i> for certain that he was being followed. I <i>knew</i> Fran would have plenty to say about it later.
something such as a fact / something for a fact, i.e. be certain of it./that something is the case	[wh-CL] _{passive (it)} FREQUENT	Joanna knew how her father hated to lose. We cannot know whether they would have done so. Jimmy still did not know if he liked Wade or not. No one knows for sure whether he's even in New York. Nobody knew for certain where he might have come from.
something such as a fact / something for a fact, i.e. be certain of it./that something is the case	[wh to-(INF)] _{passive (it)}	I didn't know what to say to this. I don't know where to go for the information. There are so many things to tell you," he whispered against her hair, "that I don't know how to begin." Erin was still dying to ask him about Room 13, but she didn't know how to.
something such as a fact / something for a fact, i.e. be certain of it./that something is the case	[Sentence] _{passive:it}	Lord de Braose would revel in his victory, she knew, and Papa would be in ill humour.
something such as a fact / something for a fact, i.e. be certain of it./that something is the case	[usually: never] [N INF]	I never knew it happen around here. They had never known the Doctor worry so much about a prize.
something such as a fact / something for a fact, i.e. be certain of it./that something is the case	[N to-INF] _{passive (usually passive)}	As for women, he knew them to be stronger and healthier than men. The couple are known to frequent hostels and welfare agencies. A daily intake of 20mg of vitamin C is known to be sufficient in most cases.
	[to-INF]	We <i>knew</i> to expect a single-digit rating.
about someone or somethingIV, i.e. be aware of them and have information about them.	[about X(N/V-ing)] _{passive}	They knew about the risk they were going to take. The first thing we knew about strange things going on was when Rebecca would come home giggling. He knew about what was going on. • I don't know about being tough. (= am not sure)
of someone or something, i.e. be aware of their existence.	[of X(N/N Ving)] _{passive}	I know of no faster, easier, or more foolproof method for making pastry dough than the food-processor. She knew of her husband's multiple affairs. He had a reputation. I knew of him before I

		knew him, because he was an oddity. It was the first time she knew of her name being used for company purposes,
	[as N]	Their apparent aim is to draw our attention to something we cannot know as a matter of positive knowledge: the limitations of positive knowledge. The US Food and Drugs Administration (FDA) licensed the world's first oral contraceptive, now popularly known as "the pill". (= called)
someone by name, sight, etc., i.e. know their name or what they look like	[as ADJ] [by N]	They all knew him by name.
...PERSON 'have met or encountered someone or something'		
a person, i.e. have met them./ a place, i.e. have been there. / a book, film, etc.n, i.e. have seen or read it.	[N] _{active} / [by N] N _{passive}	My work is becoming better known and accepted. Alex never knew his father. She had known Max for some years now, but he was still pretty much an unknown quantity.
	[to N]	Children in India respect the whole village; all children are known to all adults and they can be corrected or reprimanded by anyone.
SKILL 'have a certain skill'		
If a person knows a language, they can speak or write it.	N _{active} / [by N] N _{passive}	He <i>knew</i> a little Turkish.
If a person knows how to do something, they have learnt how to do it.	[wh to-(INF)] _{passive (it)}	I don't know how to drive a bus.
RECOGNIZE 'be aware of certain qualities or characteristics in someone or something'		
to be a certain way or habitually to do something	[N]A/ [by N] [N to-INF]p Usually passive	I never knew her to get so mad at Jack.
to be a certain way or habitually to do something	[N]p	I only knew him by his voice.
	[as N]	I knew her as a very happy, lovely person.
	[as ADJ]	Melinda's friends knew her as engaging, warm, self-effacing, easy to talk to, helpful, and self-sacrificing.
by a particular feature, i.e. recognise them on that basis.	[by N]	
for something they are (Note that someone or something can be known for a particular feature they have)	[for N]	"You would know her for a poet anywhere", he said. Kemp knew him for a meticulous officer with almost as good a memory for verbatim recall for interviews as Kemp had himself. Hobee's is known for its special hash brown potatoes.

