



The Effects of Planning on Complexity, Accuracy, and Fluency in Indonesian EFL Learners' Descriptive Writing

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Abstract

The study aimed to investigate the effects of planning (pre-task planning (PTP) and on-line planning (OLP)) on the complexity, accuracy, and fluency (CAF) of Indonesian EFL learners' Descriptive writing. This research involved two undergraduate students whose first language (L1) is Bahasa and English as their second language (L2), majoring at Meteorology in ITB (Bandung Institute of Technology), aged 21 and 25 years old. Their language proficiency level was considered to be upper-intermediate as their TOEFL-PBT scores were above 450. The data were obtained through Descriptive writing tasks and a semi-structured interview through a third party, and they were analyzed using the measured linguistics features. The study revealed that factors such as the age of acquisition of the target language, strategy preferences/planning format (PTP or OLP), along with the time limit and word count affected the participants' Descriptive text writing performances. This work also showed that both planning formats could assist the participants to produce relatively high-quality texts as participant A seemed to benefit from the pre-writing task because her writing performance was better in the PTP condition than OLP one while participant B appeared to benefit from the OLP format as it allowed her to modify/revise her work freely without time constraint.

Keywords: Pre-task planning, On-line planning, Complexity, Accuracy, Fluency, Indonesian EFL Learners, Descriptive Writing.

Introduction

Planning (e.g., pre-task planning (PTP) and on-line planning (OLP)) has been believed to be one of the approaches in the target language (L2) writing design affecting the students' language production regarding complexity, accuracy, and fluency (CAF) (Foster & Skehan, 1999; Housen and Kuiken, 2009; Ellis, 2009; Wigglesworth & Storch, 2009). Planning in writing performance refers to the use of certain techniques to accomplish the required writing genre through organizing the knowledge appropriately (Yi & Ni, 2015). Ellis (2005) argues that planning may assist the students in a problem-solving activity before executing their writing tasks as it helps them to decide the relevant linguistic features to persuade the readers' perception towards their writing intention. She added that planning makes the language production to be naturally and effortlessly occurring in written or spoken tasks. Similarly, Flower and Hayes (1981) and Kellogg (1988) claim that there is a need for planning before performing the main writing task as it aids students/writers in organizing ideas and have full control over their writing process. It means that planning before writing serves as a map for the writers to focus on the discussed topic/issue which could be done through outlining techniques (e.g., brainstorming and listing, and mind mapping).

The findings regarding the effects of planning are varied. A study by Elder and Iwashita (2005) shows that the use of planning has no effect on students' writing performances (there are no significant differences in terms of CAF between writing production with and without planning). Other studies reveal a clear and positive effect of planning on the CAF of students' second language (L2) writing (Ortega, 1999; Sangarun, 2005; Skehan and Foster, 2005; Tavokoli & Skehan, 2005), especially for no-proficient writers (Dellerman, Coirier, & Marchand (1996). In similar vein Robinson and Gilabert (2007) claim that the absence of planning, particularly PTP in the writing process would result in a more difficult writing task as the learners may have to generate ideas and map the syntactic and lexical information into their writings simultaneously. Studies by Abdollahzade and Taak (2014) followed by Setyowati, Sukmawa, and Latief (2017) confirm this argument that planners show a better writing quality in organizing their written discourse compared to non-planners. Thus, it could be argued that planning could facilitate and improve the students' performances in the target language (L2) writing.

Rahimpour and Safarie (2011) explore the effects of PTP and OLP on descriptive writing. The study involves 37 Iranian EFL learners, aged from 19 to 24 years old. The participants in the PTP group were given 10 minutes planning and another 17 minutes to complete the main task, while those in the OLP group should begin to write immediately but without time constraint. The findings show that PTP group outperformed the OLP one in terms of fluency. This result validates the previous studies suggesting that the use of PTP could increase the students' fluency on their writing performances through stimulating the relevant linguistic features and content before executing the main task (Foster & Skehan, 1996; Ellis & Yuan, 2004; Bygate, 2006; Adams & Byrd, 2016). However, there is no significant difference between the two groups regarding their

accuracy and syntactic complexity which challenge the previous studies (Ellis & Yuan, 2004; Yi & Ni, 2015) suggesting that although there is a little effect on students' accuracy, syntactic complexity and variety on their writings increase.

