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The Effect of Task Complexity on Lexical Complexity and Grammatical Accuracy of EFL Learners' Argumentative Writing

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the degree of Master of Arts in English Language Teaching

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To the Graduate Council of Urmia University:

Hereby we are submitting a thesis written by **Zahra Mosalli** entitled **"The Effect of Task Complexity on Lexical Complexity and Grammatical Accuracy of EFL Learners' Argumentative Writing"** We have examined the final copy of this thesis for form and content, and recommend that it be accepted in partial fulfillment of the requirements for the Degree of Master of Arts in the field of English Language Teaching (ELT).

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In the Name of God, the Most Gracious, the Most Merciful

Dedicated to:

MY MOTHER

Whose love
knows no boundaries as it grows healthier each day,
knows no reason as it is given unconditionally, and
knows no season as it transcends forever through eternity.

MY FATHER

The Miracle of my life whose guiding hand on my shoulder
will remain with me forever.

MY BROTHER and SISTERS

The best friends of mine in life,

&

Dr. KARIM SADEGHI

My dear supervisor

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ABSTRACT

Thesis Title: The Effect of Task Complexity on Lexical complexity and Grammatical Accuracy of EFL Learners' Argumentative Writing

Based on Robinson's (2001, 2003, 2005) Cognition Hypothesis and Skehan's (1998) Limited Attentional Capacity Model, this study explored the effects of task complexity on the lexical complexity and grammatical accuracy of 60 university EFL learners' argumentative writing. Task complexity was manipulated using resource-dispersing factors. All participants were semi-randomly assigned to the one of the three groups: (1) topic group, (2) topic + idea, and (3) topic + idea + discourse marker group. One-way ANOVA was utilized to detect significant differences among the groups. The results showed that increasing task complexity (1) did not lead to differences in lexical complexity (measured by the ratio of lexical words to function words and lexical density), but it did lead to significant differences as mean segmental type-token ratio was used to measure lexical complexity and (2) had a significant effect on grammatical accuracy of EFL learners' argumentative writing. The third group (the least complex task) outperformed the other groups as far as MSTTR and all three measures of grammatical accuracy were concerned and this lent support to above-mentioned models. Implications of these findings are discussed in the thesis.

Keywords: EFL learners, Grammatical accuracy, Lexical complexity, Lexical density, Mean segmental type token ratio, Task complexity

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LIST OF ABREVIATIONS

ANOVA: Analysis of Variance

AS: Analysis of Speech

DC: Dependent Clause

DF: Degree of Freedom

EFC: Error-free Clause

EFL: English as a Foreign Language

EFT: Error-free T-unit

ESL: English as a Second Language

ESP: English for Specific Purposes

F: Fisher's F Ratio

FL: Foreign Language

HSD: Honestly Significant Difference

L1: First Language

L2: Second Language

LD: Lexical Density

LRE: Language-related Episodes

M: Mean (arithmetic average)

MS: Microsoft

MSTTR: Mean Segmental Type-token Ratio

NER: The Number of Errors

NNS: Non-native Speaker

P: Probability

SD: Standard Deviation

SLA: Second Language Acquisition

SPSS: Statistical Package for Social Sciences

T-unit: Terminable Unit

TBLL: Task-based Language Learning

TBLT: Task-based Language Teaching

TLU: Target-like Use

TOEFL: Test of English as Foreign Language

TTR: Type-token Ratio

WT: Word Type

η^2: Eta Squared; Measure of Strength Relationship

ρ: Spearman Rho

Chapter I: Introduction

1.1 Background

"There is no doubt that writing is the most difficult skill for Second Language (L2) learners to master" (Richards & Renandya, 2002, p. 303). As one of the four basic language skills, writing is the most complex in that it tests a person's ability to use a language in order to express his internal ideas (Liu & Braine, 2005). The difficulty lies not only in generating and organizing ideas, but also in translating these ideas into readable texts. The skills involved in writing are so highly complex that L2 writers have to pay attention to higher level skills of planning and organizing as well as to lower level skills of spelling, punctuation, word choice, and so on. The term writing refers to written texts and also to the acts of thinking, composing, and encoding language into such texts.

The theoretical view of writing ability as consisting of multiple traits has been reflected in many written assessments. For example, Grant and Ginther (2000) included four features in their writing assessments: essay length, grammatical structures, lexical specificity, and lexical features. According to Bae and Bachman (2010), writing performance varies between people as a function of test methods used. A common example of test method is a task.

Skehan (1998) identifies a task as an activity in which:

- Meaning is primary;
- There is some communication problem to solve;
- There is some sort of relationship to comparable real-world activities;
- Task completion has some priority;
- The assessment of the task is in terms of its outcome.