Further uses: [From N] By now the boys know right from wrong, but peer pressure is strong. (= recognise the difference between)

UNDERSTAND Verb sense	Valency Verb patterns	Examples
Comprehend or consider logical	[N] _{active} / [by N]	He is able to impart wisdom by means of song and story so that the youngest child can hear and understand, (only if clear from context) Why did I let things deteriorate? Sandra stares intensely. She understands, (only if clear from context)
	[N] _{passive}	It is crucial that you understand the potential risks before surgery. She hopes that important clues will be found to help understand the workings of the virus and ultimately reduce the risks of cross infection. She told herself to understand him, to understand his age. I understand fabrics and textures, I know how colours will look, together and apart. On the field there's no racism, simply because that's the one area where you all understand each other, you all know that that person is here because he deserves to be here. She could barely understand a word of English and she was talking Greek to people in the room.
	[that-CL] _{passive (it)}	You have to understand that he wants to create an empire for himself. They must understand that many people need a certain freedom within a relationship.
	[wh-CL] _{passive (it)}	He still couldn't understand why she was there. She did not understand what was happening to her. So you can understand just how dangerous the venom is. And when I left him I felt strangely elated. I could not understand why. Hadn't he understood how much she loved him?
	[N V-ing] _{passive (it)}	I can understand people saying I haven't got the time. I can understand people getting very angry about violence against the person. Brian Quinn said that he could understand people thinking that the recent closure of these banks had been too much of a coincidence.
Know (have been told about it)	[N] _{active} / [by N]	
	[that-CL] _{passive (it)}	A spokeswoman said she <i>understood</i> the prisoners were still concerned about possible reprisals when they do give themselves up. We await his statement eagerly and understand that it will be issued from a bank in the Cayman Islands. It's understood the staff had carried out security checks. It's understood that British Embassy officials here will wait to see what the examining judge decides before making their next move.
	[N _p to-INF] (usually passive)	Radio 1 are also understood to be planning a series of documentaries to tie in with the book. The British government is understood to have decided on a new approach to the problem of shortages of

		teachers. The mining company on whose train he was travelling say they understand him to be unharmed.
	[N] _{passive}	Meade and Stone's Cambridge predecessor A. C. Pigou suggested in an oft-quoted passage that national income be understood as an annual flow of goods and services.
	[as N]	Meade and Stone's Cambridge predecessor A. C. Pigou suggested in an oft-quoted passage that national income be understood as an annual flow of goods and services.

REGRET (VerbNet) Verb Sense	Verb patterns	Examples
feel sad about, without accepting responsibility: NOTE: The experiencer feels bad about something that was outside the experiencer's control		
	[N]	Prosecutors regretted the court's decision and planned to appeal it to the High Court. The Swiss representative said that his country regretted the nuclear test conducted by China.
	[that-CL]	I regret that I must refuse your kind invitation.
	[to-INF]	We regret to inform you that your manuscript does not meet our needs at the moment
feel remorse for, feel guilty about, entails responsibility for action/situation NOTE: The experiencer feels regret about something the experiencer had control over		
	[N]	I've regretted my decision from the day I made it.
	[N]	We regret any inconvenience this may have caused you.

REMEMBER Verb sense	Valency Verb patterns	Examples
Person/Experience: to express the idea of not forgetting someone or something in the sense that one thinks of a person, thing or event one has encountered or experienced in the past.		

