Hacettepe University Graduate School of Social Sciences
Department of Foreign Language Teaching
English Language Teaching

A STUDY OF COGNITIVE TASK COMPLEXITY AND WRITTEN OUTPUT AT UPPER-INTERMEDATE LEARNERS OF ENGLISH

Didem SÜLÜKÇÜ

Master's Thesis

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KABUL VE ONAY

Didem SÜLÜKÇÜ tarafından hazırlanan "A Study of Cognitive Task Complexity and Written Output at Upper-Intermediate Learners of English" başlıklı bu çalışma, 01.03.2010 tarihinde yapılan savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından Yüksek Lisans Tezi olarak kabul edilmiştir.

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Yukarıdaki imzaların adı geçen öğretim üyelerine ait olduğunu onaylarım.

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01.03.2010

Didem SÜLÜKÇÜ

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ÖZET

SÜLÜKÇÜ, Didem. *Bilişsel Ödev Zorluğu ve Orta Seviye İngilizce Öğrencilerinin Yazılı Ürünleri Üzerine Bir Çalışma*, Yüksek Lisans Tezi, Ankara, 2010.

Bu çalışma, bilişsel ödev zorluğunun yazılı ürün üzerindeki etkilerini inceleyerek dikkat kaynaklarının kullanımına ilişkin yeteri düzeyde veri toplamayı amaçlamaktadır. Bu bağlamda, Robinson'ın Biliş Hipotezi (2001a) ile Skehan ve Foster'ın Sınırlı Dikkat Kapasitesi Modeli (2001) kıyaslanarak hangisinin akademik yazma çalışmalarında daha iyi bir öngörücü olduğu test edilir.

Bu çalışmada, Hacettepe Üniversitesi hazırlık sınıfında 2009-2010 akademik yılında Temel İngilizce dersi alan 40 orta düzey İnglizce öğrencisi yer almıştır. Araştırma doğrultusunda bir yazma ödevi değiştirilmiş ve bilişsel zorluk düzeyi açısından farklı 2 yazma ödevi elde edilmiştir. 40 öğrenciden 20'si bilişsel zorluk açısından daha kolay olan, diğer 20'si ise daha zor olan yazma ödevi için en az 150 kelimeden oluşan bir metin yazmışlardır.

Yazılan bu metinler, 5 farklı değişken göz önüne alınarak incelenmiştir: doğruluk, sözdizimsel zorluk, sözcüksel çeşitlilik, metin kalitesi, ve metin uzunluğu. Sonuçlar, bilişsel ödev zorluğunun metnin genel kalitesini önemli ölçüde etkilediğini, ve doğruluk üzerinde de ortaya çıkan metni neredeyse anlaşılmaz kılan hatalar açısından az da olsa bir etkisinin olduğunu ortaya çıkarmıştır. Fakat, ödevin tasarım aşamasında yapılan bu değişikliklerin sözdizimsel zorluk, sözcüksel çeşitlilik, ve metin uzunluğu açısından ortaya çıkan metinde bir fark yaratmadığı gözlenmiştir.

Araştırma bulgularına bakıldığında, ne Robinson'ın Biliş Hipotezi'nin (2001a) ne de Skehan ve Foster'ın Sınırlı Dikkat Kapasitesi Modeli'nin (2001) Türkiye'deki yabancı dilde yazma başarısına ilişkin iyi bir öngörücü olmadığı görülmüştür.

Fakat, bu çalışma kısmen küçük ölçekli ve kesitsel bir çalışma olduğu için, bahsedilen iki modeli tamamen reddetmek ya da yabancı dilde yazma başarısı adına temel bir ölçüt olarak kabul etmek için daha fazla araştırma bulgularına ihtiyaç vardır.

Anahtar Sözcükler: Yabancı Dilde Yazma, Bilişsel Ödev Zorluğu, Görev Temelli Öğretim.

ABSTRACT

SÜLÜKÇÜ, Didem. *A Study of Cognitive Task Complexity and Written Output at Upper-Intermediate Learners of English*, Master's Thesis, Ankara, 2010.

The present study targets at providing efficient data on the use of attentional resources through exploring the effects of cognitive task complexity on written output. In this respect, Robinson's Cognition Hypothesis (2001a) and Skehan and Foster's Limited Attentional Capacity Model (2001) are tested to see which one is a better predictor of academic writing performance.

In this study, 40 intermediate level preparatory learners of English who receive Basic English classes during 2009-2010 academic year at Hacettepe University were under investigation. For research purposes, a writing task was manipulated and two versions of the task which were different in terms of cognitive complexity level were assigned to the participants. Twenty students wrote a text of minimum 150 words for the easy version of the task whereas the other 20 students worked on the complex version on the task.

The produced texts were analyzed within the scope of five variables: accuracy, syntactic complexity, lexical variation, text quality, and text length. The results have revealed that cognitive task complexity has a significant effect on overall text quality and a slight impact on accuracy with regard to the serious errors which make the produced text almost incomprehensible. However, manipulations on task design do not result in a difference between easy and complex versions in terms of lexical variation, syntactic complexity, and the length of the produced text.

The research findings illustrated that neither Robinson's Cognition Hypothesis (2001a) nor Skehan and Foster's Limited Attentional Capacity Model (2001) is a

good predictor of achievement in foreign language writing in the context of learning English in Turkey. However, since the current study is a relatively small-scale and cross-sectional one, more research studies are required to totally reject or accept these models as benchmark for achievement in foreign language writing.

Keywords: Foreign Language Writing, Cognitive Task Complexity, Task-Based Language Teaching.

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CHAPTER I

INTRODUCTION

1.0 Introduction

Research on second language (SL) writing has gained impetus in the last two decades to the point that this offset has been regarded as a separate field of inquiry (Matsuda and De Pew, 2002; Silva and Brice, 2004). Specifically in task-based research, the issue is examined in terms of four major approaches that can be listed as Kuiken and Vedder (2007a) report: (i) a psychological, interactional approach emphasized strongly by Long (1985); (ii) a sociocultural approach represented by some researchers such as Swain (1998) and Lantolf (2000); (iii) a structure-focused approach (Loschky and Bley-Vroman, 1993; VanPatten, 1996), and (iv) a cognitive, information-theoretic approach (Skehan 2001, 2003). In the recent study, the last approach is examined since the main focus is on the cognitive processes and attentional resources used by learners during task completion.

Although the importance of tasks in foreign language learning and teaching has been recognized and the issue has been deepened with regard to how learners use their attentional resources while dealing with language tasks (Bygate, Skehan, and Swain, 2001; Ellis, 2003; Long and Crookes, 1992; Skehan, 2003), the focus on this topic has dominantly been in relevance to oral performances of the learners. Only a limited number of studies set sight specifically on the written performances of foreign language learners (Roca de Larios et al., 1999; Hamp-Lyons and Mathias, 1994; Kuiken and Vedder, 2008a, 2008b; Gökgöz and Atay, 2009). Therefore, the main aim of this study is to investigate Turkish EFL learners' use of their attentional resources and thus determine whether Robinson's (2001a) Cognition Hypothesis or Skehan and Foster's (2001)

Limited Attentional Capacity Model is a better predictor of academic writing performance of those language learners.

In this study, two writing tasks which are different only in terms of their cognitive complexity level were administered to the preparatory class students at Hacettepe University, School of Foreign Languages, Ankara so as to collect data. The written output obtained from the learners was analyzed and the findings were discussed later.

1.1 Background to the Study

Since the emergence of the task-based language pedagogy in the 1980s, tasks have held a central place in current second language acquisition (SLA) research and in language pedagogy. In a task-based syllabus, pedagogic tasks should be sequenced to increasingly approximate the demands of real-world target tasks (Robinson, 2005). The gravity of the research on task-based learning in SLA is eminent in a number of publications related to task-based learning, teaching, and testing (Bygate, Skehan, & Swain, 2001; Ellis, 2003; Long & Crookes, 1992; Skehan, 2003).

A cardinal issue in task-based language learning concerns the impact of task complexity on linguistic performance. There have been a number of studies concerning task complexity (for an overview, see Robinson 2001a); however, most of them have focused on oral language production. There have only been a few studies questioning how the complexity of a writing task might influence the quality of the text resulting from this task (Gökgöz & Atay, 2009; Hamp-Lyons & Mathias, 1994; Kuiken and Vedder, 2007a, 2007b, 2008a, 2008b). In a study by Hamp-Lyons and Mathias (1994) on the judgments of task difficulty in relation to test scores in ESL writing, it was shown that while the data confirmed the strength of the predicted relationship between task type and performance, their direction was the reverse of what had been predicted: contradicting the common expectation that expository and personal prompts would be the

easiest, they turned out to be associated with the lowest writing scores, while argumentative and public prompts were associated with the highest scores. One of the explanations of the authors was that students, when a cognitively more difficult writing task is assigned, are stimulated to reach higher with their writing abilities than in case of a cognitively less difficult task. Another study by Kuiken and Vedder (2008a) regarding the impact of task complexity on written output revealed that task complexity resulted in greater accuracy, but not in greater syntactic complexity or lexical variation.

In the literature, there are some models which have an attempt to explain this relationship between writing performance and cognitive task complexity from different aspects. One of them is Skehan and Foster's *Limited Attentional Capacity Model* (Skehan, 1998a; Skehan & Foster, 2001) and the other is *Cognition Hypothesis* by Robinson (2001a, 2005). The common point of the two models is the essential role of attention and how attentional resources are used during task completion. However, there is an important difference between the two with regard to their predictions of the effect of increasing task complexity on linguistic performance.

Skehan and Foster (2001) ascertain task complexity as the amount of attention the task requires from the learners. In their Limited Attentional Capacity Model, they assume that attentional resources are limited, and thus, increasing the complexity of tasks and their multiple components reduces learners' available attention capacity. As their attentional limits are reached, learners will "prioritize processing for meaning over processing language form" (Kuiken & Vedder, 2008a: 50). Namely, cognitively more complex tasks direct learners' attention to context and divert attention away from form; thus, paying all the attention to just one aspect of performance may well mean that other dimensions suffer, and since a learner's processing capacity is limited, the prioritization of one aspect will hinder development in the other areas. To sum up, the major argument of the Limited Attentional Capacity Model is that an increase in the cognitive complexity level of the task will lead learners to pay attention first to the content

of the task. As a result, the syntactic complexity and accuracy of the linguistic output will decrease. For instance, in another study conducted by Roca de Larios et al. (1999), it was elucidated that foreign language learners, when given limited time to write a text, mainly devote their attentional resources to transform ideas and intentions into language. This means that plenty of language processing must take place while trying to get a text on the page and this language processing is considered to be essential in promoting language development (Editorial, 2008).

On the other hand, in Cognition Hypothesis, also known as Multiple Attentional Resources Model or Triadic Componential Framework, Robinson (2001a, 2005, 2007) claims that if dimensions of cognitive task complexity belong to various attentional resources, then any increase in task complexity does not result in a decrease in the quality of the linguistic output, but instead, it leads to higher structural complexity and greater accuracy of the output. Inspired from the information-processing theories (Schmidt, 2001), Robinson (2001) puts forward, contrary to Skehan and Foster (2001), that learners can make use of multiple and non-competitional attentional resources. Cognition Hypothesis stresses that "cognitively more demanding tasks, for the completion of which more attention is needed" are considered to result in more awareness and integration of forms that are salient in the input (Kuiken, Vedder, 2008a:50). As a consequence, increasing task complexity is thought to trigger greater linguistic complexity and higher accuracy in order to meet the greater functional demands they put on the learner. In this regard, the study of Kuiken and Vedder (2008a) mentioned earlier is considered to partly supporting Robinson's Cognition Hypothesis since it has been proven that there is a strong and positive correlation between task complexity and accuracy.

At this point, it is clear that there are contradictory views concerning the role and the influence of attentional resources in cognitively complex tasks. On one hand, Robinson (2001a) asserts that manipulations in the cognitive task complexity lead to simultaneous improvement in the complexity and the

accuracy of the linguistic output since learners can simultaneously make us of multiple and non-competitional attentional resources. Gilabert (2007) also states that the increase in the cognitive demands of tasks may direct learners' attentional resources to language form, and input may be processed more deeply and elaborately. On the other hand, Skehan and Foster (2001) insistently emphasize that learners will prioritize either form or meaning since complexity and accuracy are in competition with each other.

What these studies reveal is that the role of attentional resources in SLA concerning various task demands is still controversial and in need of more research so as to determine whether single-resource or multi-resource models of attention are more likely to predict L2 performance, especially with respect to written performance in the target language.

1.2 Statement of the Problem

Writing has always been at the core of controversies among language teachers and researchers due to the ambiguity concerning how to teach and assess it. Especially in foreign language learning (FLL) contexts, such as Turkey, the issue is much more crucial. Since students have limited or no chance to use the target language outside the classroom, writing turns out to be an important part of language learning process since it reveals students' L2 performance from different aspects such as grammar, vocabulary, punctuation, formatting, etc. It is also highly important due to the fact that it is more suitable for objective evaluation of L2 performance compared to other skills. However, this preference for putting emphasis on writing skill in foreign language (FL) contexts also brings together some problems concerning the choice of the writing task and its complexity level. Most of the time, teachers have difficulty in determining the type and the complexity level of the tasks since they are not sure whether complex tasks have an encouraging or discouraging effect on the learners. Hence, language teachers are in need of getting solid and reliable research findings which will help them choose proper tasks at appropriate

complexity level and thus increase their students' potential in written L2 performance.

For the reasons mentioned above and due to the fact that FL writing research studies are quite limited compared to those in SL writing research, it is necessary that more scientific studies be carried out in FL contexts and foreign language teachers should be informed about how effectively they can teach FL writing and make use of writing tasks that are appropriate in terms of their complexity level. Hence, within the framework of the recent study, the problem of determining the appropriate complexity level of the writing tasks and organizing the task demands considering its effects on lexical variation, syntactic complexity and accuracy is aimed to be handled. Only in this way, teachers can arrange their writing courses properly and make their students get maximum benefit from the writing experience.

1.3 Purpose of the Study

This study, drawing on the ideas associated with cognitive task complexity, aims to contribute to understanding foreign language learners' use of attentional resources and determine whether Robinson's Cognition Hypothesis (2001a) or Skehan and Foster's Limited Attentional Capacity Model (2001) is a better predictor of academic writing performance of the intermediate preparatory learners of English at Hacettepe University, School of Foreign Languages.

By means of exploring the effects of task complexity on written output, the study targets at providing efficient data on these effects. Focusing specifically upon the effects of complexity level on the written performance in terms of five major dimensions -namely accuracy, syntactic complexity, lexical variation, text quality, and text length- the researcher is in an effort to reveal real task effects and thus to come up with some sort of evidence for the validity of either model mentioned above. The researcher believes that this study will have a pioneering role in the specific field of foreign language writing in the context of Turkey and

inspire other researchers to elaborate on this topic to design more proper and effective writing courses for Turkish learners of English.

1.4 Significance of the Problem

This study was designed in a way to put an “asset” skill in language learning and teaching process and a strong language teaching method in a melting pot: writing and task-based instruction. If it is a foreign language learning and teaching context, then the importance of this combination increases.

Task-based language instruction is particularly striking in the sense that it is in close relationship on the one hand with substantial “research activity” and “active pedagogic investigation and materials preparation” on the other (Wesche and Skehan, 2002: 218). Writing, on the other hand, is a problematic area since there are many questions in language practitioners’ minds such as “What is good writing? How can we teach good writing?” or even “Can good writing be taught, particularly by an L2 writing teacher?” (Leki, 2002: 61). These questions and similar others have profound implications and go on to be at the core of intellectual and disciplinary discussions about L2 writing research. Therefore, the current study is hotshot with regard to its research focus. Since task-based instruction is the essence of the study under investigation and it is adapted to the foreign language writing context, it is at the uppermost importance.

Undoubtedly, the facts that the number of research studies handled similar topics is rare and especially there is no such a study conducted in Turkey with Turkish learners of English which examines the effects of task manipulations in terms of five dimensions mentioned above (Gökgöz and Atay (2009) just focused on two dimensions, to be discussed in the next chapter) are strong motives for initiating the current study and make it special among the others.

1.5 Research Questions

The hypotheses given below will form the framework of the study under investigation. In order to be able to reveal the validity of the study and the solidity of the statistical findings, the research questions listed below are to be answered and it is to be shown whether the hypotheses above have been proven to be true or not:

1. What is the effect of manipulating cognitive task complexity on accuracy, syntactic complexity, and lexical variation of learners' written output?

2. What is the effect of manipulating cognitive task complexity on text quality and text length?

3. Is Robinson's Cognition Hypothesis or Skehan and Foster's Limited Attentional Capacity Model a better of predictor of achievement in foreign language writing?

1.6 Hypotheses

The present study draws mainly upon the primary premises to be mentioned below through which the current research is designed and carried out. Basically, the hypotheses of this study can be tabulated as follows:

1. The manipulations in the cognitive task complexity lead to greater syntactic complexity, more lexical variation, and greater accuracy in the written output.

2. Cognitive task complexity pushes learners to show better quality written performance and produce longer texts compared to the easy tasks.

3. Robinson's (2001a) Cognition Hypothesis is a better predictor of student achievement in foreign language writing.

1.7 Method

The subjects in the current study are preparatory EFL learners at Hacettepe University, School of Foreign Languages, English Preparatory Unit, who receive Basic English classes during 2009-2010 academic year. There are two experimental groups in the study. Namely, 40 preparatory intermediate level English learners at Hacettepe University are under investigation for research purposes.

Two writing tasks are used in this study. Although there is just one writing task on choosing a holiday destination in Italy, there occur two versions of the same task which differ in terms of their cognitive complexity levels. The participants in the study are asked to write two argumentative letters in which the writers have to convince a friend regarding the choice of a holiday destination out of five possibilities. However, while participants are expected to just choose one of the destinations in the task sheet and convince a friend in the easy version, the complex version of the task requires learners to take into consideration a varying number of criteria for their choice such as the presence of a garden, a quiet location, the proximity to the city center, the possibility of doing physical exercise, swimming facilities, and availability of breakfast. Since students are intermediate level learners of English, the complexity level of the task is determined to be B1 level according to the writing criteria in Common European Framework (see Appendix 1), which requires learners to be able to write simple connected text on topics which are familiar or of personal interest. In order to be able determine this level as the appropriate one for the participants, the researcher negotiated with Brad Horn, who is the English Language Officer at the U.S. Embassy in Ankara, Turkey.

The collected data are analyzed statistically according to pedagogical concerns as the evaluation of students' written performances has contributory factors in the language learning and teaching process. These written texts are analyzed by using appropriate statistical tools to see whether the results belonging to the two versions of the tasks have significant difference or not.

Since the aim is to see whether cognitive task complexity has an effect on accuracy, syntactic complexity, lexical variation, text quality, and text length, there are different measurement tools to be used for these purposes. In order to reveal the influences on accuracy, the number of errors per T-unit is calculated. To determine the effects of manipulation on syntactic complexity, the number of clauses per T-unit is found. So as to see the effects of task complexity on lexical variation, sophisticated word type ratio is used which calculates the ratio of sophisticated words -not belonging to the 1000 most frequently used words (Fry, Kress and Fountoukidis, 2000)- to the overall number of words. Furthermore, while a holistic rubric is used for measuring the effects of manipulation on overall quality of the written texts, total numbers of words for each texts are considered in order to see the effects on text length.

1.8 Limitations and Assumptions

There are a number of limitations that might affect the validity of the results in this study. The main limitation of the study is that there are short explanations about the hotels in the tasks on the task sheet, and majority of the words used there are among the 1000 frequently used English words (Fry, Kress & Fountoukidis, 2000) which are used to measure the lexical variation of students' written performances. If students tend to copy certain phrases from the task sheet and write their own text by directly using these expressions, then the reliability of the lexical variation measurement tool might be in danger.

In addition, the choice of target task may also be considered as a limitation. The writing task in the current study is related to finding an appropriate holiday destination. Although it seems as a moderate topic that each student can write about, some of them may not like the topic and this unwillingness may negatively affect the written output and thus the validity of the study. It is a common limitation of task-based instruction in which student needs, interests and preferences play an important role during task completion.

Another limitation is that participants in the study have varying years of English study ranging from seven years to eleven years. Therefore, even if they are classified as intermediate learners of English according to the proficiency exam hold by Hacettepe University, School of Foreign Languages, their writing capacity and preferences in writing may be different due to their English study background. This, in return, may affect homogeneity of the experimental groups.

On the other hand, although they are labeled as “intermediate” learners of English, since it is the beginning of the semester and thus their exposure to writing instruction is quite limited, the written outputs obtained at the end of the implementation may not reflect a proper intermediate level of writing and it might not completely be in accordance with the criteria determined by European Language Portfolio. By the way, since some of the students find these kind of writing activities unnecessary and boring -although they assert that they are volunteers before the activity is conducted-, and some of them may prefer to complete the task negligibly and thus their writing does not show their real writing competence. Their written outcome become bad in quality due to this negligence and this may, in return, affect the reliability of the results.

Finally, since convenience sampling method is applied for choosing experimental groups, only 40 participants from a single institution are included in the study, which may not represent a large scale of learners and may not be generalized to larger populations.

