ESL Undergraduates’ Patterns of Plagiarism in Academic Essays Based on Print or Internet Sources

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ABSTRACT
One of the most important issues among ESL students is inappropriate use of source material in their academic writing. As a result, plagiarism is more common among ESL students. The purpose of this study is to investigate the effects of source information type (print versus online) on plagiarism patterns in students’ academic essays. The data of this study comprised Malaysian undergraduates’ essays written based on references to print or Internet sources. The originality reports of the students’ essays submitted to Turnitin were then checked against the original sources to code various instances of similarity. The results indicated that direct copying with no reference and quotation marks was the most frequent plagiarism pattern in students’ essays. Moreover, the study found a statistically significant difference between plagiarism patterns in students’ writing based on print and online source modes.

Keywords: Academic writing, online source, print source, plagiarism patterns

INTRODUCTION
A key element in academic writing is students’ ability to use source texts. Students are supposed to learn academic writing skills and to use and present cited material in writing. Thus, they need to know how to read sources, identify the relevant information and effectively synthesise the material in their writing. In academic writing, the facts presented are attached to those who presented the facts. English language teachers focus on
the attribution and referencing procedure. They may cover academic writing because it is the creation of an author's identity as the presenter of the facts (Scollon, 1995). Moreover, many written manuals emphasise accurate referencing especially for students of higher education in order to help them avoid plagiarism. Instructions are usually provided in such manuals for students on referencing, quoting sources, using direct quotations, paraphrasing and writing a consistent reference list (Yoon & Hirvela, 2004; Moore, 2014).

The ability to write using material from sources is one of the most common and challenging issues for a second language (L2) writer (Hirvela & Du, 2013). Students who speak English as a second language may possess inadequate linguistic skills in relation to reading and comprehending sources in English. Thus, they face difficulties in integrating those ideas from reading sources and summarising them in their own words (Currie, 1998). Due to the language barriers faced by ESL students and their uncertainty about appropriate source use, researchers have found that these students may be more susceptible to plagiarism (Pecorari, 2003; Marshall & Garry, 2006).

Many research studies on using sources in L2 writing revealed that difficulties related to language may lead to inadvertent plagiarism. As a result of inadequate linguistic resources and reading skills, some writers make minimal changes to the original sources and present the texts as paraphrased or summarised versions. Teachers consider the limited changes of original texts as plagiarism (Pecorari & Petrić, 2014). Limited referencing skills and L2 resources, lack of knowledge about citing conventions and uncertainty about what constitutes common knowledge have also led to students’ unintentional plagiarism in academic writing (Pecorari, 2003; Marshall & Garry, 2006; Shi, 2010; Pecorari & Petrić, 2014). Students’ lack of knowledge about the process of writing research papers also contributes to L2 students’ plagiarism (Erkaya, 2009).

**Types of Plagiarism**

In view of the above, proper citation and paraphrasing is an essential skill for all students. In particular, it is a more demanding task for Asian students who are not proficient in the English language (Maxwell, Curtis, & Vardanega, 2008). Integrating academic reading in academic writing without plagiarising is a challenging task for many international students from language backgrounds other than English. In general, they have three main problems in their writing: use of too many direct quotations, lack of ability to sufficiently modify and integrate source material in their writing (patch writing) and finally, inability to critically evaluate a source due to lack of discourse and linguistic competence in their discipline (Chatterjee, 2006).

Writing from sources is one of the most important skills in L2 writing. It is difficult for L2 writers to read source text material and transfer the content from
that reading to L2 writing (Hirvela & Du, 2013). For example, knowledge telling and knowledge transforming are two uses of source text of relating reading material to writing. In knowledge telling students try to identify and present appropriate use of source material while they show their understanding of the sources. In knowledge transforming, students basically use source material to develop the topic (Bereiter & Scardamalia, 1987). The paraphrasing practice of international Chinese students in an undergraduate academic writing course suggests that the emphasis on knowledge telling results in poor paraphrasing and unwillingness to learn more about paraphrasing. It may produce unacceptable patch writing (Hirvela & Du, 2013).

The development of source use in the writing of Chinese postgraduates of business, technology and public relations also indicated the use of a small range of features including over-citation and copying from original material, especially from the Internet. Therefore, more instruction and pedagogical support is needed to develop students’ ability in source use. Lecturers need to help students more in the appropriate use of citations, functions and uses of integral and non-integral citations, source texts and Internet sources and integrating sources, and wane them from patch writing to effective paraphrasing (Davis, 2013).

Although the Chinese students in the study understood the university’s plagiarism policy, their writing included patch writing and inappropriate citations (Li & Casanave, 2012). As L2 learners, Japanese postgraduate students also have various abilities in the effective use of source material. Mostly, their use of source material lacks a clear argument and does not show the position of authors. They consider source material as real facts and they put too much emphasis on source material due to their inability to be critical about sources. When students paraphrase or summarise source material, some of them have difficulty expressing their own arguments in writing and they tend to use source words (McCulloch, 2012).

