Orchestrating Task Planning in Writing: The Impact of Pre-Task Planning and Within-Task Planning on Fluency, Accuracy, and Complexity of Iranian EFL Learners' Writing

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Abstract

Building on Robinson's (2001, 2003) Cognition Hypothesis, Skehan's (1998) Limited Attentional Capacity Model, and Kellog's (1986) model of writing, this study examined the effect of task planning on the fluency, accuracy, and complexity of 60 Iranian EFL learners' argumentative and narrative writings under different planning conditions. A quasi-experimental design with three levels of planning conditions (pre-task planning, within-task planning and no-planning) and different time constraints was used. Measures of fluency, accuracy, and complexity were used to evaluate the quality of the participants' written productions. The results of a series of one way Multivariate Analyses of Variance (MANOVAs) indicated that increasing task complexity, through task planning conditions and also different tasks produced significant differences among the groups in fluency and accuracy; however, with regard to syntactic complexity, both tasks provided similar results among the groups. The findings add support to the view that selecting an appropriate task with appropriate task-based implementation conditions can induce language learners to increase, accuracy and fluency, but not syntactic complexity of their output. Pedagogical implications are discussed and suggestions for further studies are made.

Keywords: Task Planning, Cognition Hypothesis, Limited Attentional Capacity Model, Fluency, Accuracy, Complexity

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1. Introduction

Since the introduction of task-based language pedagogy in the 1980s, tasks have held a central place in 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 vitality of the research into task-based learning in SLA is evident in the large number of publications related to task-based language learning, teaching, and testing (e.g., Bygate, Skehan, & Swain, 2001; Ellis, 1987, 2003; Foster & Skehan, 1996; Larsen-Freeman, 2006; Ong & Zhang, 2010, 2013; Ortega, 1999; Robinson, 2003, 2005; Skehan, 1996, 1998, 2009; Skehan & Foster, 2005; Yuan & Ellis, 2003).

These studies lend general support to the claim that providing adult language learners with the opportunity to plan before or during a task allows them to produce a discourse of higher quality in the second language. They draw on (a) *information processing theory*, which claims that human mind possesses a limited processing capacity and, as a result, inhibits a person to fully attend to all aspects of a task (Anderson, 1995), (b) *Levelt's (1989) model of speech production,* which maintains that speech production is the result of conceptualization of a message, formulation of its language representation, and language articulation, (c), Skehan's (1998*) trade-off hypothesis,* according to which attending to some aspect of language will hinder attending to other aspects of it, and, finally, (d) Robinson's (2001, 2003, 2005) *Cognition Hypothesis* which maintains that greater complexity and accuracy in language could be caused by greater task complexity and that the joint increase in complexity and accuracy in language is not constrained by the processing and attentional limitations.

To date, the majority of studies on pre-task and within-task planning have focused on the impact of planning on L2 learners' oral production and generally reported their positive effects on task performance. However, few studies have been conducted on writing, and there is no clear evidence demonstrating that pre-task and within-task planning promote L2 learners' written production in the ways that many researchers have reported for L2 speaking.

2. Conceptual Framework

By far the most influential theory which has fed research into task planning has been Levelt's (1989) model of speech production. Levelt's (1989) model identifies three autonomous processing stages: (1) conceptualizing the message, (2) formulating the language representation, and (3) articulating the message.

Although Levelt's model is basically designated to account for speech production, available theories of writing (e.g., Grabe, 2001; Grabe & Kaplan, 1996; Kellog, 1996; Zimmerman, 2000) posit a very similar set of processes to those proposed by Levelt. There is general consensus that these processes will be broadly similar in both L1 and L2 writing. Kellog's (1996) model, for example, explicitly relates processing components to Baddeley's (2003) theory of working memory. He distinguishes three basic systems involved in written text production. Each system has two principal components or processes. *Formulation* encompasses(a) 'planning', where the writer sets goals for the writing, thinks up ideas related to these goals, and orchestrates these to facilitate action, and (b) 'translating', where the writer selects the lexical units and syntactic frames needed to encode the ideas generated through planning and represents these linguistic units phonologically and graphologically for