1.9 Conclusion

The issue of how learners’ attentional resources are allocated during task completion is central in any model of task complexity. As discussed earlier, Skehan and Foster (2001) argue, taking a single-source view of attention as reference, that learners have only limited attentional capacity during language processing, which becomes remarkably influential in their attempt to map form-

meaning relationships. On the other hand, Robinson (2001a) hypothesizes that form and meaning need not necessarily be in competition for attention since learners may be drawing on distinct pools of attentional resources relative to different aspects of task demands.

In conclusion, this study is an attempt to investigate the ways that students make us of their attentional resources during task completion. Two different models, Cognition Hypothesis and Limited Attentional Capacity Model, are tested so as to see their effectiveness in explaining the process of fulfilling task demands. As a result, the effects of cognitive task complexity on written output is examined, whose results are evaluated in order to improve students' academic writing skills and to lead researchers for further studies related to the issue.

1.10 Definitions of Terms

In the current study, a variety of terms are used to discuss the issue of cognitive task complexity and its effects on the written output in foreign language writing. So as to provide a smooth understanding of the issue, the definitions of some terms that are frequently used throughout the study will be needed. Below are the definitions of these terms:

Foreign Language: Foreign language is the language which is studied in an environment where it is not the primary means for daily interaction and exposure to that language is very limited (i.e. people learning English in Turkey)

Foreign Language Writing: In fact, foreign language writing stands for the practices of writing skill in foreign language learning/teaching contexts. However, in the literature, it is interchangeably used with second language writing. In the current study, it is also used interchangeably with second language writing.

Second Language Writing: Second language writing is the name usually given to the study of writing performed by non-native speakers/writers of a language in an environment where the language is the primary means for communication. It has the capacity to produce theoretically robust knowledge that can be useful in improving L2 learning in diverse settings (Editorial, 2008).

Task: Skehan (1998b) states that a task is an activity which promotes learning by challenging not by threatening and also it should include language use during the completion of the activity (i.e. the task).

Task-Based Language Learning: Breen (1987: 23) defines it as "any structured language learning endeavor which has a particular objective, appropriate content, a specific working procedure, and a range of outcomes for those who undertake the task".

Task-Based Instruction/Task-Based Language Teaching: It places the task centrally, as the unit of syllabus design with language use, during a language learning activity as the driving force for language development (Wesche and Skehan, 2002).

Task Complexity: According to Robinson (2001a), it refers to the "task dependent and proactively manipulable cognitive demands" (p.287). He asserts that it explains "within learner variation" in performance on any two tasks.

Task Difficulty: Different from task complexity, it is related to learners' perceptions of the demands of a task and these perceptions are "determined by affective factors (such as motivation to complete the task) and ability factors like aptitude" (Robinson, 2001a: 295).

Cognition Hypothesis: Known also as Multiple Attentional Resources Model or Triadic Componential Framework (Robinson, 2001a; 2005; 2007), it claims that dimensions of cognitive task complexity belong to various attentional resources;

therefore, any increase in task complexity result in higher structural complexity and greater accuracy of the output.

Limited Attentional Capacity Model: Attentional resources are limited; thus, more complex tasks direct learners' attention to context and divert attention away from form. Namely, paying all the attention to just one aspect of performance may well mean that other dimensions suffer (Kuiken & Vedder, 2008a).

Focus on Form: In Long (2000), focus on form is associated with how attentional resources are allocated and drawing students' attention to linguistic elements in context as they occur incidentally in lessons whose main focus is on meaning or communication. "The temporary shifts in focal attention are triggered by students' problems with comprehension or production" (p.185).

T-Unit: In a similar study, Kuiken and Vedder (2007b) define it as an independent clause and all its attached or embedded dependent clauses. However, in the current study, each T-unit refers to a written text produced by the students for either easy or complex writing task assigned for the research purposes because the data analysis is made by considering the produced texts as a whole, not at the sentence level.

Main Clause: Known also as independent clause, it stands for the grammatical structure which contains a subject and a verb and can stand on its own (Kuiken & Vedder, 2007b).

E.g. <u>It is apparent</u> that he is lying.

Subordinate Clause: Known also as dependent clause, it is introduced by conjunctions in complex sentences in addition to the main clause. When the main clause is removed from a sentence, then the subordinate clause cannot stand on its own (Demirezen, 1993).

E.g. She always bores me when she starts to talk.

CHAPTER II

REVIEW OF LITERATURE

2.0 Introduction

Language teaching has turned out to be a standing profession since the beginning of the twentieth century (Richards and Rogers, 2001) and thus educators have started to seek ways of easing and improving this dual process both for themselves as practitioners and for the learners who are directly affected by language teaching practices. Applied linguists -who are interested in both the theoretical frameworks behind and the pedagogical implications of certain language teaching preferences- and even classroom teachers -whose aim is just to make any language learning activity easier for their students and to make their students get maximum benefit from this limited target language exposure- are in an attempt to create much more meaningful and real-like language learning environments for language learners.

At this point, the concepts of “method” and “technique” have gained importance since the most powerful way of bettering education is to make some changes and adaptations concerning the teaching practices. Although a number of methods have been proposed and numerous techniques belonging to these methods have been designed so far, today everybody has agreed that language learning and teaching process and the environment in which it is carried out cannot be separated from the world outside and thus the practices used for the purpose of teaching should be a reflection of real-world practices that people deal with in their daily lives. As a result, some of the methods have come to the forefront and appreciated because of their close ties with real-world activities. By the same token, one of these prominent methods, task-based language teaching/instruction is used as a framework in the current study since real-like writing tasks are the core elements of this research study.

In this chapter, task-based language teaching and the place of tasks in language teaching are covered in detail. Since the current study is on foreign language writing tasks and the key factor under investigation is cognitive task complexity; the issue of task complexity is reviewed from a pedagogical and theoretical perspective, and also its disparity from task difficulty is emphasized. Moreover; in order to explain the underlying relationship between task complexity and written output, two models concerning the use of attentional resources during task completion -Robinson's (2001a) Cognition Hypothesis or Skehan and Foster's (2001) Limited Attentional Capacity Model- are explained and compared specifically in relation to the written performance of language learners.

2.1 Task-Based Language Teaching

In recent years, many researchers, syllabus designers, and educationalists have called for a tendency in language teaching towards task-based approaches to language instruction (Nunan, 1989; Long and Crookes, 1992; Crookes and Gass, 1993); however, there is still controversy concerning the implementation of task-based instruction into the real classroom situations. In general, Task-Based Language Teaching (hereafter TBLT), also known as Task-Based Instruction (hereafter TBI), refers to a language teaching method which aims at providing a natural context for language use via language tasks (Larsen-Freeman, 2000). Some of its proponents (e.g., Willis, 1996) claim that it is a logical development of Communicative Language Teaching because of the similar principles in the two methods as given below:

- Activities including real communication are crucial for language learning.
- Activities which require language use for the completion of meaningful tasks promote language learning.
- If the language used for task completion is meaningful for the learner, then this creates a positive atmosphere for learning (Richards and Rogers, 2001).

Richards and Rogers propose that “the use of tasks as the core unit of planning and instruction in language teaching” is the underlying principle of TBLT (2001: 223). However, up to now, researchers have not agreed on a single definition concerning what a task is. Therefore, it is helpful to examine here some preliminary issues related to the concept of “task” itself.

Although there are numerous definitions concerning the structure of a task (see Nunan, 1989), for the purposes of the current study, a task is regarded as an “activity in which meaning is primary, there is some sort of relationship to real world, task completion has some priority, and the assessment of task performance is in terms of task outcome” (Skehan, 1996). Task, in this view, assumed as having relevance with a range of “work plans that have the overall purpose of facilitating language learning” (Wesche and Skehan, 2002: 217) and the sequence of numerous related components from a simple exercise type to the more complex and lengthy activities such as problem solving, simulations, or decision-making.

One may think that classrooms are just classrooms, so it is impossible to create real-world tasks in such a restricted environment. Even if it is partly true, at least providing some real-like tasks which will help learners use the target language for real-like purposes is possible and achievable. First of all, teachers need to know that a good task should be, in a way, related to real life and different from a simple transformation activity. That is, a task which requires “personal information to be exchanged, or a problem to be solved, or a collective judgment to be made bears a relationship to things that happen outside the classroom in a way” (Skehan, 1996: 38), and this feature differentiates these activities from doing, for example, a simple transformation activity. Murphy (2003) states that language tasks may be selected and conducted so as to achieve particular pedagogic outcomes. Therefore, the task designer’s role is to choose tasks that canalize attention towards desired pedagogic outcome. At this respect, it can be asserted that these tasks occupy a central role between teachers, learners, and learning outcome (Skehan and Foster, 2001). That is

why advocates of TBLT propose that if task is seen as the main unit of language development, then the task as a whole (not the structures it includes) should be regarded as the “building blocks” lying under this pedagogy (Wesche and Skehan, 2002: 219).

In general, there are three main approaches which look at TBLT from slightly different perspectives in terms of pedagogy. The first one is advocated by Samuda (2001) who proposes that language teachers should not insist on the use of very convincing tasks so as to focus on a particular structure, but instead they should notice that it is the teacher’s skill that turns any language task into a rich resource which s/he can exploit in an opportunistic manner in order to provide openings for students to work on that specific structure. Namely, she asserts that it is the teacher that makes a language task meaningful and effective for learners to acquire a specific knowledge or skill, not the task itself.

Another view concerning the applications of TBLT comes from Long (1989) which can also be described as a task-driven perspective. In line with his “interactionist” theory of L2 development, Long (1989) assigns an extra role for language tasks: tasks should promote interaction. Only in this way, he believes, an environment pushing learners to negotiate for meaning is created and this negotiation, in turn, generates focus on the form and also feedback which students require for progress.

Final perspective is put forward by Skehan and Foster (2001) who take a more cognitive approach to TBLT and emphasize the importance of task choice and the task conditions in which a task is to be completed. Having some similarities with the views of Long (1989), they believe that teachers should regularly draw upon the findings from the task literature so that they keep up with the recent trends concerning the choice of task and task conditions in order to maximize the chances of pedagogically desired level of progress. They claim that the task itself is crucially important since it is the only vehicle which leads to restructuring and interlanguage change during language learning process. This view is also

supported with the studies of Robinson (2001a, 2005) who emphasizes the importance of task choice and task conditions and asserts that they are the most powerful vehicles affecting students' achievement in language production. Both Long (1989) and Skehan and Foster (2001) think that units of analysis in TBLT should be "pedagogic tasks or gradual approximations to real world target tasks" (Robinson, 2001a: 289) such as serving meals on a restaurant, finding a reference book in the library, or taking part in a sports discussion. Achievement in the TBLT is therefore performance, not system-referenced and it is based on whether and to what degree learners can successfully perform the pedagogic and target tasks that are the focus of instruction (Robinson, 2001a).

Considering the three approaches mentioned here, it is clear that "a realization that focus on form by learners cannot be guaranteed but has to be designed into TBLT is an important pointer to feature developments" (Wesche and Skehan, 2002: 220). In the current study, a cognitive approach in TBLT which is strongly advocated by Skehan and Foster (2001) and Robinson (2001a, 2005) is taken as a reference and how cognitive task factors influence the written performance of L2 learners is investigated.

2.2 Task Complexity and Its Cognitive Dimensions

In the cognitive, information-theoretic approach to TBLT (Skehan, 2001, 2003; Robinson, 2001a, 2001b), decisions about sequencing based on the relative complexity of pedagogic task content are key elements in the delivery of task-based instruction (Robinson, 2001a). For this reason, one of the key constructs of the cognitive perspective in TBLT is cognitive task complexity, which stands for "the amount of cognitive processing that is needed to perform a task" (Michel, Kuiken, and Vedder, 2007). In that sense, task complexity refers to the intrinsic cognitive demands of a task which can be manipulated during task design (Robinson, 2003). It may also be interpreted as the result of the attentional, memory, reasoning, and other information processing demands

imposed by the task structure on the part of the language learner (Robinson, 2001b).

According to Robinson (2001a, 2007), cognitive task complexity has two dimensions by taking cognitive factors into account. The first one is called as "resource-directing" whereas the second dimension is named as "resource-dispersing" as given in Table 2.2.1 below:

Table 2.2.1 Dimensions of Task Complexity

Task Complexity (cognitive factors)	
Resource-directing	Resource-dispersing/depleting
+/- few elements	+/- planning time
+/- here-and-now	+/- single task
+/- no reasoning demands	+/- prior knowledge

Taken from Robinson, 2001a

These dimensions of complexity are design features of language tasks and their implementation, which can be manipulated to increase or decrease the cognitive demands that tasks impose on the learner during task performance (Robinson, 2007). The first element in resource-directing dimensions is *+/- few elements* which refers to the presence of few (+ few elements) or many (- few elements) elements to be described or distinguished in a given task. Namely, if there are just few elements to be considered during task completion, this task is relatively less consuming of attentional, memory, and reasoning resources and thus simpler than the one requiring many elements to be taken into account (Robinson, 2001a). There are some studies carried out by Kuiken and Vedder (2007b, 2008a) which partially include the manipulations in the dimension *+/- few elements* on the L2 written performance (which will be later discussed in detail in this chapter) and it has been revealed that manipulations in this dimension along with planning time and reasoning demands resulted in more

accurate written output, but there is not any significant result with regard to syntactic complexity and lexical variation.

Another construct in resource-directing dimensions is specified as *+/- here-and-now* features. These features reflect whether the task is requiring a simple description of events happening now and in a shared context (+ here-and-now) or the events in the given task took place in the past and in an unknown or unfamiliar context (- here-and-now), which is also called as “there-and-then” (Gilabert, 2007:51). That is to say, if a task requires the description of events or situations in the present time, it requires the use of less attentional resources on the part of the learners to complete the task whereas the reverse pushes learners to pay much more attention to the given task and makes it more complex compared to the first one (Robinson, 2001a). Although there is no study specifically on the effects of manipulations in here-and-now features on the written L2 performance, there are some studies investigating its effects on oral production. In a study on narratives, Robinson (1995) manipulated the here-and-now feature of a task and asked one group of learners to narrate a comic strip in the present tense while looking at it whereas the second group was asked to complete the task in past tense without looking at the strip. The results elicited that the here-and-now condition led to more accurate speech, more lexical complexity, less fluency, and no significant result for syntactic complexity compared to the there-and-then version of the task. A similar study by Rahimpour (1997) also aimed at identifying the effects of manipulation in here-and now feature on the oral production and came up with the results that complex version of the task (there-and-then) resulted in less fluent and lexically less varied, but more accurate oral production. Again no significant result was found concerning structural complexity.

The final feature within the resource-directing dimensions is *+/- no reasoning demands*, which stands for the presence (- no reasoning demands) or absence (+ no reasoning demands) of reasoning demands during task completion (Robinson, 2001a). It means that if a task requires the use of reasoning so as to

support the statements used in the task completion, this kind of tasks are regarded as necessitating more attentional resources to be used and seen as a cognitively more complex task when compared to the ones which do not need the use of supporting statements through reasoning. In the related literature, there are some studies conducted by Kuiken and Vedder (2007b, 2008a) on the manipulations in reasoning demands together with the manipulations in the dimensions +/- few elements and planning time (to be discussed later in this chapter) which unearthed that manipulations in this dimension along with planning time and few elements led to more accurate written output, but there is not any significant result concerning syntactic complexity and lexical variation.

In a more recent study, Robinson (2007) has enlarged the resource-directing dimensions and added +/- perspective taking and replaces, and divided +/- no reasoning demands by a distinction among three kinds of reasoning: +/- spatial reasoning, +/- causal reasoning and +/- intentional reasoning. However, the first three distinctive dimensions mentioned above are still regarded as the key elements concerning cognitive factors of resource-directing variables and have been used as a framework even after the addition of the new variables (Kuiken and Vedder, 2008a).

On the other hand, tasks can be increased or decreased in cognitive complexity through resource-dispersing/depleting variables such as *+/- planning time, +/- single task, and +/- prior knowledge*. The dimension *+/- planning time* refers to the absence (- planning time) or the presence (+ planning time) of planning time before task performance. That is to say, if learners are given planning time before they start to work on the task, this makes the task easier for learners to complete; however, if there is not any planning time before the task, then learners force themselves to use more attentional resources during task completion and this makes the task more complex for them (Robinson, 2001a). Research evidence gathered so far has shown that giving extended planning time before task performance seems to have beneficial impacts on fluency and complexity, but it is not so clear for accuracy. For instance, in a study on the

effects of planned discourse on the oral and written production, Ellis (1987) found out that increased planning time leads to higher accuracy of rule-based language (more specifically, past tense forms of the regular verbs in that study) while unplanned discourse is more lexically varied. Namely, giving planning time leads learners to avoid problematic forms and narrow their productive repertoire to "tried and trusted forms during planning phase" (Robinson, 2001b: 37). On the other hand, in another study on oral L2 production, Foster and Skehan (1996) have shown that planning time contributes learners to produce more fluent speeches including more complex structures. However, they have also expressed that there are "trade-off" effects between complexity and accuracy particularly with narrative tasks since accuracy suffers from the amount of attention devoted to complexity in this kinds of tasks.

Another feature in resource dispersing/depleting dimensions is *+/- single task* which stands for whether a single or dual task will be completed during task performance. Robinson (2001a) believes that if there is just a single task to be achieved in a given language task, this is comparatively simpler and easier than the one including two or more tasks to be accomplished within a given language task. In a study of Robinson and Lim (1993), students were asked to describe a route orally to a partner. In the single task condition, speakers were required to give directions from point A to B on a map to a partner and the route was marked on the map for the speaker. However, in the dual task condition, the route was not marked which pushed speaker to think up the route first and then describe it to the partner. At the end of the study, no significant results were found concerning accuracy and syntactic complexity; however, the route-not-marked map task was less fluent than on the route-marked task. There is not any research study aiming at the effects of manipulating the dimension *+/- single task* on L2 written output; however, in the current study under investigation, this feature is also manipulated together with other dimensions.

The last dimension included in the resource-dispersing/depleting features is *+/- prior knowledge* which refers to be provided with some prior knowledge related

to either content or form of the task or to be familiar with the content or the form of the task. The facilitating effect of *+/- prior knowledge* on task performance has received support from the researchers studying on L1 and L2 speech production. As an example, Good and Butterworth (1980) found that prior knowledge of a route (of a familiar route) resulted in significantly more fluent L1 speech production on a route description task than no prior knowledge (describing an unfamiliar route). Similarly, in a small-scale study of six Taiwanese learners of English, Chang (1999) has noticed that a single task including task familiarity led to significantly greater fluency in L2 speech production, but no significant effect was observed on accuracy. By the way, similar to resource-directing dimensions, a few features have also been added to resource-dispersing/depleting dimensions in a recent study by Robinson (2007) which are +/- task structure, +/- few steps, and +/- independency of steps. In fact, these are the extended and more detailed versions of the previous classification.

In summary, both resource directing and dispersing/depleting dimensions related to cognitive factors are just one part of a larger classification within the Triadic Componential Framework of Robinson (2001a, 2007) concerning task influences on second language acquisition, which will be discussed later in this chapter.

2.2.1 Task Complexity versus Task Difficulty

One of the key factors that should be taken into account during sequencing and grading language tasks is *task difficulty* which is often confused with *task complexity*. Although both are the parts of the triadic framework proposed by Robinson (Robinson and Gilabert, 2007), they have distinctive features contributing to task classification. Different from the task complexity which is related to cognitive factors, task difficulty stands for the learner factors involved in task performance (Robinson and Gilabert, 2007). Therefore, one should agree that the term “difficulty” is used to describe the effects of affective and

ability variables on task performance whereas the term “complexity” refers to the contribution of independently defined task factors to differences in task performance (Robinson, 1996). For instance, affective factors such as motivation and confidence may differ on a daily basis and make the same task more or less difficult for the learner. However, independently defined task factors such as the cognitive dimensions of task complexity mentioned previously are “intrinsic and permanent features of task design” (Robinson, 1996: 3). In this respect, task complexity may be seen as a more stable and durable predictor of task performance.

Furthermore, task difficulty concerns learners’ perceptions of the demands of the task and it is dependent on the differences between learners in the ability factors such as aptitude, working memory and affective variables (e.g. anxiety, confidence, motivation, etc.) which differentiate them from each other (Robinson, 2003). That is to say, for a learner high in aptitude or working memory capacity, the same task may be easier than a learner low in both of them, and thus it contributes to the task difficulty perceived by participants.

In a study on second language learning and performance, Robinson and Gilabert (2007) have proposed a framework in which task difficulty is divided into two main groups as given in Table 2.2.1.1 below:

Table 2.2.1.1 Dimensions of Task Difficulty

Task Difficulty	
Ability variables and task-relevant resource differentials	*Affective variables and task-relevant state-trait differentials*
working memory	openness to experience
reasoning	control of emotion
task-switching	task motivation processing anxiety
aptitude	willingness to communicate
field independence	self-efficacy
mind/intention-reading	

Taken from Robinson and Gilabert, 2007

As clearly seen from Table 2.2.1.1, task difficulty is determined by the ability variables such as working memory, reasoning, task-switching, aptitude, field dependence and mind/intention-reading; and the affective variables such as openness to experience, control of emotion, task motivation processing anxiety, willingness to communicate, and self-efficacy. From this perspective, it is obvious that task difficulty helps explain variation in task performance *between any two learners* performing the same task (as simple/easy or complex), whereas task complexity tries to explain *within learner* variation in performance on any two tasks (as simple/easy or complex) (Robinson, 2001a).