A number of studies have investigated the effects of planning on students' CAF on L2 narrative writing (Ellis & Yuan, 2004), written summary task (Abrams & Byrd, 2016), and argumentative writing (Yi & Ni, 2015; Setyowati, Sukmawa, & Latief, 2017). However, only a handful of studies examining the effect of planning on descriptive writing (Rahimpour & Safarie, 2011), particularly on Indonesian EFL learners (Ginting 2018). Therefore, the present study aims to explore the effects of planning, including PTP and OLP on CAF in Indonesian EFL learners' descriptive writing genre by addressing the research question of *"What are the effects of PTP and OLP on CAF of Indonesian EFL learners' descriptive writings?"*

Methodology

This work involved two Indonesian EFL learners whose first language (L1) is Bahasa and English as their second language (L2). They are both females, undergraduate students, majoring at Meteorology in ITB (Bandung Institute of technology), aged 21 and 25 years old. Their language proficiency level is considered to be upper-intermediate as their TOEFL-PBT scores were above 450. They have been exposed to English for approximately seven years since their primary to tertiary education in their first semester.

Each participant was required to complete two descriptive writing tasks, a genre of texts referring to the text that provides identification and description about animate or inanimate objects (e.g., place, event, person, or animal). The first task is using PTP (Task 1) and the other one using OLP (Task 2). Before asking them to do the tasks, they were allowed to discuss and decide one possible topic that they were familiar with and love to write to ensure the equality in the writing process. They selected topic was *"Rainfall extremes over Indonesia"*. Both tasks required them to write a minimum of 200 words. The tasks were administered through the third party, an English lecturer in ITB university who was responsible for directing and managing the test (e.g., providing clear instructions of the tasks in the participants' L1). After finishing task 1, the participants would have a three-day break before taking task 2 to avoid repetition as they required to write the same text genre and topic. The participants' writing productions were collected via email in the form of screenshots then converted them to Microsoft word documents to facilitate the analysis process. The following table describes the task designs of both planning types.

Table 1***The tasks design and conditions (both tasks were completed on paper)***

Planning types	Time allocation			
	Pre-task	Decsription	Main task	Description
PTP (Task 1) <i>(paper)</i>	10 minutes	Participants have 10 minutes to create a verbal scheme about the idea that they are planning to write (e.g., mind mapping, outlining, or listing the idea/main issues)	25 minutes	Participants have to complete their writing task under the given time.
OLP (Task 2) <i>(paper)</i>	None		Unlimited	Participants have to begin to write immediately without time constraint

In order to provide a comprehensive and depth understanding/interpretation of the participants' writing performances within two different planning types, a semi-structured interview was conducted through the third party. Each participant was interviewed around 45 minutes regarding their writing experiences using the two types of planning and how they benefit from them. The interview was recorded and transcribed carefully in which the writer provided through the discussion part to maintain clarity and support the given arguments throughout the paper. The interview was conducted after a 5-minute break subsequently after participants completing the latter task (OLP).

The obtained data were analyzed using CAF (Ellis & Yuan, 2004) and two other assessments, including ideational content and lexical richness to provide a more varied analysis of the text quality (Abrams & Byrd, 2016). The following table summarizes the general description of these evaluation tools.

