THE EFFECTS OF TASK COMPLEXITY ON EFL LEARNERS' PRODUCTION: FOCUSING ON ACCURACY

Sara Ghanbarzadeh*

Javad Gholami**

1. Abstract:

Based on Robinsons' (2001) cognition hypothesis and Skehans' (1998) limited attentional capacity model, this study was conducted to examine the effects of task complexity on the accuracy of 25 Iranian EFL learners' essays. Task complexity was manipulated using three variables: (1) +/- few elements; (2) +/- reasoning demand; (3) +/- here-and-now. Accordingly, 25 participants were assigned to three descriptive tasks in two forms (simple vs. complex). In simple form, they performed the selected tasks according to (+ few elements, - reasoning demand, and here-and-now) variables, but in complex form tasks were selected according to the (- few elements, + reasoning demand, and there-and-then) variables. Results showed that increasing task complexity with regard to all three variables produced significantly lower accuracy. In both simple and complex tasks, the participants had the best performance in here-and-now task after that in reasoning demand task and finally, in few elements tasks.

Key words: *TBLT, task complexity, cognitive processing, CLT, accuracy, essay writing.*

* Islamic Azad University, Urmia Branch, Iran

** Urmia University, Iran.

2. Introduction:

Language teaching professionals (Prabhu, 1987; Skehan, 1998; Ellis, 2003) tried to keep a balance between the two opposing poles of language, i.e. form and meaning. They viewed task as the desired solution and claimed that 'task' provides the ideal condition for L2 learning. One of the most important aspects of TBLT that leads to learners' modification in allocating attention to language is the complexity or difficulty of the task. Cognitive approaches to task-based research focus on how differences in cognitive demands of a task affect EFL learners' performance (Robinson, 2001, 2005; Skehan, 1998). According to Long (1996), tasks provide a vehicle for the presentation of appropriate target language samples to learners' input which they will inevitably reshape via application of general cognitive processing capabilities and for the delivery of comprehension and production opportunities of negotiable difficulty. By defining task complexity, we can underestimate the variance between any two tasks. It does worth mentioning that the fact that certainly the simpler tasks will involve lower error rate than more complex and demanding tasks. According to Robinsons' (2001) cognition hypothesis, task complexity refers to the intrinsic cognitive demands of task and it can be manipulated during task design along resource-directing and resource-dispersing dimensions. The resource-directing dimension has (+/- few elements, +/- reasoning demand, and +/- here-and-now) variables and resource-dispersing dimension has (+/- planning time, +/- prior knowledge, and +/- single task) variables. The following study framed under the current theories of task complexity to investigate the effects of manipulating several task factors on task performance in a single descriptive study. Two key reasons motivated the focus of this study. First reason was related to the claims put forward by Skehan and Foster (2001) and Robinson (2001, 2005). The second one was due to the lack of sufficient research studies on written language production.

3. Method:

This is a descriptive study which is aimed at finding the effects of task complexity on accuracy of EFL learners' production.

3.1 participants

Twenty five Iranian EFL learners of English, aged between 15 to 25, served as the participants in this study. According to the in-house placement test, students were already placed at intermediate at Andishe Sabze Ehsan Institute. The participants' exposure to English was limited to instructional setting.

3.2 Instruments

Three descriptive tasks were selected according to the three variables (+/- few elements, +/- reasoning demand, and +/- here-and-now) of resource-directing dimension of Robinsons' (2001) cognition hypothesis. Two spot the difference pictures were selected to for the first variable (+/- few elements), two descriptive pictures were selected for the second variable (+/- reasoning demand), and one descriptive picture was chosen for the third variable (+/- here-and-now).