For this reason, since affective variables influential in task difficulty are hard or sometimes impossible to diagnose in advance of the task performance, and also they may be sometimes unpredictably affected by participant variables, it is more reasonable to take task complexity into account while determining the choice and sequence of language tasks. It is undeniable that task difficulty is helpful to assess on-line during classroom activities; however, so as to make “a priori” decisions about task sequencing, it should be task complexity under investigation (Robinson, 2001a: 294).

2.3 Attentional Resources and Linguistic Performance

Some researchers (Kuiken and Vedder, 2007a, 2007b, 2008a, 2008b; Robinson, 2001a, 2005, 2007; Robinson and Gilabert, 2007; Robinson and Lim, 1993; Skehan, 1996; Skehan and Foster, 2001) studying on second/foreign language acquisition and effects of task manipulations in this process have long been searching about how language learners use their attentional resources while dealing with tasks in the target language. Particularly three researchers, Robinson (2001a) and Skehan and Foster (2001), have identified a number of task design factors which can be manipulated so as to achieve different levels of task complexity and they have proposed two models. One of these competing models is Cognition Hypothesis (Robinson, 2001a) and the other one is Limited Attentional Capacity Model (Skehan and Foster, 2001). What both models have in common is the crucial role of attention and how attentional resources are used during task completion. However, they differ in terms of the way they perceive the quantity of attentional resources (single or multi-resources) that learners have and also their predictions of the effects of increasing task complexity on linguistic performance are quite different.

2.3.1 Limited Attentional Capacity Model

Skehan (1998a, 2001, 2003) and Skehan and Foster (2001) define task complexity as “the amount of attention the task demands from the learners” (Kuiken and Vedder, 2008a: 50). In this respect, their Limited Attentional Capacity Model predicts that attentional resources are limited and thus increasing the cognitive complexity of tasks and their multiple components reduces an extra pool of generally available attention capacity. At this point, since learners’ attentional limits are reached, they have to prioritize processing for meaning over language form.

Furthermore, since attending to just one aspect of performance (e.g. complexity of language, accuracy, fluency, etc.) may lead to a suffering on the parts of the

other dimensions (Kuiken and Vedder, 2008a) because they believe that learners' processing capacity is also limited and therefore, prioritization of one aspect will hinder the development in other aspects. Namely, Skehan and Foster (2001) claim that an increase in the cognitive complexity level of a language task will push learners to give much more importance to the content of the output, so the performance -either oral or written-will be less accurate since they do not have any attentional resource to use for the form of the output. The claims of this model have also been supported by VanPatten (1990) who was motivated by the perspective in cognitive psychology that "attention is effortful and that humans have limited capacity to deal with stimuli" (Dekeyser, Salaberry, Robinson, and Harrington, 2002: 806).

Skehan and Foster (2001) advocate the idea that successful elicitation of learner language is a product of three main factors: the task, the individual learner, and the situation in which the task is carried out; therefore, they think that the cognitive factors specified for task complexity cannot predict exactly the actual performance of the individual learner. In their Limited Attentional Capacity Model, they identify three sets of factors contributing to the complexity of a task: code complexity, cognitive complexity, and communicative stress. In this model, *code complexity* stands for the syntactic and lexical difficulty of language input. *Cognitive complexity*, on the other hand, refers to the processing demands of the task and availability of relevant schematic knowledge, whereas the term *communicative stress* is in relation to the result of differentials in time pressure, the modality of task performance, and the scale or number of participants involved. However, the same classification is regarded as the dimensions of "task difficulty" by Robinson (2001b) since he strongly believes that task complexity is only related to the cognitive task factors involved in the process of task performance, not to the ability or affective factors.

In summary, the basic claim of Skehan and Foster's Limited Attentional Capacity Model (2001) is that an increase in cognitive task complexity will

cause learners to pay attention first to the content of the task. As a consequence, the complexity and accuracy of the linguistic output will decrease. Of course, there are some studies carried out to test whether this model is a good predictor of oral and written linguistic performances in L2; however, they will be presented towards the end of this chapter with a comparison of the results found for the studies of Cognition Hypothesis (Robinson, 2001a).

2.3.2 Cognition Hypothesis

Cognition Hypothesis, also known as Multiple Attentional Resources Model or Triadic Componential Framework (Robinson, 2001a, 2005, 2007), is a model which asserts that dimensions of cognitive task complexity belong to different attentional resource pools and thus, an increase in task complexity do not degrade linguistic output, but instead, it may result in higher structural complexity and greater accuracy of learner output (Kuiken and Vedder, 2008a). Robinson (2001a, 2005, 2007) proposes that an increase in the cognitive demands of the task might direct learners' attentional resources to the language form rather than meaning, and in this way, input may be processed more deeply and elaborately (Kuiken and Vedder, 2007b).

Different from Skehan and Foster (2001), he asserts that learners do not have limited attentional capacity, but instead, there are different attentional resource pools which can be used during task performance. Namely, when the cognitive complexity level of a task is increased, it does not mean that learners will make use of a single resource for completing the task; conversely, they will activate different attentional pools, and thus all these attentional resources will be there for serving to the form of the output as well as meaning.

This triadic componential framework –as the name refers- makes task classification according to three factors as given in Table 2.3.2.1 below:

Table 2.3.2.1 Triadic Componential Framework for Task Classification

Task complexity (cognitive factors)	Task condition (interactive factors)	Task difficulty (learner factors)
Resource-directing variables	Participation variables	Affective variables
+/- few elements	+/- open solution	working memory
+/- here-and-now	+/- one-way flow	reasoning
+/- spatial reasoning	+/- convergent solution	task-switching
+/- causal reasoning	+/- few participants	aptitude
+/- Intentional reasoning	+/- few contributions needed	field independence
+/- perspective-taking	+/- negotiation not needed	mind/intention-reading
Resource-dispersing variables	Participant variables	Ability variables
+/- planning time	+/- same proficiency	openness to experience
+/- single task	+/- same gender	control of emotion
+/- task structure	+/- familiar	task motivation
+/- few steps	+/- shared content knowledge	processing anxiety
+/- independency	+/- equal status and role	willingness to communicate
+/- prior knowledge	+/- shared cultural knowledge	self-efficacy

Taken from Robinson and Gilabert, 2007

As seen in Table 2.3.2.1, Cognition Hypothesis suggests that cognitive factors, interactive factors, and learner factors should all be taken into account while sequencing and grading tasks. In addition to the task complexity and task difficulty explained earlier, Robinson (2001a) also puts emphasis on task conditions since participation and participant factors are also highly important during task performance. However, he insistently states that it is the task complexity to be manipulated and used mainly for instructional purposes since interactive and learner factors are difficult or sometimes impossible to be predicted and worked on in advance.

In fact, Schmidt's *Noticing Hypothesis* (2001) is regarded as the inspiring idea being influential on the formation of such a model since it advocates the opinion that cognitive task demands are strongly related to what is noticed and this

hypothesis takes noticing as the first step in language building. In addition, Schmidt's (2001) belief that not only comprehensible input and communicative opportunity (Long, 1996) but also cognitive effort on the part of the learner is required for L2 learning and development is one of the keystones in Robinson's model (2001a). In a similar way, Robinson (2005) assumes that some factors of task demands direct learners' attention to the language form because attention is crucial in L2 learning since "SLA is largely driven by what learners pay attention to" (Schmidt, 2001:3). For this reason, in his Triadic Componential Framework, Robinson assigns an important role to the dimensions of task complexity that can be manipulated systematically during task design with beneficial impacts on L2 performance (Michel, Kuiken, and Vedder, 2007). In accordance with this model, it is predicted that if task complexity is increased particularly through resource-directing dimensions (i.e. few elements, here-and-now, no reasoning demands), the L2 performance will be more accurate, syntactically more complex, and lexically more varied. In this way, Robinson (2005) also rejects the idea of "trade-off" effects that Skehan and Foster (2001) claim to be appeared due to the limited attentional capacity of learners.

At first glance, the Cognition Hypothesis and the Limited Attentional Capacity Model seem to be contradictory due to the role they assign to attention and the use of attentional resources during task performance. However, a closer look at the two models reveals that their conflicting predictions on L2 performance mainly concern the so-called resource-directing dimensions of task complexity (Kuiken and Vedder, 2007b). With regard to the resource-dispersing/depleting dimensions, both models agree that attentional resources are limited.

2.3.3 Cognition Hypothesis, Limited Attentional Capacity Model, and Written L2 Performance

Although SLA literature includes a number of studies related to the effects of task complexity on reading (Peters, 2007) and on oral L2 production (Gilabert, 2007; Michel et al, 2007; Robinson, 2001b; Révész, 2009), there are just few

studies conducted particularly to see the effects of task manipulations on written L2 performance (Gökgöz and Atay, 2009; Hamp-Lyons and Mathias, 1994; Kuiken and Vedder, 2007a, 2007b, 2008a, 2008b), some of which focus on the effects of task manipulations concerning task difficulty whereas some others specifically examines the effects of task complexity or compare students writing and speaking performances. However, four of them conducted by Kuiken and Vedder (2007a, 2007b, 2008a) and Gökgöz and Atay (2009) especially worth mentioning since they directly aim at identifying the impacts of cognitive task complexity on written L2 performance -similar to the current study- and also test the two models mentioned above to determine which one is a better predictor of written L2 performance.

The first study (Kuiken and Vedder, 2007a) was conducted with the participation of 84 Dutch learners of Italian and 75 Dutch learners of French, all with Dutch as their mother tongue. Two writing tasks in which cognitive task complexity was manipulated were assigned to the participants that required them to write a letter to a friend regarding the choice of a holiday destination out of five alternatives. Each participant wrote two letters both for the complex and the easy (non-complex) versions of the task. The researchers tried to find out whether:

- task complexity has an effect on accuracy in terms of task types such as appropriateness errors, grammar errors, lexicon errors, orthography, and others
- task complexity is influential on lexical variation in terms of word frequency
- the influence of task complexity on accuracy and lexical variation differ according to the level of L2 proficiency

The results of the study have shown that both students of Italian and French produced fewer lexical errors in the complex task. That is, the overall increase in accuracy in the complex condition is due to the decrease of lexical errors. Moreover, the students of Italian significantly used more high frequent words in the complex condition whereas the situation is the reverse for the students of

French, which means Cognition Hypothesis is valid for the findings of Italian learners while Limited Attentional Capacity predicts the situation of French learners. By the way, it was also revealed that the level of L2 proficiency does not make any difference in terms of the effects of task complexity on accuracy and lexical variation.

The same study with the same research questions and the same data analysis measures was repeated by Gökgöz and Atay (2009) in Turkey at a private university. 125 Turkish learners of English (63 in lower level: B1 and 62 in higher level: B2) were under investigation. Similar to Kuiken and Vedder (2007a), the research findings have shown that there is an effect of task complexity on accuracy only in terms of appropriateness errors. In addition, although there is not a significant result concerning lexical variation, the researchers have concluded that there is a trend towards Limited Attentional Capacity Model which claims that cognitively less complex task results in lexical richness. By the way, an unexpected result with regard to the level of L2 proficiency was also detected. Students at higher proficiency level produced more errors than the students at lower proficiency level did, on which neither Cognition Hypothesis nor Limited Attentional Capacity Model has specific predictions.

In another study by Kuiken and Vedder (2007b), 76 university students of French were involved. In addition to accuracy and lexical variation examined in the previous study (Kuiken and Vedder, 2007a), the effects of task complexity on syntactic complexity was also investigated in the study. By the way, the question whether the influence of task complexity on written output is the same for different proficiency levels was also re-examined. Different from the previous study (Kuiken and Vedder, 2007a), accuracy was operationalized as error type-1 (minor deviations in spelling, or grammatical form), error type-2 (more serious problems with grammar), and error type-3 (the errors which make the text almost incomprehensible). According to the results of the study, Skehan and Foster's Limited Attentional Capacity Model predicted a better performance on

the less complex task, while Robinson's Cognition Hypothesis was a better predictor of the performance concerning the more complex task. More specifically, fewer errors were found on the texts produced for the complex task. However, no significant result was identified concerning lexical variation and syntactic complexity. In fact, type-token-ratio was calculated (Wolfe-Quintero, Inagaki, and Kim, 1998) for lexical variation, but since the result of TTR2 (type-token-ratio which does not take text length into account) was not significant, it was concluded that cognitive task complexity does not have an effect on the written L2 performance. Furthermore, the repeated research question concerning the effects of L2 proficiency was again proven to be failed.

The last study to be summarized within the scope of this thesis was conducted by Kuiken and Vedder (2008b) with 91 Dutch learners of Italian and 76 Dutch learners of French. This time, participants were presented with a prompt in L1 (Dutch) explaining that they had to write a text regarding the choice of a holiday destination out of five options. In the task, some requirements concerning the choice were given, which were three for the non-complex version, six for the complex version. The research questions of;

- What is the effect of manipulating cognitive task complexity on syntactic complexity, lexical variation, and accuracy of learner output?
- Is the output of low-and-high-proficient learners affected by the manipulations of task complexity?

were tried to be answered. A cloze test was given to the students so as to gather data about their level of L2 proficiency. The same data analysis techniques (Wolfe-Quintero, Inagaki, and Kim, 1998) were used as in Kuiken and Vedder (2007b). For the students of Italian, the results concerning error type-1 and error type-2 were found to be significant. It means that there are fewer errors in the texts produced for the complex task; however, in terms of serious language errors, there is not any significant finding. With regard to syntactic complexity, total number of clauses and the number of main and

subordinate (dependent) clauses in the texts were calculated, but no effect of task complexity on syntactic complexity was investigated. Finally, lexical variation was examined through TTR1 and TTR2. However, although the lexical variation in the complex task measured by type-token-ratio (TTR1) was significantly larger than those in the non-complex one, this finding was not confirmed by TTR2 which takes text length into account. Since participants wrote texts of minimum 150 words, it was TTR2 that should be significant for a reliable and valid result. By the way, the fact that the effects of cognitive task complexity are not related to language proficiency was confirmed once more. In summary, Robinson's Cognition Hypothesis was found to be partially a good predictor in terms of accuracy since increasing task complexity led learners to pay more attention to linguistic form and thus make fewer errors (just error type-1 and error type-2) in their written performance. However, it has been revealed that neither Cognition Hypothesis nor Limited Attentional Capacity Model is a good predictor of the effects of task manipulations on syntactic complexity and lexical variation.

2.4 Conclusion

In this chapter, related literature concerning task-based language teaching (TBLT) and one of the key constructs in TBLT -task complexity- is presented elaborately. Two models with regard to the use of attentional resources during L2 task performance are explained and comparison of the models specifically in terms of their predictions concerning the effects of task manipulations on written L2 performance are discussed with research evidence. However, it is clear that although there are a number of studies carried for investigating the effects of cognitive task complexity on the written L2 performance, the findings are not consistent and there is a need for more research to be conducted so as to verify the predictions of these models. In the next chapter, the methodology followed during the implementation processes of the current study is given in detail and data analysis procedures are mentioned briefly.

CHAPTER III

METHODOLOGY

3.0 Introduction

This chapter describes the components of the study including different views about the use of attentional resources in foreign language learning process, outlines the method of research, and mentions very briefly the data analysis, which will be elaborated later in the following chapter. In this section, firstly design of the study, particpants, and the instruments used for data collection are described. Secondly, it gives details about data collection procedure and data analysis.

3.1 Design of the Study

In this study, two writing tasks that are cognitively at different complexity levels are used. In fact, there is a single writing task which was already used by Kuiken and Vedder (2008a) in another study. However, the researcher redesigned it according to the criteria proposed by Robinson (2001a) so as to determine the complexity level of a given language task. As a result, the researcher came up with two versions of the same writing task, one of which was cognitively easier for learners to complete while the other was more complex according to the criteria suggested by Robinson (2001a). The redesigned writing tasks were administered to the learners under the same conditions and the obtained written outputs were analyzed in a way to reflect students' use of their attentional resources while completing a given writing task. The procedure of data collection and in which conditions it was conducted will be focused on the following sections of this chapter while data analysis part will be handled in detail in another chapter.

3.2 Participants

For the data collection of this study, the preparatory class students at Hacettepe University, School of Foreign Languages, English Preparatory Unit were included who are given English courses for one or two semesters and expected to get through a proficiency exam so as to go on with their own majors. While choosing the participants, convenience sampling method was employed, which involves the sample being drawn from that part of the population that is close to hand (Gravetter and Forzano, 2009). That is, a sample population is selected because it is readily available and convenient. Since the researcher herself is an instructor at this institution and the students were already determined to be intermediate level learners of English according to the placement exam of Hacettepe University, School of Foreign Languages, two classes were chosen: one of them is the researcher's own class, the other was another colleague's class which also included intermediate level learners of English.

As shown in Table 3.2.1, the participants were 40 preparatory students (17 females and 23 males) who attended the English classes for the Fall Semester of 2009-2010 academic year. The ages of the participants are on average 18,5 (see Table 3.2.2).

Table 3.2.1 Gender of the Participants

Gender	N	%
Male	23	57,5
Female	17	42,5
Total	*40*	*100*

Table 3.2.2 Age of the Participants (m= 18,5)

Age	N	%
18	24	60
19	10	25
20	5	12,5
21	1	2,5
Total	*40*	*100*

According to the opinions of their English teachers, they are generally highly motivated to participate in the classroom activities and eager to produce utterances in the target language (both orally and written). It may be because of the fact that their majors are either 30 % or 70 % English-medium departments. Hence, most of their willingness to use English can be attributed to the reason that they also need English to pass their exams at their own departments and to be experts in their own fields. Mostly this instrumental motivation pushes them to produce something in the foreign language.

At the time of the study, learners' language learning experience was limited to learning language that was spoken in their intermediate surroundings at school. As illustrated in Table 3.2.3, the participants have been learning English between seven and eleven years.

Table 3.2.3 Years of English Study

Year of English Study	N	%
7 years	2	5
9 years	28	70
10 years	7	17,5
11 years	3	7,5
Total	*40*	*100*

As it is demonstrated in Table 3.2.3, 5 % of the students have been studying English for 7 years; 70 % of them have been studying for 9 years; 17,5 % of them have been studying for 10 years; and only 3 out of 40 students have been studying English for 11 years. In accordance with these statistics, it seems that they have got exposure to the foreign language for a long time; however, how much of it is for the sake of real language use is not known.

Although participation is not compulsory in this study, all participants in the chosen classes voluntarily participated in the activity without exception and signed a document (see Appendix 2) before the task completion asserting that they would voluntarily participate in this activity.

3.3 Instruments

As mentioned in the earlier sections, two writing tasks were administered to the learners so as to see the effects of manipulating task complexity on the written performance of the learners. However, finding appropriate tasks and manipulating them properly required much effort. As the starting point, the researcher decided that it should be a “communicative task” that can be described as “a piece of classroom work which involves learners in comprehending, manipulating, producing or interacting in the target language while their attention is principally focused on meaning rather than form” (Nunan, 1989: 10). Since the aim of this study is to enhance learners’ language learning and the related literature supports the idea that using communicative tasks enhances language acquisition through negotiation of meaning (Swain and Lapkin, 2001), a communicative writing task was thought to be the appropriate one for learners to complete.

For this purpose, five writing tasks were chosen to work on and decide which one of them was the most appropriate one for the purposes of this study. Four of them were taken from the books *Writing Interactions 1* (Pavlik and Segal, 2006a) and *Writing Interactions 2* (Pavlik and Segal, 2006b), the final writing

task was taken from a previously conducted study (Kuiken and Vedder, 2008a). Being sure that they were all communicative and real-life topics, they were manipulated according to the criteria put forward by Robinson (2001a). Taking the criteria into account, one cognitively easier and one cognitively more complex versions for each writing task were designed (see Appendix 3). According to Robinson (2001a), for a task to be cognitively more complex, having some reasoning demands on the part of the learner is crucial. As Skehan and Foster (2001) assert, "complexity" focuses on learner's willingness to use more challenging and difficult language. This may be since the language mentioned here is "at the upper limit of his or her interlanguage system, and so reflects hypothesis testing with recently acquired structures" (p.190). That is why the researcher put much emphasis on the use of reasoning demands. While designing the tasks mentioned above, the researcher's primary concern was to put some reasoning demands to the complex versions while it was to give almost all necessary information and clues for task completion in the easy versions. In addition, Robinson (2001a) puts forward that here-and-now features, planning time, amount of computation, discourse genre, prior information, etc. are also important while designing tasks, which was mentioned in detail in the previous chapter. Considering these components, a checklist was prepared by the researcher (see Appendix 4) so as to use while determining whether a task is cognitively complex or not. Here, the main aim is to ensure the interreliability of the chosen task. Instead of choosing just one of the five writing tasks and administer it to the participants, the researcher prefered to show them to the independent colleagues who have been giving writing classes for many years at university level and asked them to evaluate these five tasks by using the checklist mentioned above.