Table 2***The measured linguistic features***

Measurements	Features and Procedures
Complexity	Quantifying the following features: 1. Syntactic complexity: the dependent clauses percentage to the total number of clauses (Ellis & Yuan, 2004; Storch & Wigglesworth, 2009; Rahimpour & Safarie, 2011) 2. Syntactic variety: the total number of variety use of verb forms in writing (e.g., tenses, modality, and voice) (Ellis & Yuan, 2004)

Accuracy	Computing: 1. The error-free T-units percentage to the total number of T-unit (the percentage of correct clauses). It means that no errors occurrences in syntax, morphology, and lexical choices. Errors that occurred in collocation or lexical form were regarded as lexical errors (e.g., <i>She was waiting you</i>) (Hunt, 1966; Errasti, 2003; Ellis & Yuan, 2004; Larsen-freeman, 2006; Storch, 2009; Storch & Wigglesworth, 2009; Rahimpour & Nariman, 2010; Rahimpour & Hosseini, 2010) 2. Correct verb forms: the percentage of accurate use of verbs forms regarding the subject-verb agreement, tenses, passive voice, and modality to the total number of verbs used in the text. (Ellis & Yuan, 2004)
Fluency	Calculating the number of T-unit per text (Storch & Wigglesworth, 2009; Rahimpour & Safarie, 2011). In this study, the occurrence of sentence fragments without the presence of the main clause (e.g., <i>When I got in the car</i>) or any independent clause where there is no subordinate or dependent clause attached to the main clause would not be counted as T-unit (Ishikawa, 2006; Foster & Skehan, 1996)
Ideational content	Computing the number of relevant ideas produced in the text (Manchón, 2014). In this study, only the main ideas will be counted (e.g., <i>The rainfall extremes will cause severe flood and drought [...]</i> . Here, the main idea is the effect of rainfall extremes, regardless of the following explanation about the sub-ideas: <i>flood</i> and <i>drought</i>)
Lexical richness	Calculating the number of academic words in the text to the total number of words (Storch & Wigglesworth, 2009; Kuiken & Vedder, 2012; Levkina & Gilabert, 2012). Regarding the academic words, the study referred to the Academic Word List (AWL) by Coxhead (2000), containing 570-word families. The occurrences of any sub-list of AWL would be marked as academic words (e.g., <i>category</i> => <i>categorise</i>)

The analysis was a combination of descriptive quantitative and qualitative. The obtained data were analyzed using the measured linguistics features as presented in table 2. One of the main purposes for using these measurements was to identify the number of T-units, referring to the combination of a main or independent clause and one or more dependent clauses (Hunt, 1965; Abrams & Byrd, 2016). The clauses in the participants' written scripts were also coded into two types, including an independent and dependent clause. Richards and Schmidt (2002) distinguished these clauses. They described the independent clause as a group of words, expressing a complete thought, and it does not require the support of other clauses to construct a complete sentence. In this study, any

clauses containing a subject and verb expressing a full message or thought (e.g., I sleep) would be marked as independent clauses. The dependent clause, in contrast, is the one which needs to be connected or combined with another phrase to form a complete grammatical structure. It means that such clause depends on the presence of other clauses to be understood.

Findings and Discussion

Table 3 below provides the descriptive statistics for CAF, ideational content, and lexical richness of the participants' descriptive writing productions in both PTP and OLP conditions.

Table 3

The results of measured linguistics features

Participants	Measured linguistics features	Features	The total number of occurrences & Percentage			
			Task 1	%	Task 2	%
A	Complexity	Syntactic complexity	11	39.3%	12	50%
		Syntactic variety	4	NA	3	NA
	Accuracy	The error free T-units	7	58.3%	6	66.7%
		Correct verb forms	24	80%	16	80%
	Fluency	The number of T-units per text	12	NA	9	NA
	Ideational content	The number of relevant ideas in the text	4	NA	4	NA
	Lexical richness	The ratio of academic words in the text	12	4.9%	12	4.6%
Word count			245		262	
B		Syntactic complexity	18	47%	19	45%
		Syntactic variety	4	NA	6	NA
	Accuracy	The error free T-units	12	60%	19	82%
		Correct verb forms	13	65%	25	86%

	Fluency	The number of T-units per text	20	NA	23	NA
	Ideational content	The number of relevant ideas in the text	4	NA	5	NA
	Lexical richness	The ratio of academic words in the text	16	5%	26	8.9%
Word count			274		291	

