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THINK-ALOUD PROTOCOLS ANALYSIS: AN INVESTIGATION OF PARAPHRASING STRATEGIES IN POST-GRADUATE STUDENTS

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ABSTRACT

This research aims to figure out the paraphrasing strategies used by post-graduate English students based on three stages of writing process division: before-writing, while-writing, and after-writing. This research is qualitative study that investigate paraphrasing strategies used by post-graduate English students in writing a thesis. The qualitative data obtained from think-aloud protocols to gather verbal report data on cognitive and metacognitive reading strategies used by the students in producing their paraphrases. For data analysis, the think-aloud protocols were transcribed, and data was coded and categorized relative to the focus of the research. The result shows that students planned for through understanding, read to memorize the most important information before writing a paraphrase. Another, students tended to write from memory with sometimes look at the source text and applied text transformation/substitution strategies while writing a paraphrase. Finally, most students are comparing the text with the source after they have written a paraphrase.

KEYWORDS: Paraphrasing Strategies, Writing Process Division, Think-Aloud Protocols

1. INTRODUCTION

In higher education, students need to master the way to avoid plagiarism and have an acceptable similarity score of the plagiarism detector. The way to achieve that is by having academic writing skills including paraphrasing, summarizing, and quoting (Bailey, 2014). There have been many studies (Bailey, 2014; Clark & Dugdale, 2011; Grabe, 2009; Keck, 2006, 2010; Shi, 2012) that suggested preferring to paraphrase to do a direct quotation since paraphrasing needs modification of the original sources. Furthermore, paraphrasing needs the understanding of the text by expressing the ideas into an argument (Clark & Dugdale, 2011). Before paraphrasing, writers should understand the main idea of the original text, meaning that comprehending the text essentially takes roles in this part (Kletzien, 2009). In addition, comprehending the source of the text is based on the vocabulary difficulty and syntax complexity (Roig, 2014; Sun, 2012). The more complex the vocabulary and syntax of the text, the harder the writers comprehend the text.

Some studies on paraphrasing have been recommended in the literature. Several resources exist that provide examples of acceptable paraphrasing strategies; only a few studies have attempted to describe how university students already use paraphrasing as a strategy for integrating source texts into their writing. The study which has identified paraphrases in student writing vary considerably in their assumptions regarding the extent to which, by definition, a paraphrase does or should borrow language from the original excerpt (Pecorari, 2003 & Keck, 2010). Yamada (2003) notes that good paraphrasing involves inferential thinking, either deductive and analogical. The idea of restating the original text is to combine source information with one's thinking. However, Yamada has a different perspective about how the students are instructed to paraphrase and present a faithful account of the source text and signal the mastery of good paraphrasing and academic literacy that distinguish experienced writers from novice writers. Keck (2006), to identify university students' paraphrasing strategies. The study numerically measured the effort of the students to avoid plagiarism by writing a summary in their own words. Depending on the percentage of unique and general links within an attempted paraphrase.

However, writing a paraphrase is restating the text of the original text, but paraphrasing also needs to be integrated with reading skills (Murphy, 2009). As both reading and writing skills are needed in order to paraphrase, writers are required not only to understand the original text and write using their writing (a reading-to-write direction), but they also need to approach reading from a writing perspective (a writing-to-read direction). They will have a deep understanding of selecting any source effectively and having a relevant function to their text. (Hirvela & Du, 2013). Paraphrasing can be presumed to be part of integrated reading and writing tasks to the degree that students apply during writing paraphrases (De Silva, 2010). Plakans (2009) explored student-reading strategies for combined writing/reading tasks. Because of Plakans (2009) research, a taxonomy of these five main categories such as, goal-setting, for example, checking the task to integrate sources; cognitive processing, for example, slowing the reading rate (pausing), breaking lexical items into parts/using phonological cues, rereading passages; global strategies, encompassing, for example, asking questions, recognizing text structure/rhetorical cues; metacognitive, for example, recognizing lack of comprehension; mining strategies, for example, scanning texts for ideas to use in writing.

Concerning to the important of reading and writing integration in paraphrase, therefore, the current study investigates the strategies of paraphrasing categorized into three parts that combine writing and reading skills, such as before paraphrasing, while paraphrasing, and after paraphrasing. These three stages of paraphrasing are based on the division of the writing process into planning, translating, and revising (Flower & Hayes, 1980; Hirvela, 2004).