Table 3.3.1 Independent Raters' Evaluation of the Tasks

Task Type	Rater 1	Rater 2	Rater 3
The easiest	Task 5	Task 5	Task 4
The most complex	Task 5	Task 4	Task 5

As seen in Table 3.3.1, upon evaluating both easy and complex versions of each writing task, Task 5 was found to be the most appropriate one for the study since its easy version was rated as the the easiest one and its complex version was decided to be the most complex one among the others. Considering the raters' comments written on the checklist sheets, the researcher made some changes on Task 5 such as planning time period and the use of word "text" instead of "letter" (see Appendix 5).

In fact, the chosen task is the one which was previously used by Kuiken and Vedder (2008a) in another study; thus, its reliability and validity is for sure according to the pilot study they conducted. However, since there is a different group under investigation in this study, the researcher again conducted a pilot study so as to see whether:

- participants could easily comprehend what the task required them to do
- instructions were of their level of understanding
- participants could produce enough on the selected task

Four students at Hacettepe University, School of Foreign Languages were selected randomly for the pilot study. Two of them were given the easy version of the task while the complex version was assigned to the other two students. Two independent colleague also read the written performances of the students besides the researcher. They altogether agreed on the opinion that students managed to produce a text which was in accordance with the requirements of the task. It also illustrated that the task was comprehensive enough for students to produce the desired performance and also it was of their level of understanding. Administration of the pilot study led the reseacher to go one step further and she started to collect data at the predetermined institution.

3.4 Data Collection Procedures

For the administration of the tasks, first Ethics Committee Approval was taken from Hacettepe University and then data were collected at the beginning of the fall term of 2009-2010 academic year at Hacettepe University, School of Foreign Languages. During the data collection, both the researcher and the class instructor cooperated fully and willingly. Since the researcher and the instructor of the other class would simultaneously collect data in different classes, the researcher gave the class instructor some information concerning the administration of the tasks. She reminded that all participants would be asked to volunteer for this activity and then she would start to assign the task. Furthermore, the instructor was informed that she would repeate the task instruction in Turkish so as to be sure that all participants knew what they were expected to do. In the selected classes, the participants were asked to volunteer to take part in this writing activity in class. Further assurance was given that their written performance would be kept confidential. It was also reminded that they would not write any personal information on the writing task sheets (name, number, class, etc.).

After students had signed the voluntary participation forms, the researcher and the instructor distributed the writing task sheets and gave them a couple of minutes to read the instructions. Having understood that they all read the instructions, the Turkish translation of the instructions was given to the participants. The researcher administered the complex version of the task; therefore, she did not give participants any time for planning before writing, and she immediately made them start writing their texts and at the end of the 40 minutes, she collected all written texts. On the other hand, the instructor of the other class administered the easy version of the task; so she gave 5 extra minutes for planning, then they started to write their texts, and when the time was over, she also collected their written texts.

3.5 Data Analysis

The present research study was conducted among learners of English at Hacettepe University, School of Foreign Languages. Subjects were informed about the purpose of the research. The rate of task completion was 100% and after implementation, the data were fed into the computer for the statistical analysis. The data collected for this study were analyzed with the use of Statistical Package for the Social Sciences (SPSS) Version 13 and expressed in percentages.

In order to analyze the collected data (the written output of the participants) and answer the first research question concerning accuracy, syntactic complexity and lexical variation, the researcher herself designed a coding system. In this way, a systematic and consistent coding was applied to the texts produced by the participants. Table 3.5.1 and Table 3.5.2 show the symbols used during the coding process to indicate error types, clause types and the complex words that are not among the most frequently used 1000 English words (Fry, Kress, & Fountoukidis, 2000, see Appendix 6) and for which purposes certain coding symbols are preferred:

Table 3.5.1 Symbols Used for Identifying the Causes of Errors on the Written Texts

Symbol	Meaning
Λ	missing word
/	word/punctuation should be omitted
P/C	punctuation mistake / capitalization mistake
SP	spelling mistake
T	tense error
W	wrong word
Wo	wrong word order
?	I do not understand what you are trying to say
E	wrong expression
#	number / agreement
WF	wrong form
NA	not appropriate in this context
]	irrelevant / contradictory idea
ILL	illogical / inconsistency

These symbols and abbreviations in Table 3.5.1 would be used just to identify the cause of errors in any part of the text regardless of their seriousness in terms of comprehensibility of the text. On the other hand, in Table 3.5.2, the abbreviations and symbols show the types of errors with regard to the seriousness of their causes.

Table 3.5.2 Symbols and Abbreviations Used for Identifying Error Types, Clause Types, Complex Words and Their Functions: Accuracy, Syntactic Complexity, and Lexical Variation

Symbols / Abbreviations	Meaning	Purpose
E1 (●)	Error Type 1	Accuracy
E2 (o)	Error Type 2	Accuracy
E3 (-)	Error Type 3	Accuracy
MC	Main Clause	Syntactic Complexity
SC	Subordinate Clause	Syntactic Complexity
	Circling the complex word	Lexical Variation

Here, error types are determined according to the seriousness of the errors in terms of their communicative function. Namely, if an error makes the sentence or the text incomprehensible, difficult to understand, or create ambiguity, these kinds of errors are called as Error Type 1 (E1). For example, “I am sure they are probably delicious and healthy” (taken from a student’s text). This kind of an error is an example of inconsistency and creates ambiguity. If an error does not fully make the text incomprehensible but again it is an error that a student at intermediate level should not make, then it is called as Error Type 2 (E2). The sentence “So we can relax in there” can be a good example for this type of an error. Although we can understand what the student intend to say, an intermediate level English learner should know that the adverb “there” does not take any preposition before itself. If there are some errors related to spelling and punctuation which do not affect the comprehensibility of the text but just show a lack of attention or writing competence on the part of the learner, then this kind of errors are called as Error Type 3 (E3). The sentence “I think Bed and Brakfast Hotel Migani Spiaggia is the most suitable for us” can be given as an example for this type of errors. All types of errors mentioned here were represented by symbols given in parantheses in Table 3.5.2 and these symbols were used on the data during the coding procedure so as to identify the types of errors and easily calculate the number of errors on each paper.

Furthermore, in order to investigate the level of syntactic complexity, the number of clauses was calculated for each text. Here, the aim was to learn whether students preferred different sentence types in accordance with the complexity level of the given writing task. That is, the researcher tried to understand whether the complexity of a given task pushed learners to produce more complex sentences and students dealing with easy version of the task preferred to form simple sentences while writing their texts. The researcher divided the clauses into two groups as main clause and subordinate clause since the number of subordinate clauses would particularly reflect that those texts including more subordinate clauses were syntactically more complex than the ones with fewer subordinate clauses. As seen in Table 3.5.2, “MC” was

used for main clause and “SC” stood for subordinate clause and they were marked in the same way on the texts.

In addition, a list of 1000 frequently used English words (Fry, Kress, & Fountoukidis, 2000) was taken as a reference while determining whether a word used in the text was a complex or an easy one. Namely, the level of lexical variation in a given text was ascertained according to this criterion: absence or presence of a word in the list of 1000 frequently used English words. While analysing the data, each word which did not exist in the given list was accepted as a complex one and circled as shown in Table 3.5.2. Then, the number of circled words was calculated.

On the other hand, a holistic rubric prepared by PALS (2004)-Performance Assessment for Language Students- was used in order to measure the quality of the produced texts. To be able to answer the second research question, the writing task scoring sheet “Level 1” (see appendix 7) by PALS (2004) was decided to be the appropriate one with the help of a colleague who has been teaching academic writing for several years. Since there would be the possibility that the researcher might be familiar with the produced texts since she would be working on them for a long time, the assessment of the texts according to this writing task scoring sheet made by an outside rater (the colleague mentioned previously) so as to ensure objectivity. Then, the scores given for each text were evaluated in accordance with the holistic rubric (see Appendix 8) provided by PALS (2004).

Finally, so as to find an answer to the second part of the second research question, that is text length, the number of words included in each produced text was calculated and then the averages both for easy and complex versions of the task were compared. During the analysis part, the calculations mentioned above were all estimated to 100 so as to have validity and reliability. Since the instruction on the writing task says “at least 150 words”, some of the participants might write more than 150 words. In this case, in order to make a

reliable and objective comparison among the written texts and thus between the two versions of the given tasks, it was compulsory to make a proportion in this way.

3.6 Conclusion

In this chapter, a general overview of the design of the study was given; and the participants under investigation, the instruments used in the study, the procedures followed during data collection and finally the method preferred while analysing the data were explained in depth. In the following chapter, the results of data analysis will be handled more elaborately and the findings of this study will be discussed in detail.

CHAPTER IV

DATA ANALYSIS AND RESULTS

4.0 Introduction

In this chapter, the data regarding the written performances of intermediate level English learners at Hacettepe University, School of Foreign Languages are analyzed and the results are given within the framework of the three research questions. So as to analyze the relationship between task complexity and written output in terms of different variables, SPSS 13.0 is used and Independent Samples T-Tests are calculated to identify whether the results are statistically significant or not.

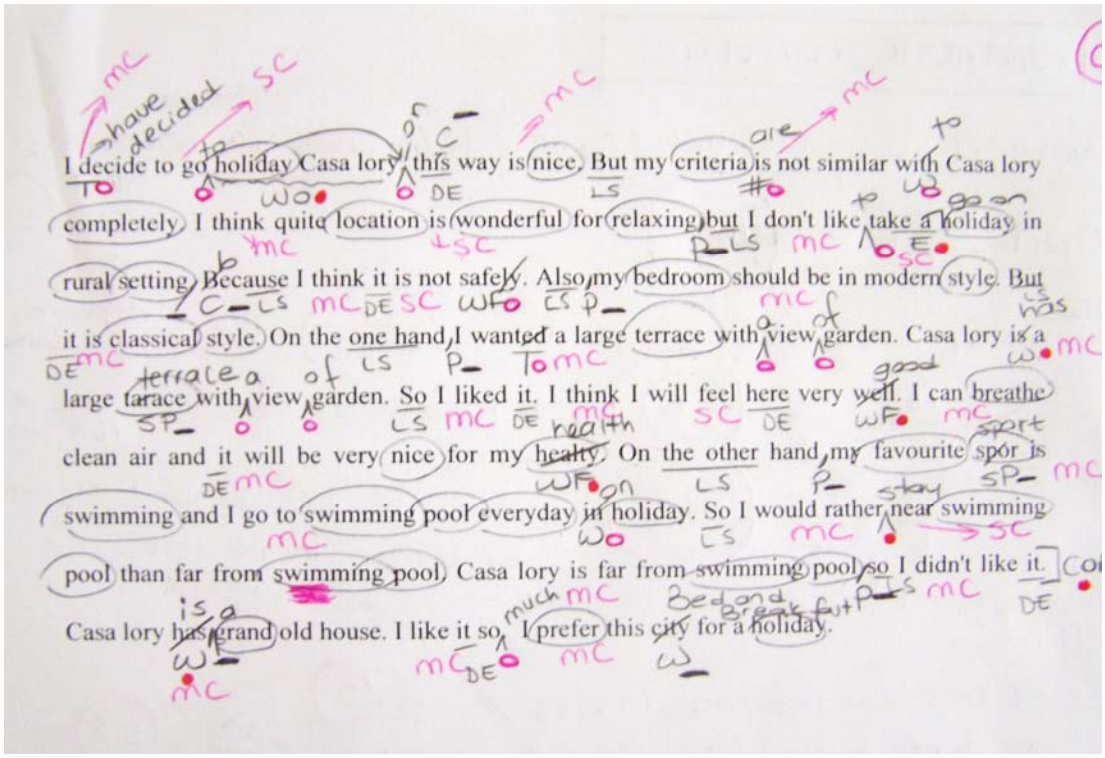
4.1 Coding Students' Written Output

For the purposes of this study, 40 students were assigned a writing task (either easy or complex version) in return of which they were expected to write a text of minimum 150 words. 20 students wrote their texts for the easy version of the writing task whereas other 20 students produced written output for the complex version of the task. At first, each text was given a letter ("C" for the texts written for the complex task and "E" for the texts written for the easy task) and a number nearby (C1, C2 ...C20 and E1, E2...E20) in order to ease the process of data analysis.

In parallel with the first research question, "What is the effect of manipulating cognitive task complexity on accuracy, syntactic complexity, and lexical variation of learners' written output?", the number of errors in total, error types, total number of clauses, clause types, and the number of complex words in each text produced by the learners were examined and they were coded with special marks (see Table 3.5.2 in Chapter III) so as to be able to calculate their

quantity and evaluate students' written performance accordingly. Figure 4.1.1 below is an example of the coded student writing.

Figure 4.1.1 An Example of the Coded Student Text



All texts were coded in the same way; the coding was made with the use of different colors so as to differentiate among different variables that would be tested.

To be able to ensure objectivity and reliability specifically for accuracy issue, the texts were also coded by two outside raters who have lived abroad for many years and thus have native-like competency and control over the target language. The raters were informed about how they would identify the errors and what kinds of symbols would be used during this coding process. As an illustration, Table 4.1.1, 4.1.2, 4.1.3, and 4.1.4 below show respectively the total number of errors, the number of error type 1, type 2, and type 3 identified

individually by rater 1, rater 2 and the researcher herself on the texts : E1, E2 E3, C1, C2, and C3.

Table 4.1.1 Raters' Coding Results Concerning the Total Number of Errors

Task	$R1E_{TOT}$	$R2E_{TOT}$	$R3E_{TOT}$	Average	Standardized
E1	10	13	16	13.00	13
E2	22	32	24	26.00	26
E3	25	20	21	22.00	22
C1	11	8	15	11.33	11
C2	12	20	16	16.00	16
C3	38	35	30	34.33	34

Note: $R1E_{TOT}$= total number of errors identified by the first outside rater; $R2E_{TOT}$= total number of errors identified by the second outside rater; $R3E_{TOT}$= total number of errors identified by the researcher herself

Table 4.1.2 Raters' Coding Results Concerning the Number of Error Type 1

Task	$R1E_{T1}$	$R2E_{T1}$	$R3E_{T1}$	Average	Standardized
E1	5	2	3	3.33	3
E2	9	10	15	11.33	11
E3	10	5	6	21.00	7
C1	5	5	5	5.00	5
C2	6	3	4	4.33	4
C3	9	5	11	8.33	8

Note: $R1E_{T1}$= number of error type 1 identified by the first outside rater; $R2E_{T1}$= number of error type 1 identified by the second outside rater; $R3E_{T1}$= number of error type 1 identified by the researcher herself

Table 4.1.3 Raters' Coding Results Concerning the Number of Error Type 2

Task	$R1E_{T2}$	$R2E_{T2}$	$R3E_{T2}$	Average	Standardized
E1	9	6	6	7.00	7
E2	7	10	5	7.33	7
E3	15	10	8	11.00	11
C1	7	3	6	5.33	5
C2	4	2	6	4.00	4
C3	10	5	10	8.33	8

Note: $R1E_{T2}$= number of error type 2 identified by the first outside rater; $R2E_{T2}$= number of error type 2 identified by the second outside rater; $R3E_{T2}$= number of error type 2 identified by the researcher herself

Table 4.1.4 Raters' Coding Results Concerning the Number of Error Type 3

Task	$R1E_{T3}$	$R2E_{T3}$	$R3E_{T3}$	Average	Standardized
E1	3	3	4	3.33	3
E2	11	10	5	8.66	9
E3	3	4	6	4.33	4
C1	5	7	3	5.00	5
C2	7	8	5	6.66	7
C3	18	7	11	12.00	12

Note: $R1E_{T3}$= number of error type 3 identified by the first outside rater; $R2E_{T3}$= number of error type 3 identified by the second outside rater; $R3E_{T3}$= number of error type 3 identified by the researcher herself

The tables above illustrate the average numbers of total errors and error types in the written texts, three of which belong to the easy task (E1, E2, E3) while the other three were written for the complex task (C1, C2 C3). Although the same evaluation was made for all 40 papers, just first three from each group were chosen for illustration. As clearly seen from the tables above, the average values were standardized and turned into whole numbers to make other calculations easier.

In addition to the items tabulated for accuracy; the items related to syntactic complexity and lexical variation were also identified by the researcher, their total numbers were also calculated and the data were directly transferred to the SPSS program for statistical analysis.

4.2 Accuracy

As a part of the first research question, the researcher first identified if task complexity has an impact on the written output with regard to accuracy. Before this identification, students' written texts were evaluated; errors were identified and divided into three major groups according to their importance in terms of comprehensibility, which is also given in Chapter III in detail. Table 4.2.1 below gives some statistical information concerning the texts written for the easy task and shows the number of total errors and of each error type together with the total word number for each text.

Table 4.2.1 Number of Errors Identified in the Texts Written for Easy Task

Task	E_{TOT}	%	E_{T1}	%	E_{T2}	%	E_{T3}	%	WN_{TOT}
E1	13	3.84	3	0.88	7	2.07	3	0.88	338
E2	26	7.22	11	3.05	7	1.94	9	2.50	360
E3	22	9.86	7	3.13	11	4.93	4	1.79	223
E4	10	6.66	1	0.66	4	2.66	5	3.33	150
E5	20	11.11	11	6.11	3	1.66	6	3.33	180
E6	12	5.71	3	1.42	4	1.90	5	2.38	210
E7	25	10.37	8	3.31	6	2.48	11	4.56	241
E8	3	1.55	0	0	0	0	3	1.55	193
E9	29	15.93	13	7.14	10	5.49	6	3.29	182
E10	6	4.00	2	1.33	2	1.33	2	1.33	150
E11	38	21.11	13	7.22	9	5.00	16	8.88	180
E12	25	16.66	10	6.66	7	4.66	8	5.33	150
E13	21	8.75	7	2.91	5	2.08	9	3.75	240
E14	17	11.33	9	6.00	4	2.66	4	2.66	150
E15	24	16.00	9	6.00	8	5.33	7	4.66	150
E16	25	10.41	8	3.33	5	2.08	12	5.00	240
E17	14	9.33	3	2.00	3	2.00	8	5.33	150
E18	20	13.33	10	6.66	3	2.00	7	4.66	150
E19	12	6.55	3	1.63	7	3.82	3	1.63	183
E20	32	14.95	10	4.67	9	4.20	13	6.07	214
Average		10.23		3.71		2.91		3.64	

Note: E1, E2...E20 = Texts produced for Easy Task; E_{TOT} = Total number of errors per T-unit; E_{T1} = Number of errors for Error Type 1; E_{T2} = Number of errors for Error Type 2; E_{T3} = Number of errors for Error Type 3; WN_{TOT} = Total number of words that each text consists of.

As seen from the Table 4.2.1, the number of any kind of errors was fixed to 100 so as to have a standard and reliable evaluation since each text consists of different numbers of words (ranging from 150 to 360).

In Table 4.2.2, the statistical information concerning the texts written for the complex task is presented and the number of total errors and of each error type together with the total word number for each text is also given.

Table 4.2.2 Number of Errors Identified in the Texts Written for Complex Task

Task	E_{TOT}	%	E_{T1}	%	E_{T2}	%	E_{T3}	%	WN_{TOT}
C1	11	6.47	5	2.94	1	0.58	5	2.94	170
C2	16	4.32	4	1.08	5	1.35	7	1.89	370
C3	34	20.60	8	4.84	14	8.48	12	7.27	165
C4	17	10.42	5	3.06	3	1.84	9	5.52	163
C5	16	6.53	6	2.44	6	2.44	4	1.63	245
C6	29	11.74	8	3.23	5	2.02	16	6.47	247
C7	6	4.00	0	0	4	2.66	2	1.33	150
C8	10	6.66	4	2.66	2	1.33	4	2.66	150
C9	14	8.53	3	1.82	3	1.82	8	4.87	164
C10	18	11.04	3	1.84	2	1.22	13	7.97	163
C11	13	8.17	1	0.62	2	1.25	7	4.40	159
C12	13	8.33	0	0	4	2.56	9	5.70	156
C13	24	12.43	1	0.51	4	2.07	19	9.84	193
C14	8	4.70	3	1.76	3	1.76	2	1.17	170
C15	33	15.00	11	5.00	11	5.00	11	5.00	220
C16	5	3.33	1	0.66	0	0	4	2.66	150
C17	30	17.64	7	4.11	8	4.70	15	8.82	170
C18	15	7.85	5	2.61	6	3.14	4	2.09	191
C19	25	12.25	6	2.94	5	2.45	14	6.86	204
C20	17	10.82	9	5.73	5	3.18	3	1.91	157
Average		9.54		2.39		2.49		4.55	

Note: C1, C2...C20 = Texts produced for Complex Task; E_{TOT} = Total number of errors per T-unit; E_{T1} = Number of errors for Error Type 1; E_{T2} = Number of errors for Error Type 2; E_{T3} = Number of errors for Error Type 3; WN_{TOT} = Total number of words that each text consists of.

As for the texts produced for the easy task, the number of any kind of errors was also fixed to 100 for the texts written for complex task so as to have a standard and reliable evaluation since each text consists of different numbers of words (ranging from 150 to 370).