	[N]active/ [by N]	can't tell you what happened, because I don't <i>remember</i> , (only if clear from context) When did you do that? Can you <i>remember</i> ? (only if clear from context)
A person can remember a person, thing or event/remember doing or having done something.	[N]passive	I remember her well. Small, blonde, ugly, with a spotty face. But she had nice eyes, very blue. Australia's farmers are used to good and bad seasons but few can remember a time when so many were in such deep financial trouble. He remembered what Mr Furniss had said D6 to him. He said it was very difficult for him to act, to concentrate and remember his lines, staring at the camera. It is not true, not true at all, that she remembers little about the trial of the libel action.
A person can remember a person, thing or event/remember doing or having done something.	[V-ing] FREQUENT (Note that remember doing something and remember to do something can be easily confused: She remembered to post the letter means that 'she did not forget to post the letter'. She remembered posting the letter means that 'she had a recollection of posting it', i.e. remembered when or how she did it.)	I remember sitting on bundles and suitcases, waiting for the train that would take us we didn't know where.
A person can remember a person, thing or event/remember doing or having done something.	[that-CL] passive (it) VERY FREQUENT	I've even been woken in the middle of the night to be given an ice cream because Mama suddenly remembered that Belle had been allowed one that afternoon.
A person can remember a person, thing or event/remember doing or having done something.	[wh-CL] _{passive (it)} FREQUENT	He enjoyed the time he spent in Colorado; it made him remember how much he liked the West. You don't happen to remember if Moretti was in here Monday?
A person can remember a person, thing or event/remember doing or having done something.	[wh to-INF] _{passive (it)}	I can't remember how to pronounce it.
A person can remember a person, thing or event/remember doing or having done something.	[Quote/Sentence]	"We usually had a selection of people from all parties in the house-Communists, Christian Democrats, the others," remembers the Contessa.
A person can remember a person, thing or event/remember doing or having done something.	[N V-ing]	I am old enough and lived close enough to remember the factory being built.
A person can remember a person, thing or event/remember doing or having done something.	[something/a lot/etc.] _{passive}	What do you remember about her voice? I remember things about her that I found very intelligent.

	[about N/V-ing]	"Don't you remember about Anna?" I shook my head.
	[as X (N/V-ing (often:being)/ Np+as ADJ)]	Nina Hamnett remembered her simply as Ford's girl. He's more remembered as being a young rebel. I always remember her as being beautiful. I remember her as pretty and sort of tallish. Let's remember him as he really was.
Somebody or something can be remembered for some feature i.e. that feature makes them stick in a person's mind; usually used in the passive	[for N/V-ing] (usually passive)	She is perhaps best remembered for her creation of the Belgian detective, Mr Hercule Poirot. He will probably be best remembered for founding the Birmingham Railway Museum at Tyseley in the 1960s.
A person can remember somebody or something from somewhere, i.e. this is where that person first noticed them.	[from N]	You might remember him from the Polaroid commercials.
TASK :used to express the idea of not forgetting something that has or had to be done in the sense that one does not or did not forget to do it:		
A person can remember to do something .	[N]active/ [by N] [N]passive	If at any point you feel yourself getting tense, just remember the simple relaxation technique of breathing deeply. • You can remember the Association in your will and help others in need. (= leave money to) Timisoara is preparing for what the people call a peaceful gathering to remember the dead.(= commemorate) You should remember to replace your child's toothbrush every three months or so. Remember to keep the seeds well away from children as they are poisonous.
A person I can remember to do something	[to-INF] Note that remember doing something and remember to do something can be easily confused: She remembered to post the letter means that 'she did not forget to post the letter'. She remembered posting the letter means that 'she had a recollection of posting it', i.e. remembered when or how she did it.	
A person can remember that something is the case, i.e. Take into account	[that-CL] _{passive (it)} VERY FREQUENT	There are plenty of restaurants to choose from, but remember no alcohol is sold or can be consumed here. Remember that the finest cuisines in the world are based on the sauce, not necessarily what the sauce covers.