In addition, successful second-language writers in an English-medium university used more direct quotations than less successful writers in their theses written in English. The writers of low-rated theses mainly applied longer clause-based quotations that could be easily integrated into their texts, while fragments were mostly applied in high-rated theses. In fact, the authors of high-rated theses put more effort into rephrasing the original material and to develop their own writing (Petrić, 2012). Also, they used both effective and ineffective quotations such as words and expressions that were difficult for them to paraphrase. Some writers of theses repeated the quotation of terminology, reflecting their lack of skill in source use and using quotations. Although students’ overuse of direct quotations indicates their lack of skill in writing, the over-reliance on the use of quotation may be necessary in the development of academic literacy (Petrić, 2012).
In line with suggestions about source use in L2 students’ writing, sometimes, when a reader reads the cited text he/she cannot easily understand whether the attributed idea to the original source is properly reported. Secondary citations should be acknowledged clearly in the text since it is generally less required than a reference to the primary source (Pecorari, 2006). In fact, students do not intend to plagiarise but end up producing writing in which the accuracy of the reported ideas is not easy for readers to determine by simply reading the cited text. Therefore, there is no relationship between the students’ writing and the original text. Unclear or missing citations and unacknowledged secondary citations are other examples of plagiarism behaviour observed in ESL students’ writing (Pecorari, 2003).

Most of the plagiarism incidents among ESL students pertain to directly copying from the source, copying but with a few words changed, copying with changed grammar and unacceptable paraphrasing (Vieyra, Strickland, & Timmerman, 2013). Some plagiarism practices of ESL students indicate exact copying with references but no quotation marks, exact copying with no reference and quotation marks, close copying to the original source without quotation marks but with reference, close copying to original source without any quotation marks and reference and text distant from original source without any quotation marks and references (Yakovchuk, 2008). There are relevant plagiarism patterns in ESL students’ academic writing such as quotations, exact copying, near copying, paraphrasing or summarising of original text without documentation and written text with wrong source information. Exact copying and near copying with documentation are considered plagiarism instances as well (Hsu, 2003).

ESL students may commit some other types of plagiarism. The first is copying word for word from the original source without any citation (Literal Plagiarism). The second type is intelligent plagiarism including manipulating the text and changing most of the words (Text Manipulation). The third is translating the text from one language to another without appropriate referencing (Translation) and the fourth is using the ideas of others without acknowledgement (Idea Adoption) (Alzahrani, Salimand, & Abraham, 2011). Plagiarism can also be in the form of group work such as submission of a friend’s coursework, using the same or similar piece of work for different courses and copying and submitting another student’s work as one’s own with or without his/her knowledge (Kenny, 2007).

Furthermore, lack of ability in students’ identification of facts and ideas may lead to inappropriate source use in students’ writing. Similar to Asian students, Italian students also do not understand their English language teachers’ expectations in writing academic papers in English. The separation of facts and opinions in the Italian academic tradition is unknown to English language academic writers.
Therefore, students are not able to distinguish between facts and opinions and they may give facts as opinions (Sherman, 1992).

Comparing source use in L1 and L2 writing, none of the writing included the summary of a source text and critical reading. Instead of summarising, copying or patch writing from sources was found in students’ writing. Writing from sources makes the students’ writing similar to the language of the source and results in inadvertent plagiarism (Howard, Serviss, & Rodrigue, 2010). Vague references, patch writing and misunderstanding of quotations and paraphrasing were found as common weaknesses in students’ citation practice. None of the ESL students performed well in terms of citations, and most of them completed four stages in their development of citation practice. For example, they tended to take the original ideas as their own and they provided correct citations when they had prior knowledge about the topic of the source material (Hyland, 2009).

In general, Chinese students borrowed considerably more words from the source texts than did English-speaking students. In both summarising and paraphrasing tasks, they did not acknowledge words that were copied, slightly modified or syntactically reformulated from the source texts. Therefore, both task types and first language had an effect on the amount of words borrowed (Shi, 2004). Furthermore, the prevalence of unattributed source texts in Chinese students’ academic writing may be due to the priority of imitation rather than creativity in Chinese learning culture. They quote other people’s work as an incorporated part of one’s own writing (Shei, 2005).

In terms of appropriate source use and prevention of plagiarism, paraphrasing is mostly considered an important skill in academic writing. L1 and L2 (Chinese, Korean, Japanese, Spanish, French and Arabic) academic writers’ use of paraphrasing includes near copying, minimal revision, moderate revision and substantial revision. L2 writers were found to use more near copying than L1 writers. However, moderate and substantial revisions are more frequent in the summaries of L1 than those of L2 writers (Keck, 2006). Paraphrasing is also a challenging task for novice academic writers. They believe that there are so many ways to express something; therefore, no new statements can be produced (Pecorari, 2008).