Since accuracy is analyzed in terms of 4 main components as total number of errors, error type 1, error type 2, and error type 3; and there are two groups (20 students for easy task, 20 students for complex task) under investigation, independent samples t-test was conducted for each components above so as to see whether task complexity makes any difference in terms of total number of errors, error type 1, error type 2, and error type 3. Table 4.2.3 below presents the t-test results concerning the total number of errors in the texts written for the easy task and illustrates the degree of relationship between task complexity and the accuracy of the produced text in general.

Table 4.2.3 Independent Samples T-test for Total Number of Errors

Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95 % Confidence Interval of the Difference	
							Lower	Upper
.096	.758	.457	38	.650*	.69138	1.51329	-2.37212	3.75487

*Note: p = .650, that is, $p > 0.05$

It is clear that the difference between the texts written for easy task and the ones written for the complex task is not statistically significant in terms of total number of errors because p value is bigger than 0.05 ($p > 0.05$). Therefore, it may be concluded that task complexity does not have an impact on the written output concerning the total number of errors.

For the second component of accuracy, error type 1, another independent samples t-test was applied assuming that there may be any effect of task complexity on the written output with regard to the error type 1 that contains the most important grammar errors which make the text incomprehensible. Table 4.2.4 illustrates the t-test results of error type 1 as shown below:

Table 4.2.4 Independent Samples T-test for Error Type 1

Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95 % Confidence Interval of the Difference	
							Lower	Upper
5.350	.026	2.009	38	.052*	1.31260	.65327	-.00989	2.63508

*Note: p = .052, that is, $p > 0.05$

The independent samples t-test results concerning error type 1 demonstrate that although *p* value seems bigger than 0.05 (*p* = .052), it is almost the same with the reference value 0.05. This may mean that although there is not a statistically significant difference between the texts written for easy and complex tasks in terms of error type 1, since it is quite close to the limit value 0.05, the difference may be considered as more meaningful compared to the results of the number of total errors.

Concerning the effect of task complexity on the written text with regard to error type 2, the results are not satisfactory in order to assert that changing the complexity level of a writing task creates a difference in terms of error type 2. The results of the t-test for these components of accuracy are given below in Table 4.2.5:

Table 4.2.5 Independent Samples T-test for Error Type 2

Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95 % Confidence Interval of the Difference	
							Lower	Upper
.047	.829	.782	38	.439*	.42156	.53928	-.67015	1.51327

*Note: *p* = .439, that is, *p* > 0.05

It can be deduced from the table that the difference between the texts written for complex and easy versions of the task is not statistically significant since p value is again bigger than 0.05, which means writing a text either a complex or an easy task does not make any difference in the output in terms of errors which make the text almost incomprehensible (error type 2).

As the last component of accuracy variable, the researcher investigated the results concerning error type 3 which includes minor errors such as pronunciation or spelling that do not put the text in danger in terms of comprehensibility. In Table 4.2.6, there is the statistical analysis of the texts with regard to error type 3.

Table 4.2.6 Independent Samples T-test for Error Type 3

Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95 % Confidence Interval of the Difference	
							Lower	Upper
3.612	.065	-1.220	38	.230*	-.90723	.74354	-2.41244	.59798

*Note: p = .230, that is, $p > 0.05$

Similar to the results of total number of errors, error type 1, and error type 2; the difference concerning error type 3 is also statistically not significant. The p value is bigger than 0.05 (p = .230). Namely, modifying the writing task does not lead to any changes in students' written performances in terms of minor errors such as spelling or punctuation.

Table 4.2.7 Independent Samples t-test for Accuracy

Measure Type	Measure	Complex		Easy		*t*	d.f.	*Sig. (2-tailed)*
		Mean	S.D.	Mean	S.D.			
Accuracy	E_{TOT}	9.54	4.57	10.23	4.99	.457	38	.650
	E_{T1}	2.39	1.66	3.71	2.40	2.009	38	.052
	E_{T2}	2.49	1.85	2.91	1.54	.782	38	.439
	E_{T3}	4.55	2.68	3.64	1.95	-1.220	38	.230

Table 4.2.7 above shows the statistical information concerning the whole aspects of accuracy, i.e. total number of errors (E_{TOT}), error type 1(E_{T1}), error type 2(E_{T2}), and error type 3 (E_{T3}). As seen from the table, there is not a statistically significant difference between the text written for easy and complex writing tasks. Only the statistical values concerning error type 1 can be interpreted as more meaningful than the other. However, even if so, this does not change the fact that a significant difference with regard to accuracy could not be found in the current study.

4.3 Syntactic Complexity

In this study, syntactic complexity was hypothesized to be influenced by cognitive task complexity, and thus students' written performances were also evaluated in terms of the number of clauses used in the texts. Similar to the calculations made for accuracy, here again all values regarding the number of clauses were equated to 100 since each text consists of different numbers of words. The number of clauses used by the students who produced texts for the easy task is given in Table 4.3.1 as below:

Table 4.3.1 Number of Clauses Used in the Texts Written for Easy Task

Task	Clause Total	Clause %	MC	MC %	SC	SC %	WN_{TOT}
E1	44	13.01	21	6.21	23	6.80	338
E2	63	17.50	50	13.88	13	3.61	360
E3	31	13.90	21	9.41	10	4.48	223
E4	16	10.66	11	7.33	5	3.33	150
E5	30	16.66	20	11.11	10	5,55	180
E6	28	13.33	20	9.52	8	3,80	210
E7	31	12.86	24	9.95	7	2.90	241
E8	31	16.06	25	12.95	6	3.10	193
E9	21	11.53	14	7.69	7	3.84	182
E10	22	14.66	19	12.66	3	2.00	150
E11	27	15.00	23	12.77	4	2.22	180
E12	19	12.66	15	10.00	4	2.66	150
E13	28	11.66	23	9.58	5	2.08	240
E14	20	13.33	9	6.00	11	7.33	150
E15	20	13.33	14	9.33	6	4.00	150
E16	40	16.66	28	11.66	12	5.00	240
E17	23	15.33	15	10.00	8	5.33	150
E18	17	11.33	16	10.66	1	0.66	150
E19	26	14.20	18	9.83	8	4.37	183
E20	18	8.41	14	6.54	4	1.86	214
Average		13.60		9.85		3.75	

Note: MC = main clause; SC = subordinate clause

As understood from Table 4.3.1, while evaluating students' written performance with regard to syntactic complexity, clauses were examined within three categories. At first, total number of clauses was calculated per T-units (for each written text), whose average was found to be 13.60. This means that on a text which consists of about 100 words, there are 13-14 clauses on average. Furthermore, since the use of subordinate clauses is regarded as an indication of complex structures in this study, these clauses were also distinguished as main clauses and subordinate clauses, and their ratios were also calculated. In Table 4.3.1, it is shown that the average of main clauses per T-unit was found to be 9.85 while the average value for subordinate clauses is 3.75. Namely, students mostly preferred using main clauses, which were simple but also safe in terms of errors.

The same statistical operations were repeated for the texts produced for the complex writing task as given in Table 4.3.2 below:

Table 4.3.2 Number of Clauses Used in the Texts Written for Complex Task

Task	Clause Total	Clause %	MC	MC %	SC	SC %	WN_{TOT}
C1	33	19.41	24	14.11	9	5.29	170
C2	51	13.78	37	10.00	14	3.78	370
C3	28	16.96	22	13.33	6	3.63	165
C4	19	11.65	18	11.04	1	0.61	163
C5	36	14.69	29	11.83	7	2.85	245
C6	30	12.14	19	7.69	11	4.45	247
C7	19	12.66	14	9.33	5	3.33	150
C8	15	10.00	14	9.33	1	0.66	150
C9	27	16.46	18	10.97	9	5.48	164
C10	31	19.01	21	12.88	10	6.13	163
C11	24	15.09	13	8.17	11	6.91	159
C12	17	10.89	12	7.69	5	3.20	156
C13	28	14.50	19	9.84	9	4.66	193
C14	28	16.47	22	12.94	6	3.52	170
C15	24	10.90	12	5.45	12	5.45	220
C16	19	12.66	12	8.00	7	4.66	150
C17	32	18.82	17	10.00	15	8.82	170
C18	36	18.84	26	13.61	10	5.23	191
C19	30	14.70	24	11.76	6	2.94	204
C20	17	10.82	15	9.55	2	1.27	157
Average		14.52		10.37		4.14	

Note: MC = main clause; SC = subordinate clause

It is apparent from Table 4.3.2 that the average values concerning total clause number, number of main clauses, and number of subordinate clause are almost the same both for easy and complex tasks. For the complex task, the average of total number of clauses per T-unit was calculated as 14.52. This means that on a text which consists of about 100 words, there are 14-15 clauses on average. Moreover, Table 4.3.2 illustrates that the average of main clauses per T-unit was found to be 10.37 whereas the average value for subordinate clauses is 4.14. That is, students again preferred to use main clauses to a great extent for the same reasons mentioned above.

For the second component of the first research question, syntactic complexity, independent samples t-tests were conducted so as to whether there is a meaningful difference between the texts produced for easy and complex writing tasks in terms of syntactic complexity. Firstly, total number of clauses was examined and the t-test results were found to be as in Table 4.3.3 below:

Table 4.3.3 Independent Samples T-test for Total Number of Clauses

Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95 % Confidence Interval of the Difference	
							Lower	Upper
2.629	.113	-1.083	38	.230*	.286	-.91965	-2.63906	.79976

*Note: p = .230, that is, p > 0.05

According to the t-test results, it is obvious that the difference between easy and complex tasks concerning syntactic complexity just considering the total clause number is not statistically significant since p value is bigger than 0.05 (p = .230). In fact, this is not surprising because the mean values given in Table 4.3.1 and 4.3.2 are also very clause to each other (13.60 for easy task, 14.52 for complex task).

For a clearer view, the number of main and subordinate clauses were also examined via independent samples t-tests. The results concerning the number of main clauses are given in Table 4.3.4:

Table 4.3.4 Independent Samples T-test for Number of Main Clauses

Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95 % Confidence Interval of the Difference	
							Lower	Upper
.212	.648	-.715	38	.479*	-.52124	.72938	-1.99779	.95530

*Note: p = .479, that is, p > 0.05

Similar to that of total number of clauses, there is not a statistically significant difference between easy and complex tasks with relevance to the number of main sentences per t-unit.

The values regarding the number of subordinate clauses in Table 4.3.5 below also reveal a picture concerning the relationship between task complexity and syntactic complexity specifically in terms of subordinate clauses, which is very similar to that of the number of main clauses.

Table 4.3.5 Independent Samples T-test for Number of Subordinate Clauses

Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95 % Confidence Interval of the Difference	
							Lower	Upper
.521	.475	-.674	38	.504*	-.39841	.59082	-1.59447	.79766

*Note: p = .504, that is, p > 0.05

Since the p value is bigger than 0.05 (p = .504), the difference between easy and complex tasks in terms of the number of subordinate clauses is not statistically significant. For a comparison among all the components of syntactic complexity, Table 4.3.6 gives the mean values and t-test results together.

Table 4.3.6 Independent Samples T-test for Syntactic Complexity

Measure Type	Measure	Complex		Easy		*t*	d.f.	*Sig. (2-tailed)*
		Mean	S.D.	Mean	S.D.			
Syntactic Complexity	C_{TOT}	14.52	3.05	13.60	2.26	-1.083	38	.286
	MC	10.37	2.33	9.85	2.27	-.715	38	.479
	SC	4.14	2.03	3.75	1.68	-.674	38	.504

Upon analyzing the statistical results concerning the three aspects of syntactic complexity (namely, the total number of clauses, number of main clauses, and number of subordinate clauses), it may be concluded that modifying the certain features of a writing task in a way to make it cognitively more complex for the students does not necessarily make a difference in the produced texts in terms of syntactic complexity.

4.4 Lexical Variation

In the current study, it was assumed that there might be a difference between the texts written for easy and complex tasks in terms of the complexity of the words used in these texts. In order to identify whether there is a meaningful difference or not, the number of words which belong to the list of most frequently used 1000 English words (Fry, Kress, & Fountoukidis, 2000) was determined per t-unit and the results for easy task are given in Table 4.4.1 as below:

Table 4.4.1 Number of Complex Words in the Texts Written for Easy Task

Task	CWN	CWN %	WN_{TOT}
E1	72	21,30	338
E2	60	16.66	360
E3	29	13.00	223
E4	33	22.00	150
E5	31	17.22	180
E6	57	27.14	210
E7	49	20.33	241
E8	36	18.65	193
E9	35	19.23	182
E10	20	13.33	150
E11	67	37.22	180
E12	35	23.33	150
E13	38	15.83	240
E14	28	18.66	150
E15	32	21.33	150
E16	33	13.75	240
E17	29	19.33	150
E18	36	24.00	150
E19	34	18.57	183
E20	49	22.89	214
Average		20.19	

Note: CWN = complex word number

Table 4.4.1 indicates that in a 100-word text written for the easy task, there are approximately 20-21 words which are considered as complex words according to the list taken as a reference (Fry, Kress, & Fountoukidis, 2000).

The results concerning lexical variation are not very different for the complex task when compared to those of easy task. Table 4.4.2 gives the number of complex words per t-unit as below:

Table 4.4.2 Number of Complex Words in the Texts Written for Complex Task

Task	CWN	CWN %	WN_{TOT}
C1	21	12.35	170
C2	66	17.83	370
C3	35	21.21	165
C4	35	21.47	163
C5	53	21.63	245
C6	44	17.81	247
C7	25	16.66	150
C8	31	20.66	150
C9	30	18.29	164
C10	17	10.42	163
C11	35	22.01	159
C12	28	17.94	156
C13	24	12.43	193
C14	24	14.11	170
C15	51	23.18	220
C16	22	14.66	150
C17	36	21.17	170
C18	27	14.13	191
C19	35	17.15	204
C20	40	25.47	157
Average		18.03	

Note: CWN = complex word number

These results mean that in a 100-word text written for the easy task, there are approximately 18-19 words which are considered as complex words according to the list taken as a reference (Fry, Kress, & Fountoukidis, 2000). Although the results seem close to each other, independent samples t-test was applied to these results because it may refer to an important difference in terms of statistics. In this way, it is planned to see the effect of task complexity on lexical variation. The results are given in Table 4.4.3 as below:

Table 4.4.3 Independent Samples T-test for Lexical Variation

Levene's Test for Equality of Variances		t-test for Equality of Means						
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95 % Confidence Interval of the Difference	
							Lower	Upper
.253	.475	.618	38	.165*	2.15743	1.52246	-.92463	5.23948

*Note: p = .165, that is, p > 0.05

The results of independent samples t-test show that there is not a statistically significant difference between the texts written for easy and complex tasks in terms of the number of complex words they include. Namely, the modification in the cognitive demands of a writing task does not mean that there will be a significant difference in their lexical quality.

4.5 Text Quality

The second research question of the study deals with the quality and the length of the produced texts. In order to decide whether cognitive task complexity affects students' written performance in terms of their quality or not, an outside rater evaluated all the texts written for easy and complex tasks by means of a holistic rubric for writing. The rater's evaluation for easy and complex tasks out of 24 and their equivalents in percentages are given in Table 4.5.1:

Table 4.5.1 Holistic Evaluation of the Texts Produced for Easy and Complex Tasks

Task	Grades out of 24	%	Task	Grades out of 24	%
E1	18,50	88,10	C1	18,50	88,10
E2	20,50	92,40	C2	21,00	93,50
E3	13,50	77,20	C3	12,50	75,10
E4	17,00	84,80	C4	22,00	95,70
E5	10,50	70,80	C5	22,00	95,70
E6	14,50	79,40	C6	15,00	80,50
E7	10,00	69,70	C7	18,50	88,10
E8	18,00	87,00	C8	10,00	69,70
E9	7,50	64,20	C9	15,00	80,50
E10	6,00	61,00	C10	11,00	71,80
E11	9,50	68,60	C11	17,00	84,80
E12	5,00	58,80	C12	17,00	84,80
E13	11,50	72,90	C13	19,00	89,20
E14	7,00	63,20	C14	18,00	87,00
E15	5,50	59,90	C15	20,00	91,30
E16	18,00	87,00	C16	18,00	87,00
E17	13,50	77,20	C17	18,50	88,10
E18	12,00	74,00	C18	21,50	94,60
E19	13,50	77,20	C19	22,00	95,70
E20	9,00	67,50	C20	19,50	90,20
Average	12,03	74,05		17,80	86,57

As it is seen from Table 4.5.1, the average grade given to the texts written for easy task is 74.05 whereas it is 86.57 for those of complex task. Although it seems that there is a crucial difference in terms of mean values, it is necessary to look at the t-test results so as to make more concrete comments on the topic and see the exact impact of task complexity in terms of written text quality. Table 4.5.2 gives independent samples t-test results as shown below:

Table 4.5.2 Independent Samples T-test for Text Quality

Levene's Test for Equality of Variances		t-test for Equality of Means						
							95 % Confidence Interval of the Difference	
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
2.413	.129	-4.391	38	.000*	-12.52500	2.85225	-18.29908	-6.75092

*Note: p = .000, that is, $p < 0.05$

The results show that *p* value is smaller than 0.05 (*p* = 000). It means that changing the cognitive complexity level of the writing task makes a statistically significant difference between the texts produced for easy and complex tasks in terms of text quality. Namely, the texts written for the complex task were found to in a better quality compared to the ones produced for the easy task.

4.6 Text Length

As the second part of the second research question, the impact of cognitive task complexity on the length of the produced texts was investigated by comparing the total number of words that belong to the texts written for easy and complex tasks. The number words used in the texts for easy and complex tasks are given in Table 4.6.1 as below:

Table 4.6.1 Number of Words in the Texts Produced for Easy and Complex Tasks

Task	Word Number	Task	Word Number
E1	338	C1	170
E2	360	C2	370
E3	223	C3	165
E4	150	C4	163
E5	180	C5	245
E6	210	C6	247
E7	241	C7	150
E8	193	C8	150
E9	182	C9	164
E10	150	C10	163
E11	180	C11	159
E12	150	C12	156
E13	240	C13	193
E14	150	C14	170
E15	150	C15	220
E16	240	C16	150
E17	150	C17	170
E18	150	C18	191
E19	183	C19	204
E20	214	C20	157
Average	201.70		187.85

Even though it seems as if there was an important difference between the mean values concerning the number of words (201.70 for easy task and 187.85 for complex task), this different is not in fact a statistically significant one as stated in Table 4.6.2 below:

Table 4.6.2 Independent Samples T-test for Text Length

Levene's Test for Equality of Variances		t-test for Equality of Means						
							95 % Confidence Interval of the Difference	
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
.658	.422	.776	38	.442*	13.85000	17.83748	-22.26009	49.96009

*Note: p = .442, that is, $p > 0.05$

The difference with regard to text length between the texts written for easy and complex tasks has proven to be statistically not significant because the *p* value was found to be bigger than 0.05 *(p* = .442). That is, even though the texts written for easy task have a bigger average than those of complex one, e cannot conclude that easy writing tasks result in longer written output since the result is not satisfactory in terms of statistics.

In summary, our first research question concerns the effects of task manipulations on accuracy, syntactic complexity and lexical variation on the written output of the students. For the learners under this investigation, it has been found that cognitive task complexity affects various aspects of linguistic performance to different degrees. With regard to accuracy, it can be stated that students studied on complex version of the writing task made fewer mistakes than the ones dealing with the easy version. However; although the mean values belonging the two tasks are different in number, this does not reflect a statistically significant result (see Table 4.6.3 below). Even though it seems that there is no significant results concerning total number of errors, second and

third-degree errors, the findings related to first-degree errors are relatively more significant in terms of statistics (*p*=.052, see Table 4.2.7, independent samples *t*-tests).

On the other hand, there is no significant difference concerning syntactic complexity and lexical variation between the texts written for easy and complex tasks. Table 4.6.3 gives the performance comparisons of the two tasks and clearly reveals the results belonging to each category:

Table 4.6.3 Performance Comparisons for Accuracy, Syntactic Complexity, and Lexical Variation

Measure Type	Measure	Complex		Easy		*t*	d.f.	*Sig. (2-tailed)*
		Mean	S.D.	Mean	S.D.			
Accuracy	E_{TOT}	9.54	4.57	10.23	4.99	.457	38	.650
	ET1	2.39	1.66	3.71	2.40	2.009	38	.052*
	ET2	2.49	1.85	2.91	1.54	.782	38	.439
	ET3	4.55	2.68	3.64	1.95	-1.220	38	.230
Syntactic Complexity	C_{TOT}	14.52	3.05	13.60	2.26	-1.083	38	.286
	MC	10.37	2.33	9.85	2.27	-.715	38	.479
	SC	4.14	2.03	3.75	1.68	-.674	38	.504
Lexical Variation	CWN	18.03	4.07	20.19	5.45	1.417	38	.165

*Note: p > 0.05

The second research question deals with the length and the quality of the written output and tries to unearth whether manipulations on the task itself make some differences in terms of this concerns. As for the text quality, students' written performance was evaluated out of 24 points by an outside rater by means of a holistic writing rubric and they were examined to investigate whether there was an effect of task complexity on the text quality or not. It has been found out that task manipulations have significant effect on the written output. In other words, the texts written for the complex task were found to of better

quality compared to the ones produced for the easy task (p = .000, see Table 4.6.4 below).