A person can remember about doing something, i.e. try not to forget to do it.	[about N/V-ing]passive	I tried to remember about controlling my breathing and using my stomach muscles to give me more stamina.
	Further uses [to-N]	Remember me to Joe, and have a lovely relaxing time, all of you. (= give my regards to)

FORGET Verb Sense	Valency Verb patterns	Examples
	N _{active} / [by N]	But I will never, ever <i>forget</i> , (only if clear from context) How could I possibly forget,(only if clear from context)
forget something or forget doing something, i.e. not remember it.	[N] _{passive}	They want to forget their past. We'll never forget our first Christmas with our new baby Chloe. He said the slogan of Arab unity could never be forgotten. And it's hardly the sort of story one forgets. I knew there was something I forgot.
forget something or forget doing something, i.e. not remember it.	[V-ing]	I never forget getting a letter from someone. I'll never forget being in Mexico City at the church of the Virgin of Guadalupe. • Forget doing the housework and feeding the baby, fellas, women want you to be more romantic. (= don't waste time on)
forget something or forget doing something, i.e. not remember it.	[that-CL] _{passive (it)} Very FREQUENT	It's easy to forget that other boats might be having trouble. And don't forget that the most successful English slaving ship was called the Jesus Christ. But she would never forget that snow could be beautiful to look at, yet it could make you break your neck in a fall. I forget some people aren't as interested in mining as I am. You forget he's your deadliest enemy.
forget something or forget doing something, i.e. not remember it.	[wh-CL] _{passive (it)} (FREQUENT)	People will look up and think you've forgotten what you were going to say. I forget which is which now. This is an essential video for anyone who has forgotten what fast, brilliant polo is all about. I have forgotten if it was the night she arrived at our house, or the first Girl's Day Festival following the wedding. I've forgotten how many bedrooms she's got at the moment.
forget something or forget doing something, i.e. not remember it.	[wh to-INF] _{passive (it)}	As we grow older, many of us forget how to play. I forgot how to speak English. You know I've forgotten what to say.
forget something or forget doing something, i.e. not remember it.	[N V-ing]	I'll never forget him scoring the winner in his first game against Celtic
to do something, i.e. not do it.	[to-INF] (FREQUENT)	Don't forget to leave your name, age and address. If you're worried you'll forget to mention something, make a list of symptoms to take to your appointment. Ellen had thoughtlessly forgotten to bring a torch.
	[S]	Never forget - let the buyer be- ware. There was the jealousy ingredient too, don't forget. Coach tour of the city tomorrow, don't forget.

about something. i.e. not remember something or that something has to be done about something.

[about X(N/V-ing/ N
Ving) / about wh-CL
(FREQUENT)]_{passive}

Only a few hours later, after a delicious meal in a restaurant by the sea and a walk through the port, I had forgotten all about it. On occasion he would forget about dinner altogether, even at times when Maya had invited guests. Once I gave her some of my poetry and later forgot about it. I forgot about that. You forgot about young James coming at Christmas. We forgot about how good they were.

- Forget about searching for empty boxes or struggling with flimsy carriers at the supermarket. (= you don't have to)

Appendix P: Descriptive Statistics for Tests

Test Type	VLT	$\bar{x}$	SD
GJT*	2000	56.08	13.934
	AWL	58.19	14.829
	3000	61.15	15.160
	5000	65.28	16.205
	10000	71.00	15.572
	Total	60.67	15.463
FBT*	2000	66.50	21.693
	AWL	72.59	20.567
	3000	77.43	15.795
	5000	78.75	19.568
	10000	86.00	13.416
	Total	74.46	19.760
SCT*	2000	80.17	14.757
	AWL	81.72	13.590
	3000	86.15	10.648
	5000	87.99	13.418
	10000	79.00	18.841
	Total	84.22	13.471
FPT*	2000	77.75	16.581
	AWL	81.29	18.861
	3000	86.76	14.861
	5000	85.14	17.177
	10000	91.00	8.944
	Total	83.22	16.994

*Maximum score is 100.