Generally, based on the presented results above, it could be seen that both participants benefit from different types of planning. Participant A performed better in her task 1 using PTP than task 2 using OLP. While participant B's performances showed the opposite results, where her writing performance in OLP task outperformed the one in PTP. These phenomena might be due to cognitive factor as Kellogg stated in his working memory model in writing (1996) that PTP offers the organizational information, assisting the writers in retrieving complex and detailed knowledge in writing. Meanwhile, in OLP writers might benefit from the extensive interaction among the serial processes (e.g., collect, plan, translate, and review their essays) during the writing process, enhancing the fluency of language production. Yi and Ni (2015) believed that there are inconsistent results of research regarding the role of working memory in the learners' writing performances. Ones could say that working memory could improve the complexity and accuracy area (Bergsleithner, 2010), others may claim that it merely affects the accuracy part (Yi & Luo, 2012) which might be due to the trade-off effect proposed by Skehan (1998) where CAF compete for limited cognitive resources. It means that particular aspect of CAF could obtain at the expense of others.

Participant A showed improvement in almost all aspect of CAF in her PTP writing task compared to OLP one (except for syntactic complexity where she performed better in OLP condition than in PTP even though it was insignificant). This result confirms Kellogg's contention (1990) that prewriting techniques such as clustering and outlining could aid the students to have better writing management compared to on-line planning. Sundeen (2012), further explained that PTP could assist learners in staying in the selected topic and avoiding irrelevant elaboration as they can recall the written idea in their verbal scheme or mind-mapping. These arguments indicated that the use of PTP seemed to be useful to manage the limitation of human brain processing capacity (Samuda, 2001) where such restriction could result in the difficulty to attend various aspects of the task at the same time (VanPatten, 1990; Skehan, 1996). Thus, the use of PTP in writing process could reduce the workload in the main writing, assisting the writer in focusing on other important aspects of writing (Ellis, 2005). These views were in line with participant A's responses in the interview section as illustrated below:

Extract 1: “[...] outlining my ideas in the diagram helps me to organize my writing [...] it is time-saving and I think it also helps me to write effortlessly [...]”
“[...] it helps me to not discuss different thing except the one that the teacher or examiner asks me to do [...] so I don’t go off the topic.”

Despite the fact that participant A’s writing performance in PTP task outperformed her writing performance in OLP, there were no significant differences between the occurrences of fluency (the production of T-units affecting the length of written script) and there was no difference regarding the ratio of correct use of verb forms. These findings indicated that accuracy did not benefit from PTP condition which confirms the previous studies by Ellis (2005) followed by Adams, Amani, Newton, and Alwi (2014) showed that PTP does not promote grammatical accuracy. Furthermore, the syntactic complexity decreased in PTP condition even though it was insignificant (only one-point difference). Thus, it can be argued that this lack of improvements may be linked to two plausible variables, including the specified time limit (25 minutes) and the suggested word length (a minimum of 200) (Storch, 2009). These elements may hinder the writers from producing extended/longer written script and compound sentences (complex grammatical structures) as they often or more concern about the given time and word limit, leading them to work under pressure which could increase their anxiety and affect their writing performances. These phenomena justify Yi and Ni’s claim (2015) indicating that the presence of time constraint in PTP task may increase the writers’ anxiety during the writing process, resulting in a less fluent written script. This belief was in line with participant A’s statement suggesting that her writing could have been better if she writes without time constraint (see extract 2) even though in her writing production in task 2 (OLP) showed no improvement.

Extract 2: “I like to write using PTP [...] but since I have to finish my writing under 25 minutes, I’m not sure I can produce more words than if I have unlimited time [...] because I usually feel really nervous when I think the time will be over soon or it looks like I write more than the word limit.”