3.3 procedure

Participants were assigned to three types of tasks in two forms: first the simple form and later the complex form. The first task was performed the first session with two spot the difference pictures which were selected according to the first variable (+/- few elements). In simple form (+ few elements) participants were required to find four differences between the pictures, but in complex form (- few elements), they were supposed to find all the differences and write them. During the second session, the second task was performed with two descriptive pictures, which were chosen according to the second variable (+/- reasoning demand). In simple form (- reasoning demand), they were supposed to describe two women's characteristics, but in complex form they were asked to guess the best case for the man in the picture. During the third session, the third task was performed with one descriptive picture. In simple form (here-and-now), participants were required to describe the activities in the picture in simple present tense, but in complex form(there-and-then), they were required to write their descriptions in simple past tense.

3.4 Data analysis

In order to measure participants' production, all the written essays were measured and coded by the researcher. In order to assess accuracy, the (EFC) production measure was used: the percentage of error-free clauses. EFC is one of the global grammatical accuracy measures in research and according to Skehan and Foster (1996), global measures of accuracy focus on all corresponding influences of error and correctness. An error was considered as any deviation in syntax and lexical choice. EFC was measured through the calculation of the number of error-free clauses divided by the total number of clauses multiplied by 100.

Results:

In order to check the effects of task complexity on accuracy, two-factor within subjects ANOVA was used. Before embarking on the ANOVA test, it was necessary to check the data for outliers and anomalies, for this purpose the box plot was checked for the accuracy scores. Table 1 illustrates the descriptive statistics for accuracy scores, and shows that the accuracy means scores are the highest for the picture story task (19.04 for the simple and 18 for the complex one) and the simple reasoning demand task (17.56). In both simple and complex tasks, the participants had the best performance in the picture story task after that in the reasoning demand task and finally, in the spot the difference task.

Table 2 shows the results of the ANOVA for the within subjects factors task with three levels (picture story, spot the difference, and reasoning demand) and complexity with two levels (simple and complex), and their interaction. The results of the table can be summarized as follows. The factor task (picture story, spot the difference, and reasoning demand) was significant because the p-value for F in the column headed Sig. was less than 0.05. In other words: $F(2, 48) = 16.15$; $P < 0.05$. The factor complexity (simple and complex) was significant since the p-value for F was less than 0.05 or: $F(1, 24) = 15.99$; $p < 0.05$.The interaction between task and complexity (task*complexity) was not significant because its p-value was more than 0.05. In other words, $F(2, 48) = 0.07$; $p > 0.05$. Therefore, with regard to accuracy, there was a significant main effect for task and complexity but there was not a significant interaction between these two variables. In other words, task type and complexity of the task both influence the accuracy in writing. The

profile plot is shown in figure2. An interaction occurs when the lines cross one another, diverge, converge or have very different profiles.

Discussion:

The results of the following study revealed that task complexity has a significant effect on participants' accuracy. This means that participants were not capable of focusing their attention on the use of correct structures in the same way as they did in simple tasks. With regard to Skehan's (1998) limited attentional capacity model, and Robinson's (2001) cognition hypothesis, we can claim that the results of the present study are to some extent in line with Skehan and Fosters' model of task complexity. According to Skehan and foster (2001), the majoriy of the learners, due to the effects of their individual and contextual differences, are not capable of increasing their allocation of attention as the complexity of the task increases. Thus, in the majority of the performances task complexity decreases learners' accuracy.

Conclusion:

According to the results of the following study, we can conclude that task type and the complexity of the task both can be influential factors regarding participants' performances. Tasks that we select for the purpose of our studies must be at the appropriate level of complexity according to the participants' proficiency level and in accordance with our contexts. Another important factor is task sequencing. The sequence in which we employ our tasks can also affect participants' performance, whether from easy to complex or more demanding ones or vice versa. The findings of the present study provide useful insights for researchers and syllabus designers regarding task instruction and task sequencing. It is obvious that one of the most important issues regarding the use of tasks in classroom setting is the selection of suitable task for the appropriate context. So, the findings of the current study can help task instructors or maybe syllabus designers in selecting, grading, and designing tasks for classroom context.