execution. *Execution* requires (a) 'programming', where the output from translation is converted into production schema for the appropriate motor system involved (e.g., handwriting or typing) and (b) 'executing', the actual production of sentences. *Monitoring* consists of (a) 'reading', where the writer reads his or her own text ('a necessary but not sufficient condition for writing well', p. 61) and (b) 'editing', which can occur both before and after execution of a sentence and can involve attending to micro aspects of the text such as linguistic errors and/or macro aspects such as paragraph and text organization.

2.1. Task Planning

A task is described as a goal-oriented activity involving a meaningful, real-world process of language use, and engages the four language skills as well as cognitive processes (Ellis, 2003). Ellis (2005b) distinguished two principal kinds of task-based planning, That is, pre-task, or off-line planning (i.e., the planning that is done before learners perform a task) and within-task planning, or online planning (i.e., the planning that occurs online while learners are actually performing a task).

He further divided pre-task planning into rehearsal (or repetition) and strategic planning (i.e., planning what content to express and what language to use but without opportunity to rehearse the complete task). Ellis has also divided within-task planning into two forms; namely, pressured and unpressured time planning. The difference between them is the time allocation to learners for the task performance. In pressured time planning learners are required to perform the task rapidly by specifying a time limit. On the other hand, in an unpressured time planning they are given an unlimited amount of time to perform the task. By providing the learners with unlimited time,

researchers assume that learners will engage in within task planning while performing the task.

Yuan and Ellis (2003) provided a similar level of specific instructions (i.e., plan for content, language, and organization) and oral picture-based narrative task and examined the effects of off-line vs. on-line planning. They found that the Chinese EFL learners significantly improved complexity and accuracy under both pre-task and on-line planning conditions compared to the no-planning condition. However, the on-line planners produced better -although not significantly better- accuracy than the former, supporting Wendel's claim.

Foster and Skehan (1996), in their study, have focused on the effect of different variables on the nature of language performance in the context of task-based instruction. They provided specific instructions (i.e., plan for content, vocabulary, grammar, and organization), comparing them with general instructions. Their study reports strong effects of planning on fluency and complexity, with a linear relationship between degree of planning and degree of complexity. However, a more complex relationship was discovered between planning and accuracy, with the most accurate performance produced by the less detailed planners.

Ong (2014) examined the effect of two task environmental factors, that is, planning time (pre-task, extended pre-task, free-writing, and control) and task conditions (topic; topic and ideas; topic, ideas, and macro-structure) on the frequencies of five metacognitive processes of L2 writing during the planning and writing stages. The result of her study indicated that the manipulation of the task conditions had a stronger effect than the planning time conditions on the five metacognitive processes of L2 writers.

In a recent study, Lu and Ai (2015) investigated the differences in the syntactic complexity of English writers among college-level writers with

different first language (L1) background. They sampled 200 argumentative essay written by native speakers (NS) and 1400 argumentative essays produced by non-native speakers (NNS0 of seven different L1 backgrounds. Their essays were analyzed using 14 syntactic complexity measures. The results of their study indicated that there was a significant differences in only three of the 14 measures between the native and nonnative groups, when they ignored non-native's L1 background; however, when the learners were grouped by their l1 backgrounds, significant differences emerged between the NS group and one or more NNS groups in all 14 measures and the NNS groups showed drastically varied patterns of differences from the NS group.

While the above-mentioned studies have focused on the effect of task planning on writing, they haven't clearly focused the effect of task complexity by both the task type and task condition on writing fluency, accuracy and complexity. Based on theoretical and empirical rationales presented in this study, the following research questions were investigated:

1. Do L2 learners produce more fluent language when they are exposed to argumentative and narrative tasks with different complexity levels and also different planning conditions?
2. Do L2 learners produce more accurate language across two different tasks, namely argumentative and narrative writing, with different complexity levels and also under different planning conditions?
3. Do L2 learners produce more complex language when they have the opportunity to work on two different writings with different task complexity under different planning conditions?