2. RESEARCH METHOD

This study was based on qualitative data obtained from think-aloud protocols to gather verbal report data on the students' cognitive and metacognitive reading strategies in producing their paraphrases. Think-aloud protocols were deemed appropriate for this study because of the way it allows researchers to gain a closer look at participants' thought processes and composing practices. During the think-

aloud, the student participants were asked to paraphrase a short paragraph taken from their current assigned readings and verbalize their thoughts as they paraphrased. Three sequences of think-aloud protocols were arranged at the beginning (before-writing), middle (while-writing), and the end (after-writing) of the term to increase the consistency of data collected and track possible changes that occurred in participants' paraphrasing practices.

This study relied on post-graduate students who had an acceptable similarity index of Turnitin. Specifically, students' thesis writing had fewer than 20% of similarity index after being checked by Turnitin. Conducting qualitative research generally involved observing students' strategies through triangulation data to meet the standard research trustworthiness. Mainly, the study used think-aloud protocols, questionnaires, and documents analyses.

Furthermore, the qualitative research design is suitable for analyzing and describing the research questions as this study employed analyses of students' behavior strategies in writing a paraphrase in three steps strategies: before writing a paraphrase, while writing a paraphrase, and after writing a paraphrase. As Creswell (2007) explained, qualitative research provides detailed descriptions and analysis of the phenomena as the core of the qualitative approach. Therefore, in answering the research questions of this study, qualitative research design plays a significant role in analyzing students' strategies in paraphrasing, and the results are presented in the form of descriptive analysis.

For data analysis, the think-aloud protocols were transcribed, and data were coded and categorized relative to the focus of the research questions. Patterns generated by analyzing different data sources were compared and contrasted, seeking to unveil overlaps and inconsistencies.

In investigating the paraphrasing strategy used by the students, the document of students' paraphrases in thesis writing is primarily required to describe how they apply the strategy. In addition, the questionnaires supported this to know what strategies they use in the three dimensions of paraphrasing strategies. After collecting the data from the transcription, questionnaires, and document, this study used the general procedure of data analysis of qualitative research in with the framework from Creswell (2014), as explained in the following figure:

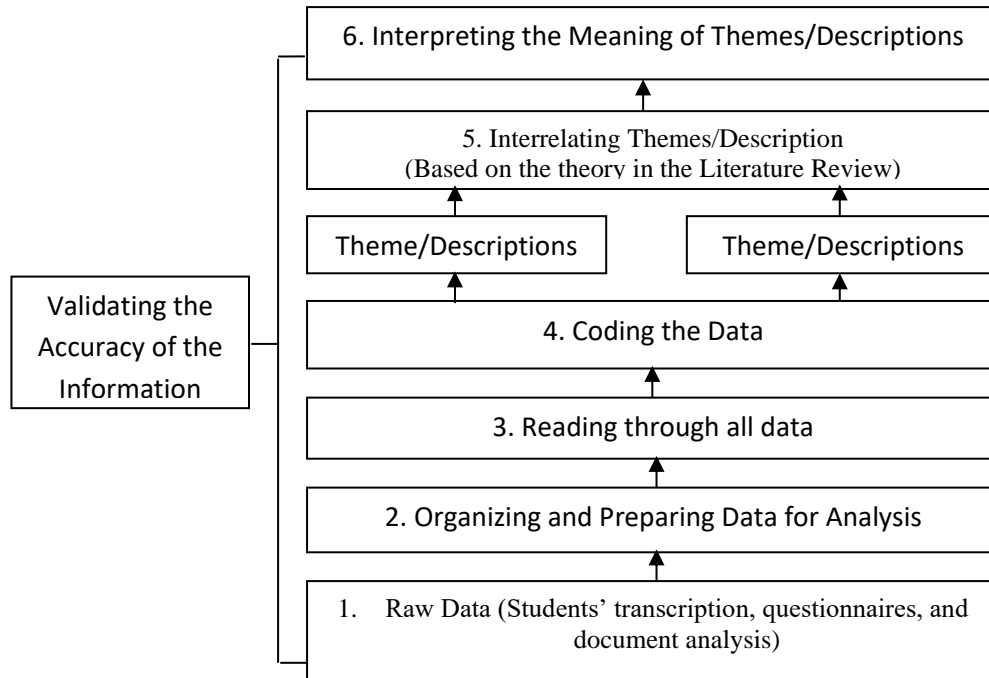


Figure 1: Data Analysis in Qualitative Research adapted from Creswell (2014)

3. RESULT AND DISCUSSION

The result of the data analysis related to research objective shows the strategies the students use in paraphrasing. This section encompasses three results; strategies used by students before writing a paraphrase, strategies used by students while writing a paraphrase, and strategies used by students after writing a paraphrase.