Moreover, PTP does not affect participant A’s lexical richness (academic words) which again may indicate similar issue with the earlier discussion where the given time in PTP was insufficient for an upper-intermediate learner to search for sophisticated or academic words in their memory while focusing on other aspects of their writing concurrently (e.g., grammatical issue). Thus, she may need more time to think about the appropriate lexical items to be used in her writing (Abrams & Byrd, 2016). In terms of the production of ideational content (the number of relevant ideas provided in the written script) in both PTP and OLP tasks, participant A’s results showed no effect of PTP on these aspects. This situation may be related to the language proficiency continuum, where ones’ language proficiency could experience a gradual improvement as the time, they

learn how to write effectively in the target language. Similarly, Ortega (2003) and Green (2004) argued that certain skill such (e.g., grammatical complexity) might take longer time and much effort for university learners to be able to acquire the desired skill as they are relatively advanced learners where improvement could be challenging to obtain. The following A's contention supported this issue:

Extract 3: "[...] I think, it's really hard to make any improvement in this stage, I mean, the critical period is over and we often think that we have learn and acquire enough to write or speak. so, that makes us feel that we have reach the top of our proficiency [...] but actually we haven't yet. "

Here, she claimed that the age of acquisition of the target language (English) is one of the crucial factors affecting her writing performances. This argument supports Torras and Celaya's study (2001), they found that the participants' writing productions seem to be age-related where the differences in starting age of instruction in the EFL acquisition affect their rate and attainment development which could be seen from their written scripts.

Participant B's performances, on the other hand, showed deterioration in all aspects of CAF, ideational content and lexical richness in her PTP task compared to OLP task. It means that she performed much better in OLP task than PTP one. She used a greater variety of tenses and academic words followed by produced more accurate T-units and verb forms and yielded more subordinate clauses in her writing in OLP condition (see appendix 1 table 4). These findings challenge two main contentions. First, the notion that OLP would be more likely to hinder the writers to produce a more fluent, accurate, and complex writing scripts as they have no chance to manage or organize their idea before executing the main writing task (Ellis & Yuan, 2004; Gilabert, 2007) which is not entirely true based on the results in this study. The second thing is that the concept of Skehan and Foster's Limited Attentional Capacity Model (2001), assuming that pre-writing task could assist the learners in generating ideas through mind-mapping or listing/outlining aided the writers to enhance the meaning and content of their writing production at the expense of lexical accuracy. It means that writing in OLP condition may result in more workload during the writing process compared to PTP one, dividing the writers focus priority or attention towards several aspects (e.g., grammar and content) in which human brain could not afford to do so. Again, the findings in the present study where participant B showed a significant improvement regarding the measured linguistic features in her OLP task did not verify this cognitive process and complexity model proposed by these scholars.

If we look at the disparities between the participant A's and B's written scripts in PTP tasks, it is clear that the text planning for organization and content, which often believed to allow students to process writing completion effortlessly (Ellis & Yuan, 2004; Setyowati & El-Sulukiyyah, 2017) has no effect on participant's writing performances.

The dissimilarities between their writing performances in both PTP and OLP tasks where they differ significantly in terms of the type of planning format that improved their writing quantity and quality may be related to the participants' preferences regarding the planning formats. It is because if they enjoy every single process occurred in their writings processes, the writing-anxiety would be more likely to be lower, enabling them to focus more on expressing the ideas correctly (Kieft Rijlaarsdam, Galbraith & van den Bergh, 2007). The participants' comments reinforced this issue indicated that they preferred a different planning format (see extract 3 & 4). Participant A was more likely to enjoy the PTP format as she believed that it would help her to focus on the given topic which verifies Sundeen's contention (2012) that PTP could help learners to stay in the discussed matter and avoid irrelevant elaboration. Meanwhile, participant B enjoyed the OLP writing process as she believed that it could assist her in producing more varied lexicon and decent content (Nitta and Baba, 2014; Ruiz-Funes, 2014) (see extract 3 & 4).