3. Methods

This study was a between-group design that aimed to investigate the effect of task planning on accuracy, complexity, and fluency of EFL learners' written production. Task planning conditions were established at three levels (pre-task planning (PTP), within-task planning (WTP) and no-planning (NP)) and different time constraints. In addition, two different tasks, namely, narrative and argumentative, with different complexity levels were used in this study.

To determine the appropriate time limit for both the PTP and WTP groups, two pilot studies were conducted on two groups of Master's students in TEFL. The first pilot study pertained to pre-task planning in which the maximum time that most of the subjects spent on drawing an outline was considered as time limit for PTP. The second pilot study was conducted on WTP. Following Yuan and Ellis (2003), the maximum time taken for task completion in the pilot study was established as the time limit for task completion in WTP. Although this time limit would be longer than the time most participants would spend on task completion, in total agreement with Yuan and Ellis (2003), it was reasoned that such limitation would be necessary to ensure that the participants had enough time for task completion. Based on pilot testing, the appropriate time limit for PTP in narrative task writing was 5 minutes and that of argumentative essay writing was 10 minutes. In the case of WTP, 20 minutes was the appropriate time for the argumentative essay writing and 15 minutes for the narrative task.

3.1. Participants

Sixty four EFL students volunteered to participate in this study. Following Ellis (2003, 2004) , the researcher administered 40 multiple-choice grammar items taken from "Oxford Placement Test 2" (Allan, 2004) to 64 participants, as a

pre-test, to ensure that the three groups belonged to the same level of proficiency at the outset of the study. The results of the test indicated that only 45 students were homogeneous in terms of proficiency. Therefore, the other participants were excluded from the study. In addition, an argumentative essay writing task was performed to the participants. The one way MANOVA results (Table 1) did not show statistically significant differences among the participants in their writings.

Table 1. A Summary of MANOVA Results on the Argumentative Writing

Task	MANOVA		Location of Significance: Scheffé *p*		
	F	*P*	PTP - WTP	PTP- NP	WTP - NP
Argumentative writing	124	.23	.12	.18	.068

3.2. Instruments

In this study, measures of fluency, accuracy, and complexity were used to evaluate the quality of the participants' written production. These measures have been used in previous studies (e.g., Foster & Skehan 1996; Wendel 1997; Yuan & Ellis 2003). Different studies have used different measures to assess accuracy, fluency, and complexity. Ellis (2005, 2008) provides a fairly comprehensive list of such measures. He also points out that using multiple measures to assess each dimension of language performance may result in a more valid assessment, but that using different measures by different researchers may decrease the comparability of the obtained results. However, he cautioned that in order to avoid redundancy in measurement, each measure must tap a specific facet or sub-construct of the principal construct.

3.2.1. Fluency Measures

In this study, two aspects of fluency were measured:

a. Words per minute: The number of words the participants produced divided by the total time they spent on each assignment.

b. Syllables per minute: The number of syllables they produced divided by the minutes they spent on their production.

These measures were used by Chenoweth and Hayes (1998, 2000) and Ellis and Yuan, (2004) in their studies.

3.2.2. Complexity Measures

a. *Syntactic complexity:* It deals with the ratio of clauses to T-units (minimal terminal unit, accompanied by any associated dependent clauses) in the participants' production. T-unit rather than C-unit (communication unit) was employed because the task performance was monologic and contains few elided utterances. According to Hunt (1965) as learners mature, they include more clauses in their writing. Therefore sentences such as "They have studied hard" or "When I watch a horror movie, I dream a nightmare" are considered as T-units.

b. *Syntactic variety*: It is the total number of different grammatical verb forms used in the task. Grammatical verb forms include tense (e.g., simple past, past continuous), modality (e.g., *should*, *have to*), and passive voice. These are the same measures used by Ellis and Yuan (2003).