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Table 1. Descriptive statistics for accuracy scores

	Mean	Std. Deviation	N
accuracy score for picture story simple	19.04	.89	25
accuracy score for picture story complex	18.00	1.32	25
accuracy score for spot the difference simple	16.96	1.72	25
accuracy score for spot the difference complex	16.12	2.28	25
accuracy score for reasoning demand simple	17.56	1.87	25
accuracy score for reasoning demand complex	16.76	1.90	25

Table 2. Tests of within-subjects effects for accuracy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
task	102.57	2	51.29	16.15	.00
Error (task)	152.43	48	3.18		
complexity	29.93	1	29.93	15.99	.00

Error(complexity)	44.91	24	1.87		
task * complexity	.41	2	.21	.07	.93
Error (task*complexity)	139.25	48	2.90		

Figure 1. Box plots for the accuracy scores

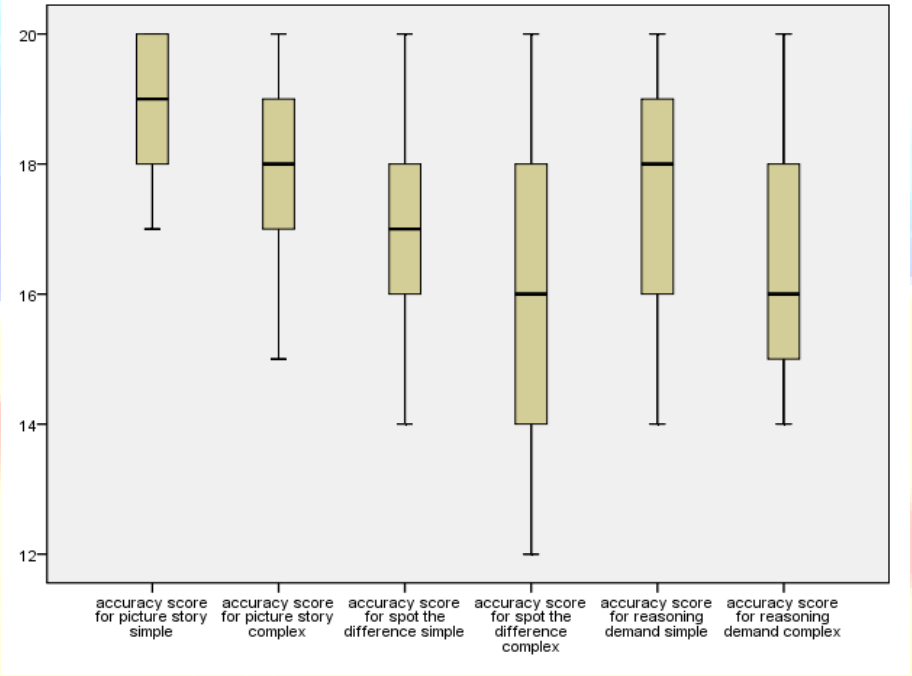
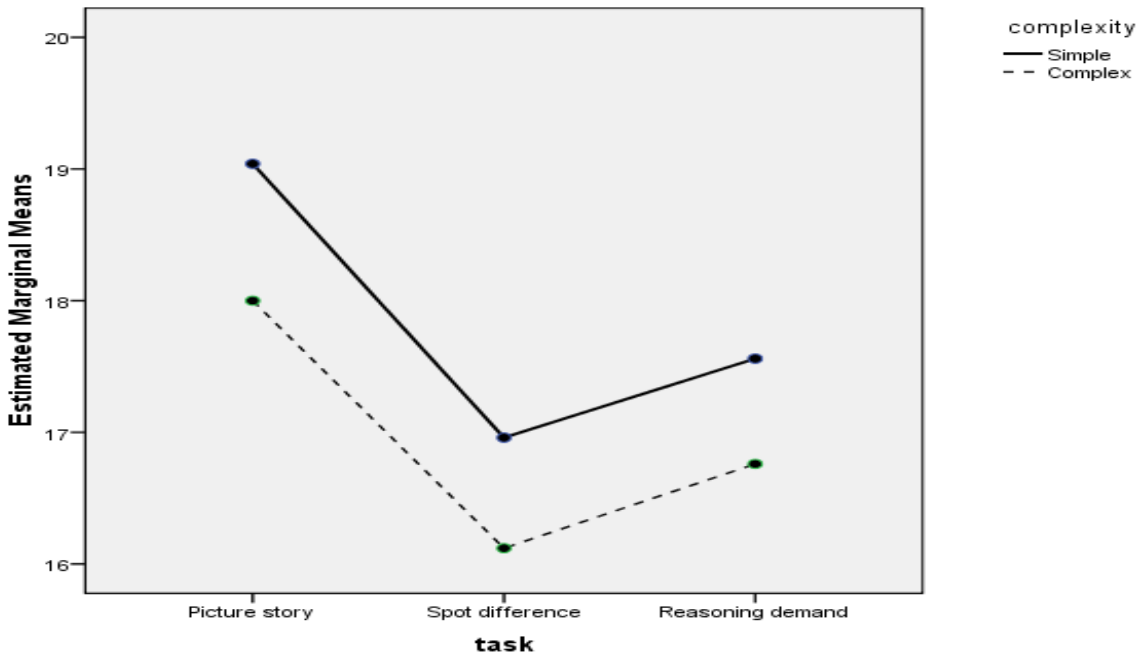
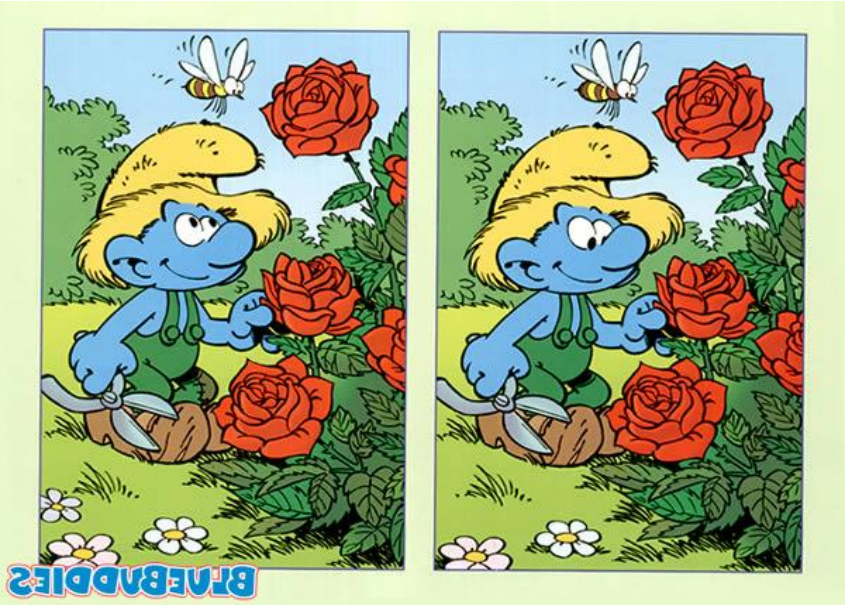