Among other genres, argumentative writing is a challenging communication task that calls upon sophisticated cognitive and linguistic abilities (Nippold & Ward-Lonergan, 2010). In an argumentative essay, the writer takes a position and tries to convince the reader to perform an action or to adopt a point of view regarding a controversy. For example, a current controversy surrounds the effort to limit global warming by requiring auto makers to produce more efficient

vehicles, thereby reducing carbon dioxide emissions. While most environmentalists favor this action, many executives argue that it would unduly burden the struggling auto industry. "To be successful, the argumentative writer must articulate a position, anticipate counterarguments, and reply to opposing points of view in an organized fashion" (Nippold & Ward-Lonergan, 2010, p. 239). This challenging communication task requires knowledge of the topic, perspective-taking, the ability to weigh both sides of an issue, and the use of literate language, including complex syntax to express one's ideas efficiently (Crowhurst, 1980a, 1980b; Knudson, 1992; Riley & Reedy, 2005). Argumentation is a key requirement of the essay, which is the most common genre that students have to write for different purposes (Wingate, 2012). The skill of argumentation has been recognized as essential in academic studies at various levels. At the university level, for instance, there is a great demand for reading and writing arguments in which students are often required to express their own points of view in academically appropriate forms. The argumentative essay has to take into consideration the fact that the writer is the only one who has permission to express his ideas. What counts in an argumentative essay, then, is the writer's ability to create a sense of interior debate, his ability to allow hearing other voices, and maintaining equilibrium among those voices (Liu, 2005).

Task-based learning is one of the areas in language learning (especially second/foreign language learning) which has caught a lot of attention recently. Learners' involvement in task completion requires some mental processes. One of these processes is 'information process'. In information processing research on tasks, tasks are manipulated along three different ways: their inherent complexity, their recognized difficulty, or the conditions under which they are completed in order for researchers to measure their effects on learners' comprehension, production, or language development (Khomeijani Farahani & Meraji, 2011).

The influence of the conditions under which tasks are completed, or the manipulations in conditions available to experimenters have been one of the most active areas in task-based research (Arslanyilmaz & Pedersen, 2010). Recent Second Language Acquisition (SLA) research has demonstrated a need for classroom activities that enhance both communicative interaction and attention to form and code of language in L2 classrooms. "One way of promoting such opportunities is through pedagogical tasks that encourage negotiation of meaning, while at the

same time providing opportunities for feedback and attention to form" (Nassaji & Tian, 2010, p. 398).

Much has been discussed about task complexity in SLA research, particularly regarding how tasks hold a place in SLA research and language pedagogy (Ong & Zhang, 2010). In order to situate the current study, two competing theoretical frameworks are provided for defining cognitive task complexity in task-based research: Robinson's Cognition Hypothesis (2005) and Skehan's Limited Attentional Capacity Model (Skehan & Foster, 1999, 2001).

Robinson (2005, see also Robinson & Gilabert, 2007) identified the features of tasks contributing to task complexity in his Triadic Componential Framework. The Triadic Componential Framework for task classification and design distinguishes the cognitive demands of pedagogic tasks contributing to differences in their intrinsic 'complexity' (e.g., whether the task requires a single step to be performed, or dual, or multiple simultaneous steps), from the learners' perceptions of task 'difficulty', which are the result of the abilities they bring to the task (e.g., intelligence) as well as affective responses (e.g., anxiety). Both of these are distinguished from task 'conditions', which are specified in terms of information-flow in classroom participation (e.g., one vs. two-way tasks) and in terms of the grouping of participants (e.g., same vs. different gender). In summary, Robinson's (2005) Triadic Componential Framework distinguishes task complexity (cognitive factors) from task conditions (interactional factors) and task difficulty (learner factors).

Thus, according to Robinson (2005), task complexity refers to the cognitive task features which can be manipulated through increasing or decreasing cognitive demands placed on the learners when they perform a task. In his definition, task complexity is the result of the attentional, memory, reasoning, and other information processing demands imposed by the structure of the task on the language learner. Task complexity in this Triadic Componential Framework encompasses two key dimensions, 'resource-directing' and 'resource-dispersing', which are thought to affect task performance and learning differently. The resource-directing dimensions make conceptual demands whilst the resource-dispersing dimensions make procedural demands on learners. In other words, former dimensions are those in which the demands on language use

made by increases in task complexity and the increased conceptual demands they implicate can be met by specific aspects of the linguistic system. Increasing task complexity along these dimensions, therefore, has the potential to 'direct' learners' attentional and memory resources to the way the L2 structures and codes are improved, so leading to interlanguage 'development'. In contrast, increasing task complexity along the resource-dispersing dimensions does not direct learners to any particular aspects of language code which can be used to meet additional task demands. Taking planning time and relevant prior knowledge away, or increasing the number of tasks that have to be performed simultaneously simply 'disperses' attentional and memory resources. Rather than being motivated by evidence of conceptual and linguistic development, changes in complexity along these dimensions relate to the increases in ability to access and deploy knowledge during 'performance' of a complex skill.