Appendix R. Test effect on achievement levels of L2 learners (One-way repeated measures ANOVA)

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Test_effect	Sphericity Assumed	95901.580	3	31967.193	145.692	.000	.352
	Greenhouse- Geisser	95901.580	2.757	34786.028	145.692	.000	.352
	Huynh-Feldt	95901.580	2.788	34392.953	145.692	.000	.352
	Lower-bound	95901.580	1.000	95901.580	145.692	.000	.352
Error(test_effect)	Sphericity Assumed	176410.920	804	219.417			
	Greenhouse- Geisser	176410.920	738.849	238.764			
	Huynh-Feldt	176410.920	747.293	236.067			
	Lower-bound	176410.920	268.000	658.250			

Pairwise Comparisons

Measure: MEASURE_1

(I) test_effect	(J) test_effect	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1 (GJT)	2	-13.792*	1.248	.000	-17.108	-10.475
	3	-23.550*	1.120	.000	-26.528	-20.572
	4	-22.546*	1.284	.000	-25.960	-19.133
2 (FBT)	1	13.792*	1.248	.000	10.475	17.108
	3	-9.758*	1.318	.000	-13.263	-6.254
	4	-8.755*	1.496	.000	-12.731	-4.778
3 (SCT)	1	23.550*	1.120	.000	20.572	26.528
	2	9.758*	1.318	.000	6.254	13.263
	4	1.004*	1.162	1.000	-2.085	4.092
4 (FPT)	1	22.546*	1.284	.000	19.133	25.960
	2	8.755*	1.496	.000	4.778	12.731
	3	-1.004	1.162	1.000	-4.092	2.085

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Appendix S: MANOVA Result for VLT

Effect		Value	<i>F</i>	Hypothesis df	Error df	Sig.	Partial Eta squared
VLT level	Pillai's Trace*	.155	2.655	16.000	1056.000	.000*	.039

a. The statistic is an upper bound on F that yields a lower bound on the significance level.

*Computed using alpha = **.05**

Appendix T. Post Hoc Tests Results for GJT (Bonferroni Adjustment)

Dependent Variable	VLT Level (I)	VLT Level (J)	Mean Difference (I- J)	Std. Error	Sig.	95% Interval	Confidence
						Lower bound	Upper Bound
GJT	2000	AWL	-2.11	2.785	1.000	-9.99	5.78
		3000	-5.07	2.627	.549	-12.50	2.37
		5000	-9.19*	2.644	.006*	-16.68	-1.71
		10000	-14.92	7.040	.350	-34.84	5.01
	AWL	2000	2.11	2.785	1.000	-5.78	9.99
		3000	-2.96	2.652	1.000	-10.47	4.55
		5000	-7.09	2.668	.084	-14.64	.47
		10000	-12.81	7.049	.703	-32.76	7.14
	3000	2000	5.07	2.627	.549	-2.37	12.50
		AWL	2.96	2.652	1.000	-4.55	10.47
		5000	-4.13	2.503	1.000	-11.22	2.96
		10000	-9.85	6.988	1.000	-29.63	9.93
	5000	2000	9.19*	2.644	.006*	1.71	16.68
		AWL	7.09	2.668	.084	-.47	14.64

	3000	4.13	2.503	1.000	-2.96	11.22
	10000	-5.72	6.994	1.000	-25.52	14.08
10000	2000	14.92	7.040	.350	-5.01	34.84
	AWL	12.81	7.049	.703	-7.14	32.76
	3000	9.85	6.988	1.000	-9.93	29.63
	5000	5.72	6.994	1.000	-14.08	25.52

Based on observed means.

The error term is Mean Square(Error) = 279.884.

*. The mean difference is significant at the **.05** level.