3.1 Paraphrasing Strategies used by the Students before Writing Paraphrase

The students' preparation before paraphrasing is the focus of this section. The students' preparations were involving their actions and thoughts before paraphrasing the sourced text. In other words, what the students do and what their thoughts start from exposing their sourced texts until before they start writing their paraphrased text. As there are five students to be the subjects of this study, there are five following explanations related to their preparation before paraphrasing.

Addressing the students' actions and thoughts before paraphrasing, the students were asked to verbalize everything in their mind; including their choice to read the whole text or to voice some words that are considered necessary. This data collection technique is known as the think-aloud protocol. The five students verbalized their thoughts in different ways. Some students explained what they were going to do and what they were thinking, while others were focusing on their process (started reading the sourced text). The following coding tables describe what the students did regarding the

paraphrasing strategies they used; the words in quotation marks represent the source texts they read during the process.

Table 1: Data of Strategies Used by Student Before Writing Paraphrases

Goal setting		Used by participants
1	Planning for thorough understanding	All students
2	Planning to memorize information from a text	All students
3	Deciding to read in a selective way	All students
Cognitive Strategies		Used by participants
1	Understanding of a text	All student
2	Selecting excerpts for paraphrasing by the use of graphic devices	No one
3	Selecting excerpts for paraphrasing by copying excerpts (into a separate file, into a thesis) from electronic sources for subsequent paraphrasing	No one

The strategies applied before paraphrasing texts are related to how the students read and analyze the sourced text. Understanding the texts and planning the paraphrase with accurate strategies can help students get the better results (Escudero et al. (2019). Goal setting and cognitive strategies are considered the main strategies applied for writing after reading a text (Plakans, 2009). Based on the results showed in the findings section above, the two main strategies were found. Specifically, the strategies applied by the students before paraphrasing that were identified based on the think aloud transcription were planning for thorough understanding, deciding to read in a selective way, understanding of a text, practicing paraphrasing.” The students read the whole paragraph was considered as cognitive strategy – ‘understanding of a text.’ Likewise, reading a sentence in the sourced text before starting was considered goal setting – planning for thorough understanding. Students were reading the sentence, understanding, and probably planning their paraphrase version of the sentence. This is in line with Escudero et al., (2018) stating that learners’ reading comprehension is connected to paraphrasing strategy used.

In addition, adding notes and comments while reading source materials (although at this stage of the study it is not known what exactly the comments concerned) shows that students reflect on and draw inferences from what they read. This strategy may be highly beneficial as inferencing has been identified as crucial in good paraphrasing (Shi, 2012; Yamada, 2003). Adding one's voice to paraphrased excerpts is also crucial in writing as it shows a writer's authorial voice (Abasi & Akbari, 2008).

Focusing on important information of a source then writing using students' own word can reflect better result of paraphrasing (Shi et al., 2018). 'Deciding to read in a selective way' is goal setting strategy chosen by the students. Only two students tended to plan on taking the most important point of the sourced text and then writing their paraphrase using their own comment without adding any idea. Using learners' own words assistances students to avoid self-plagiarism checked by internet based paraphrasing tools; however, excessive additional ideas can change the original content of the text (Rogerson & McCarthy, 2017). Nevertheless, students' perspectives regarding to the sources cannot be simply neglected (Hirvela & Du, 2013).

Further validating the research finding through questionnaires can enrich data (Bogdan & Biklen, 2007). In addition, this was also purposed to discover unidentified strategies based on the think-aloud protocols. Wolcott & Lobczowski (2021) state that one of think-aloud method's limits is experimenter can be unsure about what the subject illustrating in her/his mind. Identifying some strategies such as 'planning to memorize information from the source text' was problematic through think aloud protocols. The strategy was revealed based on the students' responses to the questionnaires.

Writing from other sources requires writers to locate and reconstruct the appropriate material which involves reading understanding, planning, writing, and revising (Hirvela & Du, 2013). In addition, writers need to know the boundaries between their own words and the words that they copy from (Pecorari, 2003). Another step that writers need to make sure is to make the readers understand what they have written. This means that although writers use their own words, they are still required to deliver with the same substantial content of the original text (Petrić, 2012). Finally, writers need to attribute the sources of the text, and relate the substantial meaning of original text with the writers' stance in order to build their own authority as writers (Abasi & Akbari, 2008)

3.2 Paraphrasing Strategies used by the students while Writing Paraphrase

Based on the students' think-aloud transcription and the results of documents analysis, while paraphrasing, all of the students applied substitution strategies: using synonym changes, using syntactical changes, and using part of speech changes; however, only student 1 applied to insert strategies: inserting additional information, inserting transition, and inserting generalization. Student 2 only applied to insert additional information, student 3 and student 4 applied to insert transitions, and student 5 applied to insert generalization.