Extract 3 (A): "[...] for me, PTP is more enjoyable .. because it allows me to organize my ideas before writing them, that reduce my work when writing the main task and I won't write anything out of the topic .. "

Extract 4 (B): "[...] I think, OLP .. because I often revise too much during my writing, so time is really crucial for .. so, I have more opportunities to modify and monitor my writing .. "

Based on participant B's performance in OLP task, it could be argued that OLP plays a pivotal role in improving the students' CAF, developing relevant ideas about the topic, and utilizing a wide range of academic words. In this case, the participant may benefit from the given time, suggesting that as they had unlimited time to monitor and translate their ideas before executing the text, their writing performances improve significantly. By looking at the general production of relevant ideas and academic words in both participants' writings, it approves partly the scholars' claim where early and advanced learners could produce more varied lexicon and decent content through the use of PTP (Abrams & Byrd, 2016). It is because, in this study, participant B's written production in OLP task outperformed the written production in PTP task by participant A regarding these features. Based on the fact that both participants showed an increase in words production in their OLP tasks. It seems like they benefitted from the limitless time given in OLP condition, enabling them to produce longer texts, increasing their fluency (Yi & Ni, 2015).

Conclusion

Overall, the participants' descriptive text writing performances could be affected by several factors, including the age of acquisition of the target language, strategy preferences (the planning format; PTP or OLP), the given time and suggested word count.

Based on their results on both tasks in PTP and OLP conditions, it indicated that participant A seemed to benefit from the pre-writing task as her writing performance was better in PTP condition than OLP one. This occurrence validates scholars' contention that PTP assisted writers in constructing a clear idea and relevant information in their writings (Dellerman, Coirier, & Marchand, 1996). While participant B appeared to benefit from OLP format as it allowed her to modify/revise her work freely without time constraint. It is in line with Abdollahzade and Taak's contention (2014) that OLP technique offered the opportunities for participants to monitor and revise their writing production without worrying about timing. Thus, it can be concluded that both planning formats could assist the participants to produce comparatively high-quality texts.

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Appendix

Table 4. The comparison of both participants' writing performances in PTP and OLP (*N = the total number)

Items of comparison	Participant A		Participant B	
	Task 1 (PTP)	Task 2 (OLP)	Task 1 (PTP)	Task 2 (OLP)
N of clauses (independent + dependent clauses)	28	24	38	42
N of variety use of verb forms	4 Present: <i>happens</i> Passive voice: <i>has been defined</i> Future tense: <i>will</i> Modal: <i>can</i>	3 Present: <i>are</i> Passive voice: <i>can be said</i> Modal: <i>may</i>	4 Present: <i>means</i> Future: <i>will</i> Modal: <i>may</i> Passive voice: <i>can be caused by</i>	6 Present: <i>is</i> Future: <i>will</i> Modal: <i>could</i> Passive voice: <i>it was affected by</i> Present continuous: <i>is going to</i> Past perfect: <i>have decreased</i>
N of verbs	30	20	20	29
Correct use	24	16	13	25
Incorrect use	6	4	7	4
N of relevant ideas	4 1. Definition of the key term 2. The characteristics of RE categories 3. Factors affecting the RE 4. The effects of RE	3 1. General information about the key term 2. The types of climate circulation affecting the RE occurrences 3. Explanation of these factors 4. The need for 'research regarding the prediction of RE occurrences	4 1. Definition 2. Types of RE 3. Factors affecting RE 4. The effects of RE	5 1. Definition 2. Factors affecting RE 3. Types of RE 4. The effects of RE 5. Possible solution for the negative effects of RE
N of academic words	Defined, categorised, impact, factors, induced, located, variability, regional, areas, region, intensity, affected	Regional, cycle, diversity, intensity, passive, similar, incidences, prediction, areas, variability, period, contribute, phenomenon, phase	Assume, benefit, create, define, evidence, factors, specifically, aspect, impact, normal, site, located, maximum, generate, ratio, survive	Define, create, distribute, factor, environment, economy, export, process, issue, sector, source, period, specifically, category, affected, complex, positive, impact, normal, located, volume, annual, generate, ratio, expert, crucial