Table 4.6.4 Performance Comparisons for Text Quality and Text Length

Measure Type	Measure	Complex		Easy		*t*	d.f.	*Sig. (2-tailed)*
		Mean	S.D.	Mean	S.D.			
Text Quality	TQ	86.57	7.70	74.04	10.16	-.4.31	38	.000*
Text Length	WN	187.85	52.13	201.70	60.37	.776	38	.442**

* $p < 0.05$

** $p > 0.05$

On the other hand, when the average word numbers in students' texts were compared for easy and complex tasks, it has been understood that the difference in text length in written output is not statistically significant (p =.442). That is, cognitive task complexity does not have any effect on the produced texts in terms of text length.

4.7 Conclusion

In this chapter, the data collected for the purpose of determining whether task complexity has an impact on the written performance of the students were analyzed in order to find an answer for the two research questions in the current study. For the first research question with relevance to the effect of task complexity on accuracy, syntactic complexity, and lexical variation, it has been revealed that manipulations on the cognitive complexity level of a writing task may create a very little difference in terms of accuracy (only error type 1) but it does not affect syntactic complexity and lexical variation in a significant way.

On the other hand, it has been found out that the results of the data analysis partially supports the hypotheses related to the second research question

whose main concerns are text quality and text length. In accordance with the results above, it can be asserted that task manipulations may lead learners to produce the texts which are different in quality. Namely, the texts written for the cognitively complex task were found to be better in quality compared to the ones produced for the cognitively easy writing task. However, no evidence could be found showing that cognitive task complexity makes a significant difference in terms of the length of the produced text.

In the following chapter, the results recorded during the data analysis process will be dealt in depth and discussion of these findings will be made by giving references to the other studies given in the related literature.

CHAPTER V

DISCUSSION OF THE FINDINGS AND CONCLUSION

5.0 Introduction

In this chapter, the results of the data analyses given in the previous part are discussed in detail. The findings are interpreted, the research questions in the study are answered and it is determined whether the hypotheses stated within the framework of this study are proven to be true or not. These interpretations are supported or compared with the findings of related studies given in the related literature. Towards the end of the chapter, some suggestions are made for the prospective foreign language writing studies to be conducted in the future for the purpose of getting more significant, valid, and generalizable results concerning the field.

5.1 The Effects of Task Manipulations on Accuracy, Syntactic Complexity, and Lexical Variation

As for the first research question “What is the effect of manipulating cognitive task complexity on accuracy, syntactic complexity, and lexical variation of learners’ written output?” students’ written performances were analyzed and a number of findings were obtained in relevance to accuracy, syntactic complexity, and lexical variation. Below is the discussion of these findings.

5.1.1 Accuracy

In the data analyses, it was found that there is no significant difference between the texts written for easy and complex writing tasks in terms of total number of errors, error type 2, and error type 3; but there is just a slight significance concerning error type 1 (the errors which make the text almost

incomprehensible); that is, $p = 0.052$. Although it is not exactly significant since it is bigger than 0.05, it is the closest one to this value and that is what makes the researcher think that it is the most meaningful one among the other components of accuracy. In this respect, it is understood that the task manipulations may have an effect on the accuracy of the written output only in terms of the errors that make the written text almost incomprehensible, which belong to the group “error type 1”.

The related literature also shows that some other studies (Kuiken & Vedder, 2007b; Kuiken & Vedder, 2008a) came up with similar results concerning the accuracy of the written output. In their study on the effects of task manipulation on the linguistic performance of French L2 writing, Kuiken and Vedder (2007b) indicate that cognitive task complexity has an impact in terms of error type 1. However, they also found out that it made a difference in terms of total number of errors and error type 2. Even though the current study also shows that the averages of total number of errors and error type 2 are more in easy task than those in the complex version, these differences are not statistically significant as the study mentioned above. This may be the direct result of the fact that the number of participants in the current study is limited to 40 students. Therefore, this number may not be enough to make the statistical differences significant for the components of accuracy except for error type 1. Namely, if the number of participants had been more than 40 as the ones in the study of Kuiken and Vedder (2007b) - that were 167 Dutch university students taking French or Italian as a second language-, the differences concerning accuracy in the written output could be more significant right now.

When viewed from this aspect, it may reflect that in line with the predictions of Cognition Hypothesis, cognitive task complexity may have an impact on the written output in terms of important language errors which make the texts almost incomprehensible. In this case, it means that increasing task complexity along resource-directing and resource-dispersing variables leads learners to pay more attention to the linguistic form; it, in return, makes the written output

become more accurate. An alternative conclusion might be that increasing cognitive task complexity does not result in a better written performance and linguistic development, but it leads learners to have more control over their existing interlanguage systems and thus make fewer mistakes.

5.1.2 Syntactic Complexity

When the written performances of the learners were evaluated considering their syntactic complexity, it has been understood that there is not a significant difference between cognitively more demanding and less demanding tasks in terms of total number of clauses (p = .230, that is, $p > 0.05$), main clauses (p = .479, that is, $p > 0.05$), and subordinate clauses (p = .504, that is, $p > 0.05$). Related literature is also in line with these results regarding syntactic complexity because no significant difference was also found between easy and complex tasks in terms of syntactic complexity in other studies (Kuiken and Vedder, 2007b; 2008a).

In this respect, syntactic complexity in foreign language writing cannot be explained either by Cognition Hypothesis or Limited Attentional Capacity Model since there is not any indication of difference between the texts written for the two task types. In fact, the averages concerning the total number of clauses, main clauses, and subordinate clauses for the complex task are higher than those of easy task, and thus it seems as if Robinson's Cognition Hypothesis was proven to be true; however, these differences cannot be regarded as significant in terms of statistics. Perhaps, the number of participants may also be influential again. With a larger population under investigation, these differences might turn out to be more significant.

5.1.3 Lexical Variation

In fact, a different method was used in the previous studies concerning the effects of cognitive complexity on lexical variation (Kuiken and Vedder, 2007a,

2007b; 2008a, Gökgöz and Atay, 2009). The researchers preferred to calculate type-token ratio for each text; that is, they find the frequency of each word used in a text (token) and the total number of different words used in the text (type) and their ratio is used as an indication of lexical variety. However, since researchers could not find a statistically significant difference in the previous studies, another method for analyzing lexical variation was used in the current study and each word in the texts were checked so as to see whether they belong to the most frequently used 1000 English words or not. Yet, even this change in organization did not result in a significant difference considering lexical variation and no difference was found in students' written performances since $p = .165$, that is, $p > 0.05$.

This may also be interpreted as the direct result of students' attitudes who were dealing with both task types. While analyzing the texts written for easy and complex tasks, it was realized that almost all students had a tendency towards copying certain phrases and expressions from the task sheets which had been given as extra information about the holiday destinations offered in the tasks. Since most of them used similar or sometimes the same expressions or phrases in the task sheets, it is quite normal that the results related to lexical variety are almost the same for both task types.

5.1.4 Overall Evaluation for the First Research Question

In fact, this study is a kind of repetition of similar studies related to task complexity and its effects on linguistic performance. Specifically in terms of writing, similar studies were conducted with the learners of French, Italian, and Dutch (Kuiken and Vedder, 2007b; 2008a). In these studies, the two versions of the same task (easy and complex ones) were assigned to the same participants, and no significant results were found concerning syntactic complexity and lexical variation, but just a little in accuracy. In the current study, two groups of students were assigned either easy or complex task. However,

there is again hardly any significant difference concerning accuracy. Only a slight difference was observed in terms of error type 1.

There is no significant difference found between easy and complex tasks with regard to syntactic complexity and lexical variation. In this case, the findings do not provide any evidence in support of the predictions made by Skehan and Foster's Limited Attentional Capacity Model and only partially support those made by Robinson's Cognition Hypothesis. Considering the previous studies carried out by Kuiken and Vedder (2007b; 2008a), the researcher had thought that assigning different versions of the same task to the same population at different times was not logical since there was the risk of being familiar with the topic, expressions, etc. on the students' part, and this might be the explanation of why they could not come up with a statistically significant difference. For this reason, in the current study, the target populations were taken as two different groups who were equal in terms of their proficiency level. However, even this change in organization could not reveal a significant difference. So it is clear that there is not a direct impact of task complexity on written L2 performance. Of course, this does not mean that we should completely refuse Robinson's Cognition Hypothesis and Skehan and Foster's Limited Attentional Capacity Model. It would be premature to totally reject them; however, it would be better that task complexity should not be taken as the only predictor of written performance but it should also be supported with learner factors and other affective factors so as to see a clearer view concerning this issue.

The fact that it has no effect in syntactic complexity and lexical variation but a little in accuracy also shows that an increase in cognitive task complexity may lead learners to produce a text which is correct but not necessarily more syntactically and lexically varied. By the way, the number of participants (40) may also be insufficient to indicate even the slight differences between the samples.

In line with these results, the first research question “What is the effect of manipulating cognitive task complexity on accuracy, syntactic complexity, and lexical variation of learners’ written output?” was answered and thus the first hypothesis in the study -the manipulations in the cognitive task complexity lead to greater syntactic complexity, more lexical variation, and greater accuracy in the written output- is proven not to be totally true. Only partially, considering the findings for error type 1 in accuracy, it can be interpreted as true.

5.2 The Effect of Manipulating Cognitive Task Complexity on Text Quality and Text Length

As for the second research question “What is the effect of manipulating cognitive task complexity on text quality and text length?” students’ written performances were analyzed and a number of findings were obtained with regard to text quality and text length of students’ written performances. Below is the discussion of these findings.

5.2.1 Text Quality

As a part of the second research question, students’ written performances were also evaluated by an outside rater with the use of a holistic rubric so as to see whether there is a significant difference between cognitively more demanding and less demanding tasks in terms of the qualities of the produced texts. The outside rater evaluated each text produced by the learners out of 24 points; and according to the statistical analysis of this grading, it was found that $p = .000$, that is, $p < 0.05$. Hence, it has been proven that there is a statistically significant difference between the texts written for easy and complex tasks in terms of quality. That is to say, the texts written for the complex version of the task were found to be in better quality compared to the ones produced for the easy version of the task.

In the holistic rubric mentioned above, a number of aspects were graded such as task completion, comprehensibility level of discourse, vocabulary, language control, and mechanics (see Appendix 8). The average grade given to the texts written for easy task is 74.05 whereas it is 86.57 for the complex task. These numbers equal to two different ranges (*74% - 83%* which is called "*almost meet expectations*" and *84% - 93%* which means "*meets expectations*") according to the criteria determined by the testing unit at Fairfax County Public Schools who prepared the holistic rubric used here and the assessment grid (2004). Below are the features of the texts which belong to the two ranges mentioned above:

Table 5.2.1 The Ranges Found for Easy and Complex Tasks and Their Features

FEATURES	RANGES	
	74% - 83% (almost meets expectations)	84% - 93% (meets expectations)
Task Completion	Partial completion of the task, content mostly appropriate, ideas undeveloped	Completion of the task, content appropriate, ideas adequately developed
Comprehensibility	Text mostly comprehensible, requiring interpretation on the part of the reader	Text comprehensible, requiring minimal interpretation on the part of the reader
Level of Discourse	Predominant use of complete yet repetitive sentences, no or almost no cohesive devices	Emerging variety of complete sentences and some cohesive devices
Vocabulary	Somewhat inadequate and/or inaccurate use of vocabulary	Adequate and accurate use of vocabulary
Language Control	Emerging use of basic language structures	Emerging control of basic language structures
Mechanics	Somewhat inaccurate spelling, use of diacritical marks, punctuation, and/or capitalization	Mostly accurate spelling, use of diacritical marks, punctuation, and/or capitalization

Taken from the holistic rubric prepared by Foreign Language Program of Studies, Fairfax County Public Schools, 2004

According to the table given above, the texts written for the easy task belong to the first range (74% - 83%) since the average given to these papers is 74.05. This means that the texts produced for the easy task almost meet the expectations since the texts include undeveloped ideas, force the reader to make interpretations so as to understand the content, they are full of repetitive sentences, spelling, punctuation, and capitalization mistakes, and incorrect use of vocabulary items. In addition, the sentence structures used in those texts are at the basic level. On the other hand, the texts written for the complex task belong to the second range (84% - 93%) since the average given to these papers is 86.57. In this respect, the same table above indicates that the texts produced for the complex task exactly meet the expectations since these texts include ideas which are adequately developed, require minimal interpretation on the part of the reader, they are full of various sentence structures and some cohesive devices, the vocabulary items are used accurately, and there are fewer spelling, punctuation, and capitalization mistakes.

When considered from this point of view, this study has a pioneering role since the researchers did not take text quality into account in the previous studies related to the effects of cognitive task complexity on the written output (Kuiken and Vedder, 2007a, 2007b, 2008a; Gökgöz and Atay, 2009).

5.2.2 Text Length

As the second variable in the second research question, text length was put into investigation. The lengths of the texts written for the easy and the complex versions of the task were compared. However; the independent samples t- test revealed that the result was not statistically significant (p = .442, that is, p > 0.05). Although the average word numbers of the texts written for easy and complex tasks are different in number (that is, 201.70 words for easy task, 187.85 for complex task), this difference is not a significant one for statistics. As

a result, it can be stated that task manipulations do not affect the length of the produced text.

However, there is another point which may contribute to the understanding why task manipulations are not effective in text length. While analyzing the collected data, it was revealed that some of the students could not even produce a text of minimum 150 words as given in Table 5.2.2 below, and the same number of extra tasks had to be assigned to other students so as to replace these inadequate ones.

Table 5.2.2 Students who could not produce a text of minimum 150 words

Task Name	Word Number
C3	116
C6	132
C7	132
C17	123
C20	119
E4	92
E5	81
E6	130
E7	134
E9	112
E10	96
E11	67
E13	137
E15	102
Average	112

Note: C=complex task, E=easy task

As clearly seen from Table 5.2.2, 14 students (5 of them wrote texts for the complex task whereas 9 students tried to produce a text for the easy task) could not even produce a text of minimum 150 words, and the average word number for those who wrote a text less than 150 words is 112.

This incompetency in writing may also indicate that cognitive task complexity might be in relation with the level of second language writing proficiency as could be expected on the basis of the Threshold Hypothesis (Cummins, 1979).

In accordance with this hypothesis, Cummins (1979) claims that a child needs to achieve a certain level of proficiency or competence in the first or second language and a minimum threshold needs to be achieved in order to remove the negative consequences concerning a specific language skill (in this case, it is writing). In the current study, even though all participants in the study were determined to be intermediate level English learners, their L2 writing proficiency or even L1 writing proficiency may differ. In this case, it is quite normal that some of them are not competent enough to produce a text of minimum 150 words.

In the same way, even for the ones who managed to write texts of minimum 150 words, the comparison of the text lengths concerning easy and complex tasks may also be misleading since we do not have any data showing their level of L2 writing proficiency. Thus, the insignificant difference between the text lengths might be the direct result of the various L2 writing proficiency that students have both in easy and complex groups. Namely, if these tasks had been assigned to a group of students whose L2 writing proficiency was intermediate, not the general language proficiency; then the results could show more significant results between the easy and complex versions of the task.

5.2.3 Overall Evaluation for the Second Research Question

Within the scope of the second research question, the effects of cognitive task complexity on the quality and the length of the produced texts were evaluated. The statistical analyses have put forward that more demanding writing tasks (complex tasks) which require the use of more attentional resources lead learners to produce better quality texts in terms of task completion, comprehensibility, level of discourse, vocabulary, language control, and mechanics.

However, the results also illustrate that these task manipulations do not necessarily mean that students who are dealing with complex writing task will

produce longer texts compared to the ones who are assigned the easy version of the task. As explained above, this may be in relation with the L1 or L2 writing proficiency levels of the students which could be supported with the ideas developed within the Threshold Hypothesis by Cummins (1979). Although this hypothesis needs to be verified by some other studies and thus cannot be regarded as the sole explanation of the results found for text length, it is clear that cognitive task complexity does not have a significant impact on the written output in terms of text length; however, it should not be disregarded that the number of participants is also worth considering. With larger population under investigation, different results concerning the effects of task complexity as for the text length may be obtained.

In this respect, the second hypothesis “Cognitive task complexity pushes learners to show better quality written performance and produce longer texts compared to the easy tasks” is proven to be partially true since it is found in the current study that students produce better quality texts when they are assigned cognitively more demanding tasks; however, this challenge does not necessarily force them to produce longer texts in comparison to the ones who are assigned the easy version of the writing task.

5.3 Overall Evaluation for the Third Research Question

As for the last research question, Robinson’s (2001a) Cognition Hypothesis and Skehan and Foster’s (2001) Limited Attentional Capacity Model were compared and in the light of the research findings, it has been determined which model is a better predictor of achievement in foreign language writing.

In the current study, the achievement in foreign language writing was analyzed through five variables: accuracy, syntactic complexity, lexical variation, text quality, and text length. In both models mentioned above, the researchers make certain predictions specifically for accuracy, syntactic complexity, and lexical variation. While Robinson (2001a) asserts that cognitively more demanding

tasks lead learners to produce more accurate, syntactically more complex, and lexically more varied texts, Skehan and Foster (2001) disagree with this idea for the reason that they believe in the existence of limited resources for learners to use during language production. Therefore, they think that if the task is easier, that is cognitively less demanding, students feel safer and show more accurate, syntactically more complex, and lexically more varied written performance. When the research findings in the current study are considered, it is clear that there is almost no evidence for the predictions of the both models. Only very little findings related to the accuracy of the text (specifically related to error type 1) seems to support the assertions of Robinson's (2001) Cognition Hypothesis similar to the other studies carried out on foreign/second language writing (Kuiken and Vedder, 2007b; 2008a, Gökgöz and Atay, 2009). This means that neither Cognition Hypothesis nor Limited Attentional Capacity Model is exactly a good predictor of achievement in foreign language writing.

On the other hand, these two models do not make any predictions specifically on text quality and text length. However; accuracy, syntactic complexity, and lexical variation are also included within the holistic rubric used for evaluating text quality (in the form of different subtitles such as task completion, comprehensibility, level of discourse, vocabulary, language control, and mechanics), and since a significant result was found regarding the relationship between cognitive task complexity and the quality of the written text, it can be proposed that the findings related to text quality are in parallel with the ideas underlying Robinson's (2001) Cognition Hypothesis. In this respect, although none of the models above exactly predicts the effects on task complexity on written output, the third hypothesis in the study "Robinson's (2001) Cognition Hypothesis is a better predictor of student achievement in foreign language writing" might be told to be proven as true just because the variable "text quality" in a way includes accuracy, syntactic complexity, and lexical variation in the written texts.

5.4 Suggestions for Further Research

In the current study, some inconclusive results have been obtained and it has been unearthed that task manipulations do not have a direct effect on the L2 written performance in terms of accuracy, syntactic complexity, and lexical variation. On the other hand, the results concerning the effects of task manipulations in terms of text quality has revealed that cognitively more demanding tasks encourage learners to produce better quality texts when evaluated by a holistic rubric. However, this may seem as an inconsistency since the variables such as accuracy, syntactic complexity, and lexical variation can also be regarded as the components of text quality. Therefore, in the prospective studies related to the effects of task manipulations on written performance; rather than using a holistic rubric to determine the quality of the text, the variable "text quality" might be divided into subgroups and the written performances might be analyzed for each subgroup so as to see exactly in which aspects the written output becomes better or worse.

Furthermore, since writing ability is in close relationship with a number of other factors and this study is cross-sectional in nature, it may not be enough to come up with solid results and make generalizations concerning the relationship between task manipulations and L2 written performance. An investigation of the effects of task complexity by means of a longitudinal design where a continuous treatment which involves gradually increased cognitive complexity of tasks is applied may contribute more to the understanding of the effects of the variables included in this research. In fact, it is really difficult to operationalize task complexity within such short-term studies; hence, more studies are needed to test writing production in terms of the use of attentional resources for relatively longer periods.

Similarly, Cognition Hypothesis (Robinson, 2001a) also predicts that individual differences in cognitive abilities as well as affective factors will significantly affect task-based performance and so language learning as tasks increase in complexity. Hence, it would be logical that possible interactions between learner

type and task manipulation should also be paid attention since some learners might benefit more from such manipulations than others.

Moreover, there are some other aspects of written performance worth considering. For example, in this study no attention was paid to the actual content or argumentative force of the text. No assessment was made so as to see the effects of task complexity on these aspects or other higher-order writing skills such as cohesion or coherence of the produced text. Maybe the real difference in terms of task complexity between easy and complex tasks is lying under these aspects. Therefore; in future studies, these aspects should also be included within research design.

5.5 Conclusion

In the current study, L2 written performance was under investigation and the effects of cognitive task complexity on this performance were examined. The impetus for conducting this research study was the absence of certain criteria when grading and sequencing writing tasks and students' not being able to reach the desired level in writing skill (in terms of accuracy, syntactic complexity, lexical variation, text length, and overall text quality). In order to gain insight into the question which type of tasks are most likely to elicit better written performance, two well-known models, Limited Attentional Capacity Model (Skehan and Foster, 2001) and Multiple Attentional Resources Model or Cognition Hypothesis (Robinson, 2001a) were tested which try to explain the relationship between cognitive complexity and linguistic performance.