Appendix U. Post Hoc Tests Results for FBT (Bonferroni)

Dependent Variable	VLT Level (I)	VLT Level (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Interval	Confidence
						Lower bound	Upper Bound
FBT	2000	AWL	-6.09	3.548	.874	-16.13	3.96
		3000	-10.93*	3.347	.012*	-20.41	-1.46
		5000	-12.25*	3.368	.003*	-21.78	-2.72
		10000	-19.50	8.968	.306	-44.89	5.89
	AWL	2000	6.09	3.548	.874	-3.96	16.13
		3000	-4.85	3.379	1.000	-14.41	4.72
		5000	-6.16	3.399	.709	-15.79	3.46
		10000	-13.41	8.980	1.000	-38.83	12.01
	3000	2000	10.93*	3.347	.012*	1.46	20.41
		AWL	4.85	3.379	1.000	-4.72	14.41
		5000	-1.32	3.189	1.000	-10.35	7.71
		10000	-8.57	8.903	1.000	-33.77	16.63
	5000	2000	12.25*	3.368	.003*	2.72	21.78
		AWL	6.16	3.399	.709	-3.46	15.79
		3000	1.32	3.189	1.000	-7.71	10.35

	10000	-7.25	8.910	1.000	-32.47	17.97
10000	2000	19.50	8.968	.306	-5.89	44.89
	AWL	13.41	8.980	1.000	-12.01	38.83
	3000	8.57	8.903	1.000	-16.63	33.77
	5000	7.25	8.910	1.000	-17.97	32.47

Based on observed means.

The error term is Mean Square(Error) = 279.884.

*. The mean difference is significant at the **.05** level.

Appendix V. Post Hoc Tests Results for SCT (Bonferroni)

Dependent Variable	VLT Level (I)	VLT Level (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower bound	Upper Bound
SCT	2000	AWL	-1.56	2.427	1.000	-8.43	5.31
		3000	-5.98	2.290	.095	-12.46	.50
		5000	-7.82*	2.304	.008*	-14.34	-1.30
		10000	1.17	6.135	1.000	-16.20	18.53
	AWL	2000	1.56	2.427	1.000	-5.31	8.43
		3000	-4.42	2.311	.567	-10.97	2.12
		5000	-6.26	2.325	.075	-12.84	.32
		10000	2.72	6.143	1.000	-14.67	20.11
	3000	2000	5.98	2.290	.095	-.50	12.46
		AWL	4.42	2.311	.567	-2.12	10.97
		5000	-1.84	2.182	1.000	-8.01	4.34
		10000	7.15	6.090	1.000	-10.09	24.39
	5000	2000	7.82*	2.304	.008*	1.30	14.34
		AWL	6.26	2.325	.075	-.32	12.84
		3000	1.84	2.182	1.000	-4.34	8.01
		10000	8.99	6.095	1.000	-8.27	26.24
	10000	2000	-1.17	6.135	1.000	-18.53	16.20
		AWL	-2.72	6.143	1.000	-20.11	14.67
		3000	-7.15	6.090	1.000	-24.39	10.09
		5000	-8.99	6.095	1.000	-26.24	8.27

Based on observed means.

The error term is Mean Square(Error) = 279.884.

*. The mean difference is significant at the **.05** level.

Appendix Y. Post Hoc Tests Results for FPT (Bonferroni)

						95% Confidence Interval	
Dependent Variable	VLT Level (I)	VLT Level (J)	Mean Difference (I-J)	Std. Error	Sig.	Lower bound	Upper Bound
FPT	2000	AWL	-3.54	3.081	1.000	-12.26	5.18
		3000	-9.01*	2.906	.022*	-17.23	-.78
		5000	-7.39	2.924	.121	-15.67	.89
		10000	-13.25	7.787	.900	-35.29	8.79
	AWL	2000	3.54	3.081	1.000	-5.18	12.26
		3000	-5.46	2.934	.637	-13.77	2.84
		5000	-3.85	2.952	1.000	-12.20	4.51
		10000	-9.71	7.798	1.000	-31.78	12.37
	3000	2000	9.01*	2.906	.022*	.78	17.23
		AWL	5.46	2.934	.637	-2.84	13.77
		5000	1.62	2.769	1.000	-6.22	9.46
		10000	-4.24	7.730	1.000	-26.13	17.64
	5000	2000	7.39	2.924	.121	-.89	15.67
		AWL	3.85	2.952	1.000	-4.51	12.20
		3000	-1.62	2.769	1.000	-9.46	6.22
		10000	-5.86	7.737	1.000	-27.76	16.04
	10000	2000	13.25	7.787	.900	-8.79	35.29
		AWL	9.71	7.798	1.000	-12.37	31.78
		3000	4.24	7.730	1.000	-17.64	26.13
		5000	5.86	7.737	1.000	-16.04	27.76