Figure 2. Profile plots for accuracy

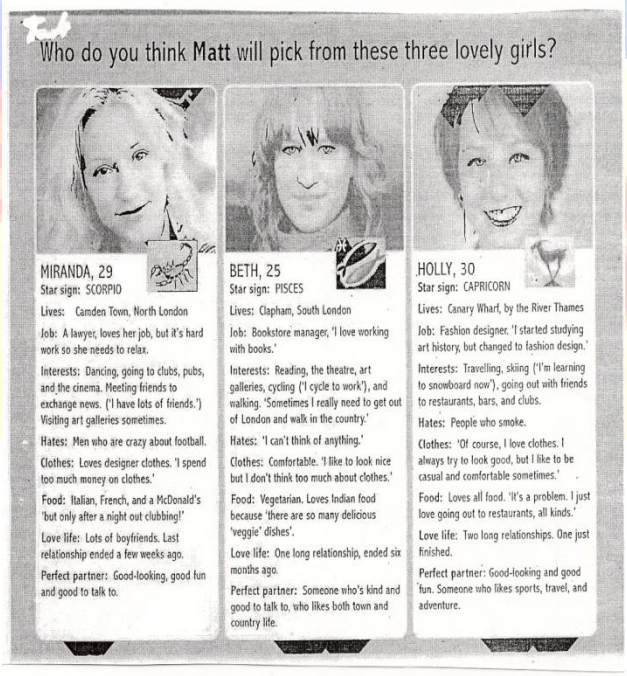


Appendix A[1] (- few elements)