Additionally, linking to the students' responses to the questionnaires, all of the students wrote from memory and looked at the source text; looked for synonyms for the key terms; tried to balance their wording with keeping the original sense. Student 2, student 3, and student 4 mixed a few sentences, combined them, and kept their sense. Student 1,2,3 used a dictionary with a synonym. Student 1,3,4 added their observations and conclusions in their paraphrasing. Finally, student 3 and student 5 turned the source to quotation in their paraphrase text. The following is the description of the data.

Table 2: Data of Strategies Used by Student while Writing Paraphrases

Substitution Strategies		Number of users
1	Using synonym changes	All students
2	Using antonym changes	No one
3	Using syntactical changes	All students
4	Using part of speech changes	All students
Inserting Strategies		Number of users
1	Inserting additional information	Half of students
2	Inserting transition	All students
3	Inserting examples	Half of students
4	Inserting generalization	No one

Based on the think-aloud transcription and the document analysis mentioned in the findings above, the strategies found were 'using synonym, syntactical, and part of speech changes; inserting additional information, transition, examples, and generalization.' Finding different word with similar meaning was not easy for students as paraphrasing is more than just restating others' ideas (Kletzien, 2009). Still, the present study found out that using synonym change was the most used strategy in the students' paraphrasing. This is in line with Injai (2015) research stating that removing the original text's word with its synonym is the most applied strategy. Furthermore, changing the sentence's structure, such as an active sentence, was transformed into a passive sentence; changing word class from a noun into a verb or vice versa. Inserting transition was insufficiently found in the students' paraphrase text. Likewise, only two students used inserting additional information, examples, and generalization as they were probably afraid of losing the original text's meaning (Sun & Yang, 2015).

Applying more than one paraphrasing strategy in a sentence can be an effective way to avoid plagiarism (Ramadhani et al., 2019). The students investigated in the present study combined changing lexical and syntactical property in their paraphrased sentences. However, only one strategy, for instance changing synonym or part of speech transformation, was found in most of the students' paraphrased sentences. The fact that their academic writing had been successfully approved in the plagiarism assessor (Turnitin) is dissimilar to Ramadhani et al., (2019) who suggest that using only one technique in paraphrasing can be identified as plagiarism. This possibly happen because the standard of the assessor was relegated (Rogerson & McCarthy, 2017).

It is important to relate the data of research gained from different instruments (Bogdan & Biklen, 2007). Therefore, linking data collected from think aloud transcription, questionnaires and documents analysis is accomplished in the present study. However, it is unexpectedly revealed that there are some different results regarding strategies applied by the students based on think aloud transcription – documents analysis and the students' responses towards the questionnaires. Different results might occur as subjects and examiners have different perspectives (Ossola et al., 2020). There are only synonym, syntactical, part of speech changes and small numbers of inserting strategies identified in the think-aloud transcription while students were paraphrasing. This is the same as the results presented in the analysis of the documents. Nevertheless, some of the students' responses to the questionnaires indicate different strategies used.

All of the students revealed that they tended to write from memory with sometimes look at the source text. Furthermore, three students tried to reach beyond paraphrasing by adding observations and conclusions for their paraphrasing. However, only one student's paraphrase text was identified to add her/his observations, conclusion, or other information that did not change the source's content. In addition, another student stated that she/he did not tend to change the word choice, yet some of the synonym changes were found. Several factors probably cause this; one of them is that the present study only investigated three source texts and three paraphrase texts in the 'Discussion' section of their thesis. Therefore, the analyzed paraphrasing process through think-aloud protocols and the analyzed documents did not contain any mentioned strategies in the students' responses. The students possibly answered the questions based on the whole process.