3.2.3. Accuracy Measures

a) *Error-free clauses*: The number of clauses that do not contain any errors. Errors were defined as deviant from standard norms with respect to syntax,

morphology, and/or lexicon. Lexical errors are defined as errors in lexical form or collocation (e.g., **I was waiting you*). So, all errors in syntax, morphology, and lexical choice will be considered.

b) *Correct verb forms*: The number of accurately used verbs in terms of tense, aspect, modality, and subject-verb agreement.

3.3. Procedures

3.3.1. Data Collection

For data collection, two different tasks were employed: The first task was a narrative task; the task required the participants to write a story based on a set of six pictures from Heaton (1975). A written narrative task was chosen to permit comparison with the results of studies investigating the effects of planning on similar tasks (e.g., Ellis, 2008; Ellis & Yuan, 2003; Foster & Skehan, 1996; Wendel, 1997).

The second task was an argumentative writing task in which the three groups were supposed to compose an argumentative essay under different planning conditions. The essay prompt was: "*What qualities do you think make up a good employer? Write an essay that identifies the qualities you think a good employer has, giving specific examples to back up your ideas."*

The pre-task planner had 10 minutes' time to plan on the topic, but the researcher did not mention anything about what to plan. The rationale was to figure out whether they plan on form, meaning, or both. Within-task planner had thirty minutes to compose their ideas.

3.3.2. Data Analysis

All writing productions of different groups under the different task planning conditions were segmented, coded, and scored based on the measures chosen to assess complexity, accuracy, and fluency. To ensure that the segmentation and scoring of the transcripts were conducted reliably, the data were segmented, coded, and scored by two independent experts. Then intercoder/interrater reliability coefficient magnitudes were estimated. After two sessions of training, the inter-rater reliability reached 0.85 which was an appropriate reliability for this study. SPSS version 23.0 was used to check the preliminary assumptions for a MANOVA. Finally, each aspect of the dependent variables was submitted to a one-way MANOVA followed by Post-Hoc Scheffe test to reveal the likely difference among the groups. In addition, effect sizes (d) were calculated using the formula provided by Cohen (1998). Following Cohen, effect size larger that .8 was considered "large" sizes, between .5 and.8 "medium" , between .2 and .5 "small, and less that .2 negligible.

4. Results

4.1. Effects of Task Planning on Writing Fluency

This study examined the effect of task planning on fluency, accuracy, and complexity on two writing tasks. Table 2 shows the results on task planning on writing fluency. It indicates that in both narrative and argumentative tasks, the PTP group produced more words and syllables per minute compared to the WTP and NP groups.

Table 2. Descriptive Statistics for Fluency in Argumentative and Narrative Writings

Task planning condition	Argumentative task			Narrative task	
	Production	Mean	Standard deviation	Mean	Standard deviation
Pre-task planning	WPM	13.70	1.82	14.50	1.62
	SPM	52.40	4.34	56.80	5.30
Within-task planning	WPM	11.07	1.24	13.30	1.26
	SPM	43.20	5.67	48.07	4.90
No-planning	WPM	9.92	.68	10.68	2.20
	SPM	32.80	1.40	42.30	3.45

In addition, a one-way MANOVA (Table 3) was conducted to determine the effect of task planning on different aspects of writing fluency (Table 2). Significant differences were found between the three groups on all fluency measures in both narrative [Wilk's Lambda=.89, F (3, 56)=206.02; p=.000] and argumentative tasks [Wilk's Lambda=.71, F (3, 86)=48; p=.001]. The effect size was large for both narrative (η^2=.80) and argumentative ((η^2=.86) tasks, accounting for 80% of the variance. Univariate analysis also indicated a significant difference among the groups for the number of words produced per minutes [F (2,390)=286, p=.000] and syllables per minutes [F (2,460)= 740, p=.001).