According to the findings in the current study, it has been understood that cognitive task complexity does not have a direct effect on accuracy, syntactic complexity, lexical variation, and the length of the produced text, but just on the overall quality of the written performance. In this respect, it has been concluded that none of the models is exactly a good predictor of achievement in foreign language writing.

However, it is a well-known fact that task performance in L2 (either oral or written) depends on various factors (Kuiken and Vedder, 2008b) such as the cognitive complexity of the task, the conditions under which the task has to be performed (task format, participants involved, oral versus written mode, etc.) and learner factors (attitude, motivation, anxiety, working memory, etc.). Therefore, it is quite premature to reject the two models mentioned above without designing a larger scale study in which the factors other than the ones in the current study are also included because the research into the effects of task complexity on L2 learning is an area of great consequence for the development of theories in SLA (Robinson, 2001a) and for pedagogic decisions about grading and sequencing writing tasks particularly in foreign language learning/teaching contexts. In this respect, the findings of the current study and the ones to be found in future studies may help language teachers while choosing appropriate writing tasks for their students and also text book writers might significantly benefit from these results in order to sequence and grade the writing tasks in a proper and cognitively appropriate way.

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APPENDICES

Appendix 1

Common European Framework for Writing

Common European Framework for Writing	
A1	I can write a short, simple postcard, for example sending holiday greetings. I can fill in forms with personal details, for example entering my name, nationality and address on a hotel registration form.
A2	I can write short, simple notes and messages relating to matters in areas of immediate needs. I can write a very simple personal letter, for example thanking someone for something
B1	I can write simple connected text on topics which are familiar or of personal interest. I can write personal letters describing experiences and impressions.
B2	I can write clear, detailed text on a wide range of subjects related to my interests. I can write an essay or report, passing on information or giving reasons in support of or against a particular point of view. I can write letters highlighting the personal significance of events and experiences.
C1	I can express myself in clear, well-structured text, expressing points of view at some length. I can write about complex subjects in a letter, an essay or a report, underlining what I consider to be the salient issues. I can select style appropriate to the reader in mind.
C2	I can write clear, smoothly-flowing text in an appropriate style. I can write complex letters, reports or articles which present a case with an effective logical structure which helps the recipient to notice and remember significant points. I can write summaries and reviews of professional or literary works.

Taken and adapted from:
http://www.coe.int/T/DG4/Portfolio/?L=E&M=/documents_intro/common_framework.html

Appendix 2

Voluntary Participation Form (Turkish)

Gönüllü Katılım Formu

Bu çalışma, Hacettepe Üniversitesi İngiliz Dili Öğretimi bölümünde yüksek lisans yapmakta olan Didem SÜLÜKÇÜ tarafından yürütülen, “Effects of Cognitive Task Complexity on the Written Output of Intermediate Learners of English” (Bilişsel Ödev Zorluğunun Orta Seviye İngilizce Öğrencilerinin Yazılı Ürünleri Üzerine Etkileri) başlıklı tez içerisindeki bir çalışmadır. Çalışmanın amacı, öğrencilerilere verilen yazma etkinliği ve ortaya çıkan yazılı metnin yapısal özellikleri arasında bir ilişki olup olmadığını incelemektir. Çalışma süresince, sizden kimlik belirleyici hiçbir bilgi istenmemektedir. Yazdığınız metinler tamamiyle gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir; elde edilecek bilgiler bilimsel yayımlarda kullanılacaktır.

Çalışmanın veri toplama aşamasının sonunda, bu çalışmayla ilgili sorularınız cevaplanacaktır. Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için İngiliz Dili Öğretimi Bölümü yüksek lisans öğrencisi Didem SÜLÜKÇÜ (E-posta: sulukcu.didem@gmail.com) ya da İngiliz Dili Öğretimi Bölümü öğretim üyelerinden Doç. Dr. Mehmet ÇELİK (E-posta: mcelik@hacettepe.edu.tr) ile iletişim kurabilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve verdiğim bilgilerin bilimsel amaçlı yayınlarda kullanılmasını kabul ediyorum. (Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

İsim Soyad Tarih İmza

...../...../2009

Appendix 3

Easy and Complex Versions of Five Tasks

TASK 1. Your Accomplishments (Complex Version)

On application forms (and personal interviews), many colleges and employers ask applicants to describe some personal accomplishments. In discussing personal accomplishments, you want to show that you are special or different in some way. You should be positive and focus on your good points. Give enough information to show how you are special, but not too much: you don't want to seem as if you are exaggerating or bragging.

By considering the points above, write a letter of 150 words in which you explain "what have you accomplished in the past two years?". Keep in mind that your text does not have to reflect the reality. Write a letter in which you try to convince the employer that you are the best applicant for the position. Here, the "position" refers to any one which is related to your own field. You have 40 minutes to write the text. Use of dictionary is permitted.

TASK 1. Your Accomplishment (Easy version)

Look at these instructions from parts of college and job applications. As a class, discuss the reactions of the students in the pictures to the question "*What have you accomplished in the past two years?* ". What do you think about their reactions? Do you feel similarly about this question?

I have to fill out this job application form. What can I say about my part-time job at McDonald's Fast Food?

I hate filling out this applications! I never know what to say about myself!

I do not want to brag about my scholarship !

I have been spending all m time in English class. I do not have time for anyting else!

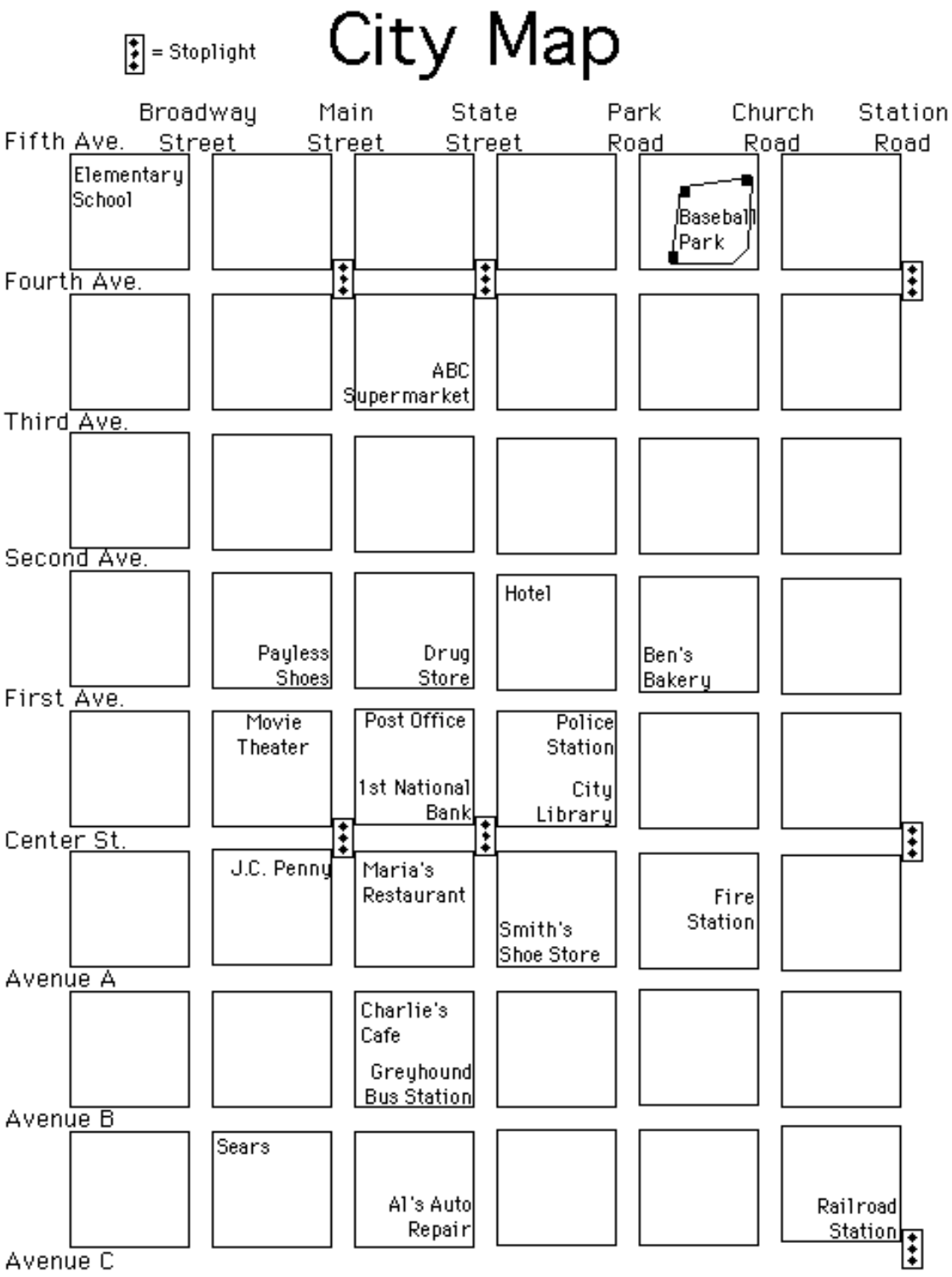
Write a letter of 150 words in which you explain "what have you accomplished in the past two years?". While writing your text, pay attention to the points given below:

- Your duties in your previous or present job
- The seminars, conferences, projects, or competitions you have participated so far
- The possible contribution of your accomplishments to this position

Keep in mind that your text does not have to reflect the reality. Write a letter in which you try to convince the employer that you are the best applicant for the position. Here, the "position" refers to any one which is related to your own field. You have 10 minutes for planning and 40 minutes to write the text. Use of dictionary is permitted.

TASK 2. City Map (Complex Version)

Imagine that the map given below belongs to your hometown. Write a text of 150 words in which you describe your hometown and give information about the social life by the use of areas given in the map. Keep in mind that you have to give directions while talking about the town and the activities as well. You have 40 minutes to write the text. Use of dictionary is permitted.


= Stoplight
City Map
Broadway Street
Main Street
State Street
Park Road
Church Road
Station Road
Fifth Ave.
Fourth Ave.
Third Ave.
Second Ave.
First Ave.
Center St.
Avenue A
Avenue B
Avenue C
Elementary School
Baseball Park
ABC Supermarket
Hotel
Payless Shoes
Drug Store
Ben's Bakery
Movie Theater
Post Office
Police Station
1st National Bank
City Library
J.C. Penny
Maria's Restaurant
Fire Station
Smith's Shoe Store
Charlie's Cafe
Greyhound Bus Station
Sears
Al's Auto Repair
Railroad Station

Task 2. City Map (Easy Version)

Complete the paragraph with the prepositions below. There may be more than one possible answer.

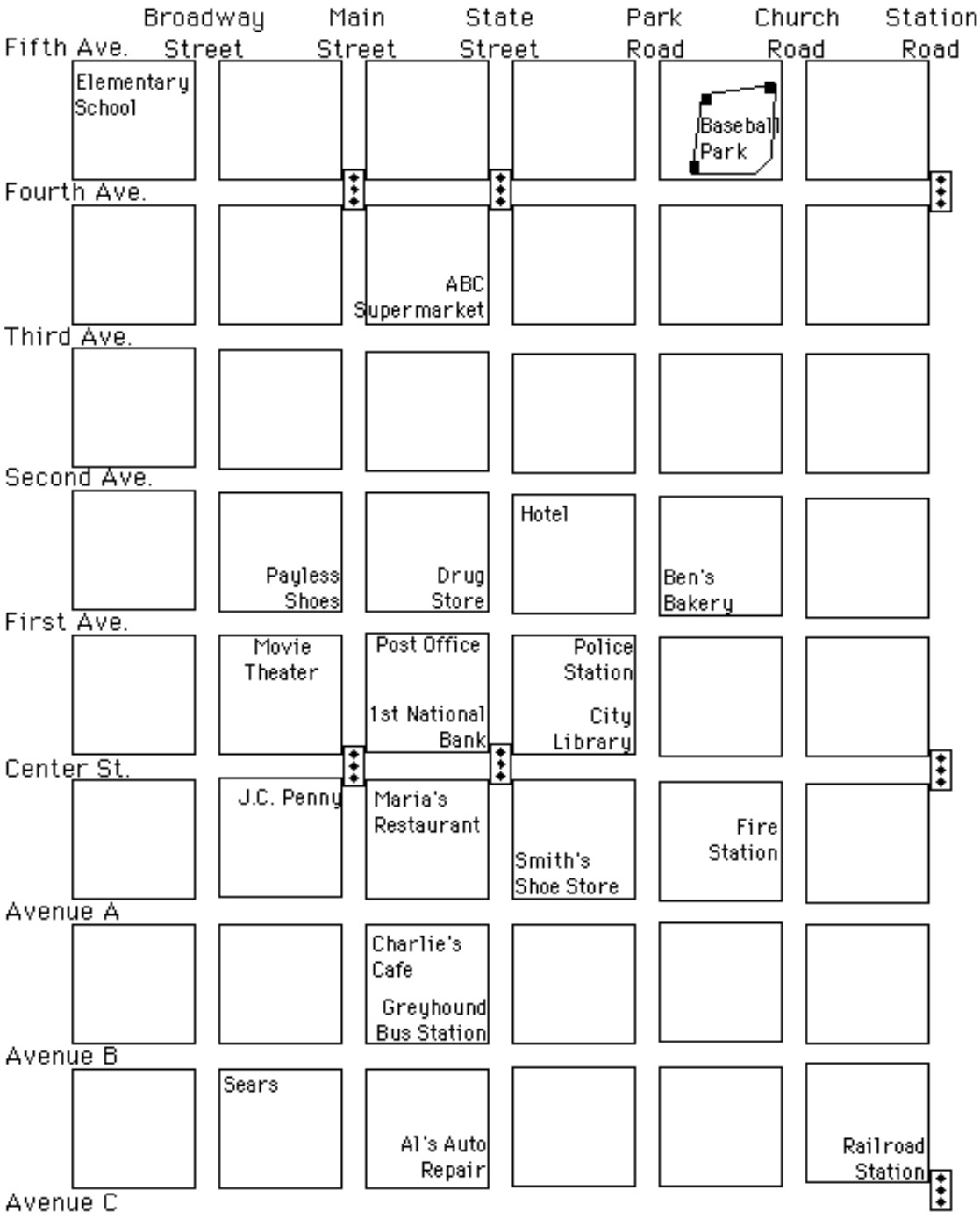
at on in to for off

I live in the old part of the city. Take the number 5 bus. Get off _____ Franklin Street. You will see a large church down the street. Walk _____ the curch and turn right. Walk two blocks and turn left at _____ Smith's Drugstore. You will be _____ Ames Avenue. Go straight _____ Ames for two blocks. Then turn left _____ the corner of Ames and Findlay. My house is the third one _____ the left.

Imagine that the map given below belongs to your hometown. Write a text of 150 words in which you describe your hometown and give information about the social life by the use of areas given in the map. Keep in mind that you have to give directions while talking about the town and the activities as well. You have 10 minutes for planning and 40 minutes to write the text. Use of dictionary is permitted.

City Map

= Stoplight



Task 3. Evaluating a Day in Your Life (Complex Version)

How do you spend your time on a typical day? Do you spend time on things you really want to do? Write a text of 150 words in which you compare how you spend your time in a typical day and how you would really like to change the way you spend your time. Keep in mind that you have 40 minutes to write the text. Use of dictionary is permitted.

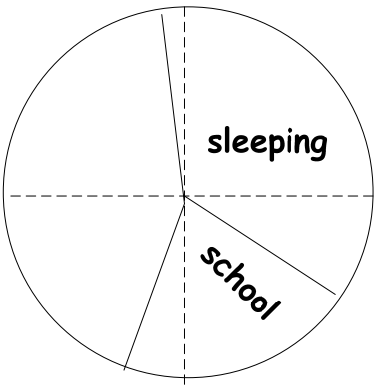
Task 3. Evaluating a Day in Your Life (Easy Version)

How do you spend your time on a typical day? Do you spend time on things you really want to do? To find out, let's do the following activity.

1. Draw a large circle on a piece of paper. Think of this circle as one day in your life.
2. Divide your circle into four quarters using dotted lines. (Each quarter = 6 hours of the day).
3. Look at the questions below. Divide your circle to show about how many hours you usually spend on these items. Draw lines and label the parts of your circle as in the example.

How many hours do you spend

- Sleeping?
- In school?
- On homework?
- Working (if you have a job)?
- Travelling (to and from school, work, etc.)?
- With friends?
- With familiy (if you are living with family)?
- Alone (doing activities of your choice)?
- On other activities (use your own examples)?



4. When you finish, look at your drawing. Are you happy with the way you are spending your time?
5. Draw another circle. This time, divide the circle to show how you would like to spend the day.

Do you want to change the way you spend your time? Write a text of 150 words in which you compare how you spend your time in a typical day and how you would really like to change the way you spend your time. Keep in mind that you have 10 minutes for planning and 40 minutes to write the text. Use of dictionary is permitted.

TASK 4. Websites (Complex Version)

Look at this list of discussion group addresses. Which discussion group would you be interested in reading? Which one would you like to write about? What would you write? Would you like to visit or start a newsgroup on another topic? What would the subject be?

Write a text of 150 words in which you answer the questions above. You have 40 minutes to write the text. Use of dictionary is permitted.

alt.shy.support
Biz.ad.internet
tes1.1
comp.support.com
rec.soccer.intl
soc.immigra
alt.best.internet

TASK 4. Websites (Easy Version)

Look at this list of discussion group addresses and descriptions. When you participate in discussion groups, you can look at an index of messages that people post and choose which ones to read. You can download the most interesting ones onto your computer to read later, and you can upload messages of your own. Which discussion group would you be interested in reading? Which one would you like to write about? What would you write? Would you like to visit or start a newsgroup on another topic? What would the subject be?

Write a text of 150 words in which you answer the questions above. You have 10 minutes for planning and 40 minutes to write the text. Use of dictionary is permitted.

alt.shy.support	A discussion group by and about shy people
Biz.ad.internet	A discussion group about advertising on the internet
tes1.1	Questions and answers about teaching English as a second language
comp.support.com	Questions and answers about problems with communications software
rec.soccer.intl	A discussion about international soccer/football
soc.immigra	A discussion about immigration in America
alt.best.internet	A place where people post their favorite messages

Task 5. Bed and Breakfast in Italy (Complex Version)

You are planning to go to Italy for holiday with a friend and want to spend two weeks together in May or June. You have decided to go to a Bed and Breakfast. Your friend has already surfed the internet and made a first selection. He/she picked five places, in Umbria, Rome, Rimini, Campania, and the Veneto region, and is now asking for your advice. The guesthouse or apartment you choose, however, has to satisfy a number of conditions. These criteria are:

• presence of a garden;

• a quiet location;

• located in (or in the vicinity of) the center;

• the possibility of doing physical exercise;

• swimming facilities;

• breakfast included.

None of the five addresses your friend sent you meets all of the criteria. A carefully considered choice has to be made, however. Read the five descriptions carefully, then write a letter of at least 150 words in which you explain which Bed and Breakfast you think is most suitable and fits the conditions best. Keep in mind that your text does not have to reflect your personal preferences. Write a letter in which you try to convince your friend that your choice is right, and support it with arguments. You have 40 minutes to write the letter. Use of a dictionary is permitted.

1. Casa Lory
Location: Umbria, province of Foligno. Situated 15 km from Foligno.

Description: Quiet location, in rural setting. Bedroom in classical style, large terrace with view, garden. Grand old house, completely restored in 1998. Swimming pool 2 km away.

Breakfast: Extensive breakfast included in the price: home-made pies, fresh eggs, a variety of local cheeses, and assorted cold meats.

2. Europe B and B

Location: Lazio, Rome. Situated in the old center of the city.

Description: In the dynamic heart of the Old City of Rome, 10 minutes distance from the Coliseum. Apartment, four rooms, two bathrooms, fitness-room, private garden, garage. Special discounts for theatre and concert tickets. Cable television, safe, air conditioning.

Breakfast: No breakfasts served.

3. Bed and Breakfast Hotel Migani Spiaggia

Location: Emilia Romagna, Rimini, at a considerable distance from the city center, but situated directly next to the boulevard and sea front, with a lot of activity, even at night.

Description: Attractively priced, young and dynamic, open day and night, free parking, fitness, beach activities, bicycles available for guests, reduced entrance fees and shuttle bus to and from the clubs, special discounts for young guests and groups.

Breakfast: Comprehensive breakfast buffet, American style, between 8.30 and 11.00.

4. Dimora Carlo III di Borbone

Location: Campania, Vietri Sul Mare, province of Salerno, Amalfi coast.

Description: Situated on the boardwalk, in the old city center, apartment in historical block (18th century). Ideally located for those seeking to spend a quiet holiday on the beach or to go hiking in the mountains, but with shops, bars and restaurants conveniently located in close proximity.

Breakfast: Breakfast service during high season, between mid July and mid August.