Based on observed means.

The error term is Mean Square(Error) = 279.884.

*. The mean difference is significant at the .05 level.

Appendix Z. The distribution of verb complementation use in SCT

	Verbs	know						understand				remember					
	Items	Item 3 & 7		Item 12		Item 15		Item 13, 16 & 19		Item 6		Item 1		Item 5 & 10		Item 14	
	Patterns	wh-CL		zero that-CL		NP		wh-CL		that-CL		NP		V-ing		wh-CL	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
correct choice	expected	313	29.08	114	10.59	118	10.96	227	21.09	32	2.97	242	22.49	44	4.08	15	1.39
	different choice	99	9.20	130	12.08	100	9.29	286	26.57	212	19.70	24	2.23	408	37.91	214	19.88
incorrect choice		17	1.57	2	0.18	1	0.09	10	0.92	1	0.09	-	-	3	0.27	1	0.09
problematic		74	6.87	6	0.55	16	1.48	216	20.07	12	1.11	2	0.18	31	2.88	7	0.65
no answer		35	3.25	17	1.57	34	3.15	68	6.31	12	1.11	1	0.09	52	4.83	32	2.97
Total		538	50	269	25	269	25	807	75	269	25	269	25	538	50	269	25
TOTAL	N	1076						1076				1076					
	%	100						100				100					

	Verbs	regret								forget					
	Items	Item 2		Item 9		Item 11		Item 18		Item 4		Item 8		Item 17 & 20	
	Patterns	V-ing		wh-CL		NP		to-INF		PrepN		that-CL		to-INF	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
correct choice	expected	119	11.05	30	2.78	94	8.73	-	-	17	1.57	10	0.92	321	29.83
	different choice	56	5.20	147	13.66	95	8.82	128	11.89	199	18.49	194	18.02	114	10.59
incorrect choice		34	3.15	60	5.57	57	5.29	36	3.34	4	0.37	3	0.27	24	2.23

problematic		52	4.83	22	2.04	7	0.65	54	5.01	38	3.53	29	2.69	28	2.60
no answer		8	0.74	10	0.92	16	1.48	51	4.73	11	1.02	33	3.06	51	4.73
Total		269	25	269	25	269	25	269	25	269	25	269	25	538	50
TOTAL	N	1076								1076					
	%	100								100					

Appendix A1: The distribution of verb complementation patterns of *know* based on verb senses in FPT

Verb Sense	Information		Person		Skill		Else		Total	
Patterns	N	%	N	%	N	%	N	%	N	%
Phrase										
[NP]	89	20.45	135	31.03	10	2.29	1	0.22	235	54.02
[Prep N]	2	0.45	-	-	-	-	1	0.22	3	0.68
Clause										
[wh-CL]	61	14.02	2	0.45	-	-	-	-	63	14.48
[wh-to INF]	14	3.21	-	-	29	6.66	-	-	43	9.88
[Zerothat-CL]	33	7.58	-	-	-	-	-	-	33	7.58
[that-CL]	53	12.18	-	-	-	-	-	-	53	12.18
Null	5	1.14	-	-	-	-	-	-	5	1.14
TOTAL	257	59.08	137	31.49	39	8.96	2	0.45	435	100