Table 3. A Summary of MANOVA Results on Writing Fluency

Task	MANOVA				Location of Significance: Scheffé *p*		
	Wilk's Lambda	η^2	F	*P*	PTP - WTP	PTP-NP	WTP - NP
Argumentative writing							
Words per minutes			286	.000	.003	.001	.001
Syllables per minutes	.71	.86	740	.000	.003	.001	.090
Narrative task writing							
Words per minutes			16	.000	.054	.000	.005
Syllables per minutes	.89	.80	30	.000	.000	.000	.008

Post hoc analyses also revealed that in the narrative task, with regard to words per minutes, the difference between PTP and WTP was not significant (p=.054); however, the difference between the PTP and NP group was significant (.001). With regard to the number of word production per minutes, the results revealed a significant difference among all the three groups in their argumentative writings.

4.2. Effects of Task Planning On Writing Accuracy

Table 4 illustrates the descriptive statistics on writing accuracy.

Table 4. Descriptive Statistics of Accuracy in Argumentative and Narrative Writings

Task planning condition	Argumentative task			Narrative task	
	production	Mean	Standard deviation	Mean	Standard deviation
Pre-task planning	EFC	33.59	1.82	38.50	1.62
	CVF	51.46	4.34	55.80	5.30
Within-task planning	EFC	29.587	1.24	34.30	1.26
	CVF	43.20	5.67	46.07	4.90
No-planning	EFC	25.92	.68	31.68	2.20
	CVF	41.80	3.40	46.30	3.45

As shown in table 3, with regard to correct verb form, the WTP groups in both tasks outperformed the PTP and NP groups. Likewise, a one-way MANOVA (table 4) revealed a significant multivariate main effect for task planning for both narrative [Wilks' Lambda=.084, F (2, 57)=310, p=.000, η^2=.916] and argumentative task [Wilks' Lambda=.046, F (2, 42)=231, p =.001, η^2=.582]. Given the significance of the overall test, the univariate main effects were examined for error free clauses, F (2, 58)=12.4, p=.000, η^2 =.872] and correct verb form [F(2, 58) =5.65, p=.000, withη^2 =.767]. Thus, the second hypothesis, stating that there is no statistically significant difference between task planning and writing accuracy, was rejected.

Table 5. A Summary of MANOVA Results on Writing Accuracy

Task	MANOVA				Location of Significance: Scheffé p		
	Wilk's Lambda	η^2	F	P	PTP – WTP	PTP-NP	WTP - NP
Argumentative writing							
Error Free Clause			12.4	.000	.835	.00	.01
Correct Verb Form	.46	.582	5.65	.004	.041	.048	.000
Narrative writing							
Error Free Clause	.84	.916	8.7	.001	.021	.067	.001
Correct Verb Form			6.6	.003	.0257	.245	.002

4.3. Effects of Task Planning on Writing Complexity

Table 6 illustrates the results of the descriptive statistics on writing complexity across different groups and different tasks.

Table 6. Descriptive Statistics of Complexity in Argumentative and Narrative Writings

Task planning condition		Argumentative task		Narrative task	
	production	Mean	Standard deviation	Mean	Standard deviation
Pre-task	CC	5.43	1.26	2.09	.65
planning	CV	21.48	4.89	18.43	3.30
Within-task	CC	4.13	1.22	2.30	.74
planning	CV	7.20	3.40	11.51	3.90
No-planning	CC	2.88	.86	1.77	.85
	CV	14.49	2.54	11.54	1.59

As indicated in Table 6, in argumentative essay writing the students' mean scores on syntactic variety for the PTP, WTP, and NP groups were 5.4, 4, and 2.97, respectively. Therefore, one can conclude that in the case of syntactic complexity, pre-task planners outperformed within-task planners and no planners. Within-task planner, also outperformed no planners. In the case of narrative task writing, the mean scores for pre-task planners, within task planners, and no planners were 2.09, 1.8, and 1.7, respectively.