5. Baffelan B and B

Location: Veneto, Valli del Pasubio, province of Vicenza, 800 m from the village, situated at the foot of the Monte Pasubio.

Description: For those looking for peace and mountain aficionados. Fully restored farmhouse with garden in tranquil region which has not been discovered by mass-tourism yet. We have two rooms for our guests on the top floor, with a total of 4/5 beds. The bathroom is shared between both bedrooms. Mountain bikes available upon request, mountain walks, horse-back riding.

Breakfast: Guests can prepare their own breakfast; not included.

Task 5. Bed and Breakfast in Italy (Easy Version)

You are planning to go to Italy for holiday with a friend and want to spend two weeks together in May or June. You have decided to go to a Bed and Breakfast. Your friend has already surfed the internet and made a first selection. He/she picked five places, in Umbria, Rome, Rimini, Campania, and the Veneto region, and is now asking for your advice.

Read carefully the five descriptions below, then write a letter of at least 150 words in which you explain which Bed and Breakfast you think is the most suitable. Write a letter in which you try to convince your friend that your choice is right, and support it with arguments. You have 10 minutes for planning and 40 minutes to write the letter. Use of a dictionary is permitted.

1. Casa Lory

Location: Umbria, province of Foligno. Situated 15 km from Foligno.

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Breakfast: No breakfasts served.

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Breakfast: Guests can prepare their own breakfast; not included.

Appendix 4

The Checklist Used by Outside Raters to Determine Which Task Pair Includes the Easiest and the Most Complex Versions

Dear Rater,

This study is conducted so as to determine the relationship between cognitive task complexity and written output in EFL writing and so contribute to the understanding of foreign language learners' use of attentional resources.

As the first stage of this research study, the writing tasks to be assigned have to be evaluated according to the checklist below. In fact, the items below reflect the features of complex writing tasks. Therefore, if your answers are generaly "yes", it means that the task is a complex one. On the other hand, if your answers are generally "no", then it indicates that the task is relatively easier.

Please add your comments regarding the writing tasks so that they can be improved and conducted properly.

Thanks in advance for your valuable contribution.

Didem SÜLÜKÇÜ
Hacettepe University

CHECKLIST FOR COGNITIVE TASK COMPLEXITY

(Adapted from Kuiken and Vedder, 2007a)

Features of the task	**Yes**	**No**	**Not clear**	**Comments**
1. Task requires a few elements to take into account.				
2. Task includes "here-and-now" features.				
3. Task requires some reasoning demands.				
4. There is no planning time given for the task.				
5. There are many other tasks in the given writing task.				

6. Before the task, no prior information related to the topic is given.				
7. Topic of the task is unfamiliar and unpredictable for the students.				
8. Discourse genre of the task is unfamiliar to Ss.				
9. Task is unfamiliar to the students.				
10. Task requires information organisation.				
11. Task requires large amount of computation.				
12. Informantion given in the task is unclear and insufficient.				

Appendix 5

Target Writing Task (Chosen)

Bed and Breakfast in Italy (Complex Version)

You are planning to go to Italy for holiday with a friend and want to spend two weeks together in May or June. You have decided to go to a Bed and Breakfast. Your friend has already surfed the internet and made a first selection. He/she picked five places, in Umbria, Rome, Rimini, Campania, and the Veneto region, and is now asking for your advice. The guesthouse or apartment you choose, however, has to satisfy a number of conditions. These criteria are:

• presence of a garden;

• a quiet location;

• located in (or in the vicinity of) the center;

• the possibility of doing physical exercise;

• swimming facilities;

• breakfast included.

None of the five addresses your friend sent you meets all of the criteria. A carefully considered choice has to be made, however. Read the five descriptions carefully, then write a text of at least 150 words in which you explain which Bed and Breakfast you think is most suitable and fits the conditions best. Keep in mind that your text does not have to reflect your personal preferences. Write a letter in which you try to convince your friend that your choice is right, and support it with arguments. You have 40 minutes to write the text. Use of a dictionary is permitted.

1. Casa Lory

Location: Umbria, province of Foligno. Situated 15 km from Foligno.

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Breakfast: Extensive breakfast included in the price: home-made pies, fresh eggs, a variety of local cheeses, and assorted cold meats.

2. Europe B and B

Location: Lazio, Rome. Situated in the old center of the city.

Description: In the dynamic heart of the Old City of Rome, 10 minutes distance from the Coliseum. Apartment, four rooms, two bathrooms, fitness-room, private garden, garage. Special discounts for theatre and concert tickets. Cable television, safe, air conditioning.

Breakfast: No breakfasts served.

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Breakfast: Comprehensive breakfast buffet, American style, between 8.30 and 11.00.

4. Dimora Carlo III di Borbone

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Description: Situated on the boardwalk, in the old city center, apartment in historical block (18th century). Ideally located for those seeking to spend a quiet holiday on the beach or to go hiking in the mountains, but with shops, bars and restaurants conveniently located in close proximity.

Breakfast: Breakfast service during high season, between mid July and mid August.

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Location: Veneto, Valli del Pasubio, province of Vicenza, 800 m from the village, situated at the foot of the Monte Pasubio.

Description: For those looking for peace and mountain aficionados. Fully restored farmhouse with garden in tranquil region which has not been discovered by mass-tourism yet. We have two rooms for our guests on the top floor, with a total of

4/5 beds. The bathroom is shared between both bedrooms. Mountain bikes available upon request, mountain walks, horse-back riding.

Breakfast: Guests can prepare their own breakfast; not included.

Bed and Breakfast in Italy (Easy Version)

You are planning to go to Italy for holiday with a friend and want to spend two weeks together in May or June. You have decided to go to a Bed and Breakfast. Your friend has already surfed the internet and made a first selection. He/she picked five places, in Umbria, Rome, Rimini, Campania, and the Veneto region, and is now asking for your advice.

Read carefully the five descriptions below, then write a text of at least 150 words in which you explain which Bed and Breakfast you think is the most suitable. Write a letter in which you try to convince your friend that your choice is right, and support it with arguments. You have 5 minutes for planning and 40 minutes to write the text. Use of a dictionary is permitted.

1. Casa Lory

Location: Umbria, province of Foligno. Situated 15 km from Foligno.

Description: Quiet location, in rural setting. Bedroom in classical style, large terrace with view, garden. Grand old house, completely restored in 1998. Swimming pool 2 km away.

Breakfast: Extensive breakfast included in the price: home-made pies, fresh eggs, a variety of local cheeses, and assorted cold meats.

2. Europe B and B

Location: Lazio, Rome. Situated in the old center of the city.

Description: In the dynamic heart of the Old City of Rome, 10 minutes distance from the Coliseum. Apartment, four rooms, two bathrooms, fitness-room, private garden, garage. Special discounts for theatre and concert tickets. Cable television, safe, air conditioning.

Breakfast: No breakfasts served.

3. Bed and Breakfast Hotel Migani Spiaggia

Location: Emilia Romagna, Rimini, at a considerable distance from the city center, but situated directly next to the boulevard and sea front, with a lot of activity, even at night.

Description: Attractively priced, young and dynamic, open day and night, free parking, fitness, beach activities, bicycles available for guests, reduced entrance fees and shuttle bus to and from the clubs, special discounts for young guests and groups.

Breakfast: Comprehensive breakfast buffet, American style, between 8.30 and 11.00.

4. Dimora Carlo III di Borbone

Location: Campania, Vietri Sul Mare, province of Salerno, Amalfi coast.

Description: Situated on the boardwalk, in the old city center, apartment in historical block (18th century). Ideally located for those seeking to spend a quiet holiday on the beach or to go hiking in the mountains, but with shops, bars and restaurants conveniently located in close proximity.

Breakfast: Breakfast service during high season, between mid July and mid August.

5. Baffelan B and B

Location: Veneto, Valli del Pasubio, province of Vicenza, 800 m from the village, situated at the foot of the Monte Pasubio.

Description: For those looking for peace and mountain aficionados. Fully restored farmhouse with garden in tranquil region which has not been discovered by mass-tourism yet. We have two rooms for our guests on the top floor, with a total of 4/5 beds. The bathroom is shared between both bedrooms. Mountain bikes available upon request, mountain walks, horse-back riding.

Breakfast: Guests can prepare their own breakfast; not included

Appendix 6

Most Frequently Used 1000 English Words
(Fry, Kress, & Fountoukidis, 2000)

Instant Words
1,000 Most Frequently Used Words

These are the most common words in English, ranked in frequency order. The first 25 make up about a third of all printed material. The first 100 make up about half of all written material, and the first 300 make up about 65 percent of all written material. Is it any wonder that all students must learn to recognize these words instantly and to spell them correctly also?

Source: *The Reading Teacher's Book of Lists*, Fourth Edition, © 2000 by Prentice Hall
Authors: Fry, Kress & Fountoukidis

FIRST HUNDRED

Words 1-25	Words 26-50	Words 51-75	Words 75-100
the	or	will	number
of	one	up	no
and	had	other	way
a	by	about	could
to	word	out	people
in	but	many	my
is	not	then	than
you	what	them	first
that	all	these	water
it	were	so	been
he	we	some	call
was	when	her	who
for	your	would	oil
on	can	make	its
are	said	like	now
as	there	him	find
with	use	into	long
his	an	time	down
they	each	has	day
I	which	look	did
at	she	two	get
be	do	more	come
this	how	write	made
have	their	go	may
from	if	see	part

SECOND HUNDRED

Words 101-125	Words 126-150	Words 151-175	Words 176-200
over	say	set	try
new	great	put	kind
sound	where	end	hand
take	help	does	picture
only	through	another	again
little	much	well	change
work	before	large	off
know	line	must	play
place	right	big	spell
year	too	even	air
live	mean	such	away
me	old	because	animal
back	any	turn	house
give	same	here	point
most	tell	why	page
very	boy	ask	letter
after	follow	went	mother
thing	came	men	answer
our	want	read	found
just	show	need	study
name	also	land	still
good	around	different	learn
sentence	form	home	should
man	three	us	America
think	small	move	world

THIRD HUNDRED

Words 201-225	**Words 226-250**	**Words 251-275**	**Words 276-300**
high	saw	important	miss
every	left	until	idea
near	don't	children	enough
add	few	side	eat
food	while	feet	face
between	along	car	watch
own	might	mile	far
below	close	night	Indian
country	something	walk	really
plant	seem	white	almost
last	next	sea	let
school	hard	began	above
father	open	grow	girl
keep	example	took	sometimes
tree	begin	river	mountain
never	life	four	cut
start	always	carry	young
city	those	state	talk
earth	both	once	soon
eye	paper	book	list
light	together	hear	song
thought	got	stop	being
head	group	without	leave
under	often	second	family
story	run	later	it's

FOURTH HUNDRED

Words 301-325	**Words 326-350**	**Words 351-375**	**Words 376-400**
body	order	listen	farm
music	red	wind	pulled
color	door	rock	draw
stand	sure	space	voice
sun	become	covered	seen
question	top	fast	cold
fish	ship	several	cried
area	across	hold	plan
mark	today	himself	notice
dog	during	toward	south
horse	short	five	sing
birds	better	step	war
problem	best	morning	ground
complete	however	passed	fall
room	low	vowel	king
knew	hours	true	town
since	black	hundred	I'll
ever	products	against	unit
piece	happened	pattern	figure
told	whole	numeral	certain
usually	measure	table	field
didn't	remember	north	travel
friends	early	slowly	wood
easy	waves	money	fire
heard	reached	map	upon

FIFTH HUNDRED

Words 401-425	**Words 426-450**	**Words 451-475**	**Words 476-500**
done	decided	plane	filled
English	contain	system	heat
road	course	behind	full
halt	surface	ran	hot
ten	produce	round	check
fly	building	boat	object
gave	ocean	game	am
box	class	force	rule
finally	note	brought	among
wait	nothing	understand	noun
correct	rest	warm	power
oh	carefully	common	cannot
quickly	scientists	bring	able
person	inside	explain	six
became	wheels	dry	size
shown	stay	though	dark
minutes	green	language	ball
strong	known	shape	material
verb	island	deep	special
stars	week	thousands	heavy
front	less	yes	fine
feel	machine	clear	pair
fact	base	equation	circle
inches	ago	yet	include
street	stood	government	built

SIXTH HUNDRED

Words 501-525	**Words 526-550**	**Words 551-575**	**Words 576-600**
can't	picked	legs	beside
matter	simple	sat	gone
square	cells	main	sky
syllables	paint	winter	glass
perhaps	mind	wide	million
bill	love	written	west
felt	cause	length	lay
suddenly	rain	reason	weather
test	exercise	kept	root
direction	eggs	interest	instruments
center	train	arms	meet
farmers	blue	brother	third
ready	wish	race	months
anything	drop	present	paragraph
divided	developed	beautiful	raised
general	window	store	represent
energy	difference	job	soft
subject	distance	edge	whether
Europe	heart	past	clothes
moon	sit	sign	flowers
region	sum	record	shall
return	summer	finished	teacher
believe	wall	discovered	held
dance	forest	wild	describe
members	probably	happy	drive

SEVENTH HUNDRED

Words 601-625	**Words 626-650**	**Words 651-675**	**Words 676-700**
cross	already	hair	rolled
speak	instead	age	bear
solve	phrase	amount	wonder
appear	soil	scale	smiled
metal	bed	pounds	angle
son	copy	although	fraction
either	free	per	Africa
ice	hope	broken	killed
sleep	spring	moment	melody
village	case	tiny	bottom
factors	laughed	possible	trip
result	nation	gold	hole
jumped	quite	milk	poor
snow	type	quiet	let's
ride	themselves	natural	fight
care	temperature	lot	surprise
floor	bright	stone	French
hill	lead	act	died
pushed	everyone	build	beat
baby	method	middle	exactly
buy	section	speed	remain
century	lake	count	dress
outside	consonant	cat	iron
everything	within	someone	couldn't
tall	dictionary	sail	fingers

EIGHTH HUNDRED

Words 701-725	**Words 726-750**	**Words 751-775**	**Words 776-800**
row	president	yourself	caught
least	brown	control	fell
catch	trouble	practice	team
climbed	cool	report	God
wrote	cloud	straight	captain
shouted	lost	rise	direct
continued	sent	statement	ring
itself	symbols	stick	serve
else	wear	party	child
plains	bad	seeds	desert
gas	save	suppose	increase
England	experiment	woman	history
burning	engine	coast	cost
design	alone	bank	maybe
joined	drawing	period	business
foot	east	wire	separate
law	pay	choose	break
ears	single	clean	uncle
grass	touch	visit	hunting
you're	information	bit	flow
grew	express	whose	lady
skin	mouth	received	students
valley	yard	garden	human
cents	equal	please	art
key	decimal	strange	feeling

NINTH HUNDRED

Words 801-825	**Words 826-850**	**Words 851-875**	**Words 876-900**
supply	guess	thick	major
corner	silent	blood	observe
electric	trade	lie	tube
insects	rather	spot	necessary
crops	compare	bell	weight
tone	crowd	fun	meat
hit	poem	loud	lifted
sand	enjoy	consider	process
doctor	elements	suggested	army
provide	indicate	thin	hat
thus	except	position	property
won't	expect	entered	particular
cook	flat	fruit	swim
bones	seven	tied	terms
tail	interesting	rich	current
board	sense	dollars	park
modern	string	send	sell
compound	blow	sight	shoulder
mine	famous	chief	industry
wasn't	value	Japanese	wash
fit	wings	stream	block
addition	movement	planets	spread
belong	pole	rhythm	cattle
safe	exciting	eight	wife
soldiers	branches	science	sharp

TENTH HUNDRED

Words 901-925	**Words 926-950**	**Words 951-975**	**Words 976-1000**
company	sister	gun	total
radio	oxygen	similar	deal
we'll	plural	death	determine
action	various	score	evening
capital	agreed	forward	nor
factories	opposite	stretched	rope
settled	wrong	experience	cotton
yellow	chart	rose	apple
isn't	prepared	allow	details
southern	pretty	fear	entire
truck	solution	workers	corn
fair	fresh	Washington	substances
printed	shop	Greek	smell
wouldn't	suffix	women	tools
ahead	especially	bought	conditions
chance	shoes	led	cows
born	actually	march	track
level	nose	northern	arrived
triangle	afraid	create	located
molecules	dead	British	sir
France	sugar	difficult	seat
repeated	adjective	match	division
column	fig	win	effect
western	office	doesn't	underline
church	huge	steel	view

Appendix 7

Writing Task Scoring Sheet

Levels 1 and 2 Writing Tasks
Scoring Sheet

Name _____

Task Completion	½	1	1½	2	2½	3	3½	4
Comprehensibility	½	1	1½	2	2½	3	3½	4
Level of Discourse	½	1	1½	2	2½	3	3½	4
Vocabulary	½	1	1½	2	2½	3	3½	4
Language Control	½	1	1½	2	2½	3	3½	4
Mechanics	½	1	1½	2	2½	3	3½	4

Raw Score: _____ **/24**

Converted % Score: _____ **%**

FINAL GRADE: _____

24	100 %	16	82.7 %	8	65.3 %
23.5	98.9 %	15.5	81.6 %	7.5	64.2 %
23	97.8 %	15	80.5 %	7	63.2 %
22.5	96.8 %	14.5	79.4 %	6.5	62.1 %
22	95.7 %	14	78.3 %	6	61.0 %
21.5	94.6 %	13.5	77.2 %	5.5	59.9 %
21	93.5 %	13	76.2 %	5	58.8 %
20.5	92.4 %	12.5	75.1 %	4.5	57.8 %
20	91.3 %	12	74.0 %	4	56.7 %
19.5	90.2 %	11.5	72.9 %	3.5	55.6 %
19	89.2 %	11	71.8 %	3	54.5 %
18.5	88.1 %	10.5	70.8 %	2.5	53.4 %
18	87.0 %	10	69.7 %	2	52.3 %
17.5	85.9 %	9.5	68.6 %	1.5	51.2 %
17	84.8 %	9	67.5 %	1	50.2 %
16.5	83.8 %	8.5	66.4 %	0.5	49.1 %

Levels 1 and 2 Writing Tasks
Scoring Sheet

Name _____

Task Completion	½	1	1½	2	2½	3	3½	4
Comprehensibility	½	1	1½	2	2½	3	3½	4
Level of Discourse	½	1	1½	2	2½	3	3½	4
Vocabulary	½	1	1½	2	2½	3	3½	4
Language Control	½	1	1½	2	2½	3	3½	4
Mechanics	½	1	1½	2	2½	3	3½	4

Raw Score: _____ **/24**

Converted % Score: _____ **%**

FINAL GRADE: _____

24	100 %	16	82.7 %	8	65.3 %
23.5	98.9 %	15.5	81.6 %	7.5	64.2 %
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18.5	88.1 %	10.5	70.8 %	2.5	53.4 %
18	87.0 %	10	69.7 %	2	52.3 %
17.5	85.9 %	9.5	68.6 %	1.5	51.2 %
17	84.8 %	9	67.5 %	1	50.2 %
16.5	83.8 %	8.5	66.4 %	0.5	49.1 %

Appendix 8

Holistic Rubric

Level 1 Writing Tasks
Holistic Rubric

Does Not Meet Expectations	**Range: 54% - 73%**
Task Completion	Minimal completion of the task and/or content frequently inappropriate.
Comprehensibility	Text barely comprehensible.
Level of Discourse	Attempted use of complete sentences; no or almost no cohesive devices.
Vocabulary	Inadequate and/or inaccurate use of vocabulary.
Language Control	Inadequate and/or inaccurate use of basic language structures.
Mechanics	Inaccurate spelling, use of diacritical marks, punctuation, and/or capitalization.
Almost Meets Expectations	**Range: 74% - 83%**
Task Completion	Partial completion of the task; content mostly appropriate; ideas undeveloped.
Comprehensibility	Text mostly comprehensible, requiring interpretation on the part of the reader.
Level of Discourse	Predominant use of complete yet repetitive sentences; no or almost no cohesive devices.
Vocabulary	Somewhat inadequate and/or inaccurate use of vocabulary.
Language Control	Emerging use of basic language structures.
Mechanics	Somewhat inaccurate spelling, use of diacritical marks, punctuation, and/or capitalization.
Meets Expectations	**Range: 84% - 93%**
Task Completion	Completion of the task; content appropriate; ideas adequately developed.
Comprehensibility	Text comprehensible, requiring minimal interpretation on the part of the reader.
Level of Discourse	Emerging variety of complete sentences and some cohesive devices.
Vocabulary	Adequate and accurate use of vocabulary.
Language Control	Emerging control of basic language structures.
Mechanics	Mostly accurate spelling, use of diacritical marks, punctuation, and/or capitalization.
Exceeds Expectations	**Range: 93.5% - 100%**
Task Completion	Superior completion of the task; content appropriate; ideas well developed and well organized.
Comprehensibility	Text readily comprehensible, requiring no interpretation on the part of the reader.
Level of Discourse	Variety of complete sentences and of cohesive devices.
Vocabulary	Rich use of vocabulary.
Language Control	Control of basic language structures.
Mechanics	Few or no errors in spelling, use of diacritical marks, punctuation, and/or capitalization.