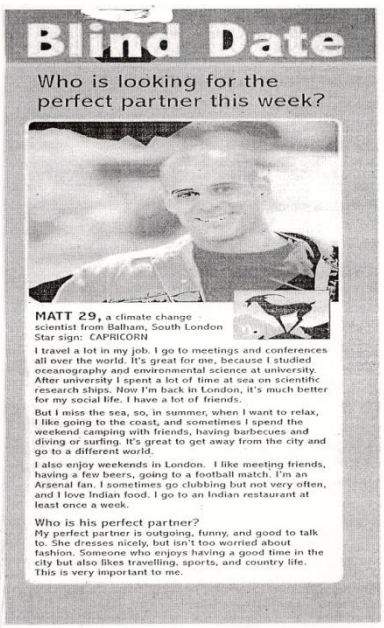
Appendix A^2 (+ few elements)



Appendix B^1 (- reasoning demand)



Appendix B^2 (+ reasoning demand)



Blind Date

Who is looking for the perfect partner this week?

MATT 29, a climate change scientist from Balham, South London
Star sign: CAPRICORN

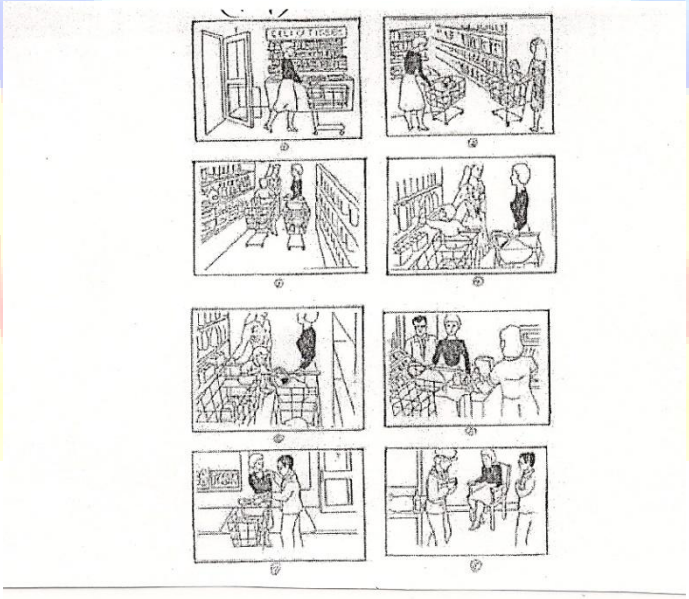
I travel a lot in my job. I go to meetings and conferences all over the world. It's great for me, because I studied oceanography and environmental science at university. After university I spent a lot of time at sea on scientific research ships. Now I'm back in London, it's much better for my social life. I have a lot of friends.

But I miss the sea, so, in summer, when I want to relax, I like going to the coast, and sometimes I spend the weekend camping with friends, having barbecues and diving or surfing. It's great to get away from the city and go to a different world.

I also enjoy weekends in London. I like meeting friends, having a few beers, going to a football match. I'm an Arsenal fan. I sometimes go clubbing but not very often, and I love Indian food. I go to an Indian restaurant at least once a week.

Who is his perfect partner?
My perfect partner is outgoing, funny, and good to talk to. She dresses nicely, but isn't too worried about fashion. Someone who enjoys having a good time in the city but also likes travelling, sports, and country life. This is very important to me.

Appendix C^1 (here-and-now)



Appendix C^2 (here-and-now)