Table 7. A Summary of MANOVA Results on Writing Complexity

Task	MANOVA				Location of Significance: Scheffé *p*		
	Wilk's Lambda	η^2	F	*P*	PTP - WTP	PTP- NP	WTP - NP
Argumentative writing							
Syntactic Complexity			.843	.438	.835	.000	.01
Syntactic Variety	.98	.24	21.94	.000	.04	.000	.054
Narrative task writing							
Syntactic Complexity			.0843	.238	.888	.733	1.00
Syntactic Variety	.114	.31	21.94	.000	.004	.000	.009

Results of MANOVA followed by post hoc Scheffe tests (Table 7) also indicate that based on the Wilk's Lambda criterion, the combined dependent variables (syntactic complexity and syntactic variety) were significantly affected by task planning conditions in both narrative [Wilks' lambda=0.98, F(2, 66)= 16.74, p=000, and η^2=0.24] and argumentative [Wilks' lambda=0.98, F(2, 74)=26.37, p=003, and η^2=0.31] tasks.

Considering different aspects of writing complexity individually, there were significant differences between the groups with regard to syntactic variety [F (2, 174)=107, p.000, η^2=.721]; however, with regard to syntactic complexity, there was no statistically significant difference among the groups in both narrative (p=.238) and argumentative (p=.438) writings.

5. Discussion

The purpose of this study was to investigate the effect of task planning on writing fluency, accuracy, and complexity. The findings of the study suggest that the opportunity to plan increases fluency in a language in terms of the number of words per minute and the number of syllables per minute.

In terms of Kellog (1996) model of writing, it can be concluded that PTP aids fluency in writing in two principal ways. First, it facilitates process and text planning for content and organization. A writer who has a clear idea of what the text type required (narrative or argumentative), organizes the information which needs to be conveyed, establishes the setting and describes the characters, identifies the main events, and evaluates them. As a result, he/she will find the pressure on working memory lessened during within-task planning (Raab, 1992, cited by Zimmerman, 2000). Second, pre-task planning may help to increase L2 writers' confidence in their ability to write clearly and effectively.

The results of this study are also in line with Yan and Ellis (2004) study, who found that PTP conditions improve learners' fluency (as measured by the number of syllables per minutes). However, the results of this study indicate a reverse direction to that of Ong and Zhang (2010). In their study, NP group outperformed WTP and PTP.

Findings of this study did lend support to the predictions of Skehan and Foster's (1998) Limited Attentional Capacity regarding the effects of increasing task complexity with respect to planning time factor on reducing fluency. Skehan and Foster (2001) rationalized that pre-task planning assists the rhetorical organization of the text to be produced and the propositional content to be encoded. This kind of planning reduces the pressure on the central executive in working memory and thus facilitates the process of translating what has been planned into verbal schema, even when this has to be undertaken under pressure of limited time. The opportunity for PTP may also add to the learners' confidence during task performance.

With respect to accuracy, the results of this study indicated that, in both narrative and argumentative writing tasks, the PTP group outperformed the NP group in terms of error-free clauses. However, in the case of using correct verb forms the result couldn't reach statistically significant level.

Enhanced accuracy in writing may be due primarily to the monitoring that occurs when writers revise the output of translation (as in Kellog's model), using explicit knowledge of their L1, L2, or both. One plausible way to account for the significant effects of PTP on accuracy of writing is to posit that whereas under PTP condition participants fall back on their explicit knowledge and are thus able to formulate more accurate sentences during the formulation stage of writing, under WTP condition they are likely to use their implicit knowledge of language.

With regard to writing complexity, although the mean scores of pre-task planners in argumentative essay writing was higher than that of the WTP and NP groups, MANOVA didn't show statistically significant difference among the groups.

The results obtained in the present study differ from those of Yuan and Ellis (2003) with regard to complexity. Whereas this study found some evidence of greater complexity in the PTP writing group, Yuan and Ellis found no difference between the two groups. It is hypothesized that this reflects the fact that, in comparison to the oral task in Yuan and Ellis, the writing task did provide the pre-task planners with opportunities for some controlled on-line planning, because of the time pressure. Thus, the pre-task planners in this study benefited from planning time.