3.3 Paraphrasing Strategies used by the Students after Writing Paraphrase

Examining what the students do after paraphrasing is the last part for categorizing the students' strategies. What the students did after paraphrasing was supposed to be related to strategies that were purposed for reviewing and checking for potential plagiarism in their paraphrasing. Student 1 showed that she/he made sure that the idea of the paraphrased text was still the same as the sourced paragraph. The student explained that she/he only changed the wording and inferred the idea while her/his eyes move along the texts. This can be seen in the following transcription:

Table 3: Data of Strategies Used by Student after Writing Paraphrases

Comparing the text with the source		Number of users
1	Lexis is different	3 students
2	Syntax is different	3 students
3	Content is the same	All students
4	Counting unique link	1 student
The Use of External Sources		Number of users
1	Put paraphrase text into paraphrasing tool	Half of students

The last process is after paraphrasing. The strategies are ‘comparing the text with the source (lexis, syntax and word counts), checking whether it is clear whose voice is speaking, and the use external resources.’ Based on the findings explained above, the strategies mostly found were comparing the text with the source and checking whether it is clear whose voice is speaking. Only one student explained that she/he used external resources to check the paraphrase text. However, it did not occur during the think-aloud process. The student possibly checked her/his writing using external sources for other parts of her/his thesis.

Comparing the paraphrase text to the source is one of the most effective ways to ensure no plagiarism in the text (Liu et al., 2013). Confirming that whether the lexical or the syntactical properties or both are different is crucial (Shi & Dong, 2018). The present study found out that all of the students considered the difference in the choice of the words, but one student did not concern about the syntactical change. Transformation of words draws the most of learners’ attention to paraphrasing more than other aspects (Sun & Yang, 2015).

Furthermore, three students were concerned about ‘making sure whose voice is speaking’ as they did not want to change the meaning of their source. Regarding to their reading ability, restating others’ idea means the writer has to write the idea without changing or owning the meaning behind it (Plakans, 2009). Understanding the source's main idea before rewrite it is significantly required for an academic writer. However, the two students did not pay attention to it as they were possibly sure about the content as they only changed the word choice or the word class and sentence structure. They did not think that adding further comment on their own was necessary.

Finally, only one student checked some of her/his paraphrased texts to make sure that the institution’s checker would approve her/his writing. The other students, who did not use an external source to check

their writing, considered that the institutions' plagiarism checker would examine their writing. So, they would know the result after it was announced. In addition, most of the learners believe that they do not have any admission to access a good plagiarism checker (Rogerson & McCarthy, 2017) or they have to purchase for that. Liu et al., (2013) Roostae et al., (2020) state that students have minimal reference and information regarding plagiarism assessor tools.

4. CONCLUSION

The present study focuses on the paraphrasing strategies used by students in writing their thesis. It is divided into three categorizations and referred to the research questions: before, while, and after paraphrasing. There are five students who have finished writing their thesis investigated. The data collected using think aloud protocols, questionnaires, and documents analysis. The analyzed documents were the students' paraphrased texts in the 'discussion' section of their thesis. The researcher investigated strategies used by the students before, while and after paraphrasing.

The first conclusion is before paraphrasing, all of students planned for through understanding, read to memorize the most critical information from the source text, and read to focus on the most important things. This means that the five investigated students used the goal-setting strategies. Furthermore, regarding to the cognitive strategies, all of the students tended to understand the text by looking for the gist of the whole paragraph and underlining keywords. Four students practiced paraphrasing silently in their mind. However, no students selected excerpts for paraphrasing by the use of graphic devices; also, no students took notes or gave comments while reading the source text.

The second conclusion is that while paraphrasing, students tended to write from memory with sometimes look at the source text. Four students surely applied text transformation/substitution strategies and one student was not sure. Examined from the documents, all students applied substitution strategies, specifically synonym, syntactic, and part of Speech change; but no students used antonym change. Likewise, inserting strategies were inconsiderably used by all of the students. One student did not use external resources, particularly to find synonym/antonym. All of the students tried to stay close to the propositional content. Three students tried to reach beyond paraphrasing by adding observations and conclusion for their paraphrasing. Finally, only one student tended to turn the source text into a quotation.

The third conclusion is after paraphrasing, the strategies used by all of the students are comparing the text with the source: checking that the content of texts was the same. Two students did not concern about the lexical similarities; as long as the syntactical properties were different. Likewise, another student did not check the sentence structure for she/he had already chosen different words for the paraphrased text. Only one student was counting the paraphrased words to avoid plagiarism. Furthermore, four students considered whether it was clear whose voice was speaking by making sure that there were no their opinion. Finally, only one student used external resource to check the paraphrased text.

Overall, the most used strategies before paraphrasing were goal setting, cognitive strategies excluding graphic devices, taking notes and giving comments. While paraphrasing, the most used strategies were looking at the source text, substitution strategies excluding antonym change, staying close to the propositional content, inserting strategies and adding conclusion were not exceedingly used. Finally, the used strategies after paraphrasing were comparing content, word choice and sentence structure of the paraphrase to the source text. In addition, the students also making sure that the paraphrase text did not have any of their opinion.

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