In Robinson's (2005) task complexity framework, the resource-directing dimensions include whether the task requires learners to make reference to events in the past or events in the present, whether the task requires learners to make reference to few or many elements, and whether the task requires learners to use spatial reasoning. The resource-dispersing dimensions include whether or not planning time is given to learners, whether or not prior knowledge is provided in the task, and whether a single task or multiple tasks are carried out concurrently by learners.

Robinson (2005) claims that an increase in task complexity with respect to the resource-directing dimensions will lead to more accurate and complex oral production as learners have to direct their attentional and memory resources to the conceptual or functional demands of the task. On the other hand, it is posited that an increase in task complexity with respect to the resource-dispersing dimensions will lead to less accurate and less complex oral production because learners' attention will not be directed to any particular aspects of the linguistic system to meet the increased task demands.

The other theoretical framework is Skehan's (1998, 2001, 2003) Limited Attentional Capacity Model. The basic assumption of this model is that humans have a limited information processing capacity and that more demanding tasks require more attentional resources from learners, thus resulting in trade-off effects among the three aspects of language production: accuracy, fluency,

and complexity (Skehan & Foster, 1999). Skehan (1998) claims that an increase in cognitive task complexity will divert learners' attention to the development of the content (message) of the task, instead of focusing their attentions on the form (e.g. complexity and accuracy) of their language production. As a result, some aspects of performance will be attended to while others will not. In other words, Skehan and Foster (2001) claim that cognitively demanding tasks draw learners' attention away from linguistic forms so that enough attention can be paid to the content of the message. In summary, they claim that:

- Humans have a limited information processing capacity and must therefore prioritize for which aspects they allocate their attention.
- If a task demands a lot of attention to its content, there will be less attention available to its language and vice versa.
- Language users prioritize the meaning and conveyance of a message over its form.
- When allowed to allocate attention freely, they will prioritize concern for content over concern for form (VanPatten, 1990).

What is the difference between Skehan's (1998) and Robinson's (2005, 2007) models? Both of them concur with each other in their predictions of increasing task complexity with respect to the resource-dispersing dimensions in the sense that increasing the cognitive demands of tasks with respect to these dimensions would have a negative effect on the accuracy, fluency, and complexity of learners' language production. However, "Skehan (1998) and Robinson (2005, 2007) diverge in their theoretical explanations of the same predictions" (Ong & Zhang, 2010, p. 220). Whereas Skehan and Foster (2001) argue that learners have limited attentional resources and, consequently, they have to draw upon limited pool of these resources, Robinson (2005) asserts that learners' attentional resources are not limited, and that multiple and noncompeting attentional pools can be accessed whenever they are required. In addition, Skehan (1998) and Robinson (2005) diverge in their predictions of the effects of increasing cognitive demands of tasks with respect to resource-directing dimensions on oral and written language production. Whereas Skehan (1998) proposes that increasing task complexity with respect to these factors results in reduced fluency, complexity, and accuracy of language production, Robinson (2005)

argues that increasing cognitive demands of task with respect to these factors enhances complexity and accuracy but reduces fluency of language production.

The present study attempted to manipulate task complexity along resource-dispersing dimensions to see whether task complexity along these dimensions has any effect on lexical complexity and grammatical accuracy. In addition, as far as resource-dispersing factors are concerned, this study intended to detect to which above-mentioned frameworks it will provide further evidence. The study also purported to investigate whether cognitive demands (as a task complexity factor) have any trade-off effects (Skehan & Foster, 1999, 2001) on learners' writing performance.

1.2 Statement of the Problem

Argumentative writings are of paramount importance in authentic written communication contexts (Wigglesworth & Storch, 2009). It is of more importance in academic settings where one of the outstanding tasks of Foreign Language (FL) learners is to write well-organized argumentative essays. One of the relatively under-researched areas in the field of FL writing is the role of task complexity in writing performance. Whereas the effect of task complexity on oral language production has been in the forefront of investigations in the past twenty years (see Samuda & Bygate, 2008), considerably there are less research on how different task types and the complexity of tasks influence written output of FL learners (see Kuiken & Vedder, 2008; Ong & Zhang, 2010). Gaining an insight into how different task characteristics are associated with the linguistic and discourse features of FL written texts could assist language teachers and testers in selecting tasks which facilitate the achievement of targeted features of writing competence (Kormos, 2011).

One of the important albeit neglected questions in second language writing pedagogy is how different task characteristics and conditions influence the quality of FL learners' writing. Most models of the processes involved in writing focus on mechanisms of planning, the linguistic formulation of specified content, and revision (e.g. Bereiter & Scardamalia, 1987; Flower & Hayes, 1980; Kellogg, 1996), and have been dealt with the first language (L1) but not L2 and FL writings (Kormos, 2011). None of these models discuss how the particular features of different writing tasks influence these processes and how writers divide their attentional resources among