The findings of this aspect of study (syntactic complexity) is in line with the prediction of cognition Hypothesis which states that increasing the cognitive load of a task will lead to more syntactic production of language. According to Robinson (2007) this high rate of syntactic complexity could be attributed to the fact that increasing task complexity will stretch interlanguage system enabling learners to use syntactic mode of language which is characterized by greater use of morphology, greater syntactic coordination, and high verb ratio. However, the results of current study ran against the findings of researchers such as Hosseini, (2009) and Ishikawa, (2006) who found no statistically significant difference between task complexity and L2 learners' writing performance.

6. Conclusions

Given the paucity of task complexity research on written language production, this study intended to fill this gap by examining the effects of manipulating both

task planning conditions and task complexity by itself, according to Robinson's (2001a, 2001b, 2005, 2007) Cognition Hypothesis. In manipulating task planning time, this study controlled the total amount of time on task given to the learners by varying the amount of planning and transcription time in the formulation process.

Results of this study did lend support to the predictions of Skehan and Foster's (1998) Limited Attentional Capacity regarding the effects of increasing task complexity on reducing fluency. First, the results showed that a complex task (NP) could not produce significantly greater fluency (rate A), as measured by the number of syllables per minute, and Rate B (the number of words per minutes) than the less complex tasks (PTP and WTP). Second, the results did not seem to support Robinson's Cognition Hypothesis regarding the effects of increasing task complexity on the characteristics writing output. However, it is important to note that our results showed that increasing task complexity with respect to this factor did result in marginally higher fluency, which is in line with the direction of increase predicted by Robinson's Cognition Hypothesis. Finally, trade-off effects, as suggested by Foster and Skehan (1996) and Skehan and Foster (1997) were observed in this study. Fluency did suffer as a result of increased task complexity when task planning conditions were manipulated.

From the perspective of language pedagogy the findings of this study assume particular importance in that they provide empirical support for the use of tasks in language classrooms. One of the main criticisms leveled at task-based language teaching and learning is that attention to form is thought to be limited to the feedback received by language learners (Ellis, 2009). Also, task-based language teaching has been criticized on the grounds that, by virtue of its meaning-centered and outcome-oriented nature, performing a task may at best

lead to the production of impoverished and pidginized language which is of very little value for L2 acquisition (Seedhouse, 1999).

This study indicated that planning does significantly impact the quantity and quality of L2 writing. Furthermore, it suggests that the PTP and WTP groups have somewhat different effects. This has important implications for both writing pedagogy and testing. That is, teachers may be able to manipulate the aspects of writing (fluency, complexity, and accuracy) that L2 writers attend to by varying the task conditions to allow sometimes for PTP, sometimes for WTP and sometimes for both. Finally, testers who wish to enable L2 writers to present their best products for assessment may need to ensure that opportunities for both types of planning are available to examinees.

Another pedagogical implication of this study is that PTP activities may effectively promote the quality of written language production in EFL classes. Considering the findings of this study as well as those of previous planning research, providing learners with explicit instruction on how to make a plan rather than simply allowing them extra time for planning seems to be a viable option for teachers. In this way, learners can devote their planning time to prepare for writing. When adopting a strategic device such as concept mapping, teachers may need to set up a training period to familiarize their students with the specific strategy.

Nevertheless, despite the potential contribution of this study to task-based writing research, two limitations need to be acknowledged. First, despite attempts to choose complementary and distinct measures, given the current understanding of the CAF triad, this study is still rather limited in terms of the measurement of these three constructs and, in particular, fluency. Future studies, thus, need to utilize subtler and deeper measures to assess fluency (see Skehan, 2009). Second, learner factors such as working memory capacity,

aptitude, interest level, and motivation, which might have significantly moderated the effects of task complexity in relation to fluency and lexical complexity, were not adequately addressed in our study.

Further research is needed to probe the way that working memory capacity interacts with task planning conditions. Such research will deepen our understanding of the way tasks best be utilized in language classroom.

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