Appendix A2: The distribution of verb complementation patterns of *understand* based on verb senses in FPT

Verb Sense	Comprehend		Know		Total	
Patterns	N	%	N	%	N	%
Phrase						
[NP]	252	57.93	-	-	252	57.93
[PrepN]	1	0.22	-	-	1	0.22
Clause						
[wh-CL]	133	30.57	-	-	133	30.57
[wh-to INF]	3	0.68	-	-	3	0.68
[zero that-CL]	5	1.14	1	0.22	6	1.37
[that-CL]	23	5.28	-	-	23	5.28
Null	16	3.67	1	0.22	17	3.90
TOTAL	433	99.54	2	0.45	435	100

Appendix A3: The distribution of verb complementation patterns of *regret* based on verb senses in FPT

Verb Sense	Feel sad (outside speaker's control)		Feel remorse for (entailing responsibility)		Total	
Patterns	N	%	N	%	N	%
Phrase						
[NP]	3	1.35	33	14.86	36	16.21
Clause						
[wh-CL]	-	-	26	11.71	26	11.71
[zero that-CL]	-	-	5	2.25	5	2.25
[that-CL]	1	0.45	25	11.26	26	11.71
[to-INF]	29	13.06	-	-	29	13.06
[V-ing]	-	-	100	45.04	100	45.04
TOTAL	33	14.86	189	85.13	222	100

Appendix A4: The distribution of verb complementation patterns of *remember* based on verb senses in FPT

Verb Sense	Person/Experience		Task		Total	
Patterns	N	%	N	%	N	%
Phrase						
[NP]	248	60.04	8	1.93	256	61.98
Clause						
[wh-CL]	43	10.41	-	-	43	10.41
[zero that-CL]	10	2.42	2	0.48	12	2.90
[that-CL]	18	4.35	5	1.21	23	5.56
[to-INF]	-	-	39	9.44	39	9.44
[V-ing]	31	7.50	-	-	31	7.50
[N V-ing]	1	0.24	-	-	1	0.24
Null	7	1.69	1	0.24	8	1.93
TOTAL	358	86.68	55	13.31	413	100

Appendix A5: The distribution of verb complementation patterns of *forget* based on verb senses in FPT

Verb Sense	Experience		Task		Dismiss		Total	
Patterns	N	%	N	%	N	%	N	%
Phrase								
[NP]	192	47.40	-	-	-	-	192	47.40
[PrepN	-	-	-	-	24	5.92	24	5.92
Clause								
[wh-CL]	36	8.88	-	-	-	-	36	8.88
[wh to-INF]	4	0.98	-	-	-	-	4	0.98
[zero that-CL]	1	0.24	-	-	-	-	1	0.24
[that-CL]	4	0.98	-	-	-	-	4	0.98
[to-INF]	-	-	115	28.39	-	-	115	28.39
[V-ing]	14	3.45	-	-	-	-	14	3.45
Null	15	3.70	-	-	-	-	15	3.70
TOTAL	266	65.67	115	28.39	24	5.92	405	100

Appendix A6: The incorrect verb complementation patterns used with regret

Type	Example	Frequency	
		SCT	FPT
about NP/V-ing/wh-CL	<i>I regret about what I did until today.</i> <i>I regret about being so rude.</i> <i>I regret about that decision I've made.</i>	59	21
for NP/V-ing/wh-CL	<i>I regret for the things I said.</i> <i>I regret for believing her.</i> <i>I regret for what I made in the past.</i> <i>I regret for not reading.</i>	79	33
of NP/V-ing/wh to-INF	<i>I regret of my comments.</i> <i>She regrets of changing the department.</i> <i>I don't regret of what to do in the past.</i>	7	3
from NP	<i>I don't regret from my decision at all.</i>	4	2
because of	<i>I regret because of what I did and said.</i> <i>I don't regret because of my words</i>	2	6
Total		151	65