PURPOSE OF THE STUDY

Plagiarism, as a form of academic misconduct, has now become an issue of concern in the education system. Although plagiarism is considered an academic offence with severe penalties, a large number of students still plagiarise, mostly intentionally (Mahmood, 2009). Some studies (for example, LoCastro & Masuko, 2002; Marshall & Garry, 2006) indicate that plagiarism is more common among students who speak English as a Second Language (ESL) compared to those who speak English as a first language.
as they are less competent in English, and therefore, tend not to use source material properly (Campbell, 1990). Paraphrasing is also difficult for ESL students because they are not proficient enough in English to reformulate the structure of a sentence without losing its main idea (Devlin & Gray, 2007). ESL students tend to copy from source texts because of their lack of language proficiency and the ensuing inability to express their ideas using their own words. Furthermore, they may tend to copy because they do not know how to write or convey meaning otherwise.

Therefore, it is necessary to look at students’ essays to examine the plagiarism patterns in students’ writing that would better inform teachers about how to teach writing in a way that prevents plagiarism among students. In addition, previous studies have examined the appropriateness of intertextuality and source use in students’ writing, particularly L2 learners of Western and Asian countries. Thus, this study was specifically undertaken to identify plagiarism patterns in students’ academic essays based on their use of either the Internet or print source information. In relation to a previous study that investigated university students’ knowledge of plagiarism (Zangenehmadar & Tan, 2014), the present study inquired if students’ knowledge of plagiarism was illustrated in their academic essays and set out to discover the kind of plagiarism they committed.

**METHODOLOGY**

This study employed a mixed method (qualitative and quantitative) approach to analyse qualitative data (students’ essays) and to identify the patterns of plagiarism in Malaysian undergraduates’ academic writing from a general writing course.

**Population and Sampling**

The study was conducted at a public university in Malaysia. The university is among the oldest universities in Malaysia, and it is one of the five research universities in the country. It has gone through various academic and policy developments to improve important issues related to university policies. Therefore, the data concerning students’ knowledge on source use from this university are expected to represent Malaysian university students.

To identify patterns, students’ essays were randomly collected from 70 students who enrolled in an English proficiency writing course. In general, there is no rule about the number of participants in a qualitative study; however, time, money and availability of participants influenced the sample size (Ary, Jacobs, & Sorensen, 2010). The students were between 18 and 23 years old and the sample included both male (40%) and female (60%) students.

**Data Collection**

To identify the existing practice of source use in students’ writing using both modes of sources (print and Internet), essays were randomly collected from 70 students.
Since 70 was an even number, half of the respondents (n=35) were randomly given two print articles on global warming to read, and based on their reading, they constructed an essay of about 500 words by typing it using MS Word. The remaining half of the students (n=35) were emailed the Internet URL links of the two sources (of the same articles) and given instructions to write the 500-word essay on the same topic (see Appendix A). In this study, the “source” was a reference paper to which students referred for information on how to write an essay.

To avoid interrupting teaching hours and due to the time constraints of the classroom, the students were asked to do their writing at home and email the soft copy of their typed essays to the researcher within one week. The total number of 70 essays was received and collected after one week of the task assignment. The students were also informed that their academic results would not be affected based on whether they participated or did not participate in the study and their decision would not jeopardise their course grades. Although the students’ participation was voluntary, they were informed that the results of the study would be kept anonymous and confidential.

Data Analysis

To examine the effects of two source modes (Internet and print) on patterns of plagiarism in students’ writing, the two sets of essays written based on reference to print or online papers were submitted to Turnitin, a text-matching software to identify text in students’ writing similar to original sources (see Appendix B for an example). Although Turnitin is not technically a plagiarism detection software system, it provides evidence to support the likelihood of plagiarism when used correctly. If there is text similarity without citation and it is confirmed to be accurate by a competent Turnitin user, it is very likely that such textual overlap is plagiarism. Therefore, Turnitin provides the evidence of the probability of plagiarism.

With the above in mind, Turnitin was used in this study for several reasons. Firstly, Turnitin is a common tool and has been used in a wide range of research studies in different disciplines. Secondly, the university subscribes to it and all academic staff and students have free access to it. Thirdly, Turnitin is found to be the most effective text-matching tool among 11 such software systems (Scaife, 2007). Lastly, the researchers of the present study are familiar with the software and could access it for the research use.

After the submission of the essays to Turnitin, the similarity index report for each essay was downloaded and examined. Isolated instances of similar or matched sections in the essays were not looked at. Only those similar parts that were written based on either the print or Internet sources were analysed for plagiarism patterns. Many researchers have indicated that students’ source use or textual borrowing practices may contribute to plagiarism in their academic writing (Campbell,
In the present study, each of the 70 essays was divided into several analysis units (mainly sentences) and text analysis was used to code source-based units according to the following plagiarism coding patterns used in previous studies (Campbell, 1990; Hsu, 2003; Pecorari, 2003; Shi, 2004; Yakovchuk, 2008; Gilmore et al., 2010; Alzahrani et al., 2011; Moore, 2013):

a) Quotation (Q) with no reference (-R) but with quotation marks (+QM)
b) Quotation (Q) with wrong reference (WR) and quotation marks (+QM)
c) Direct copy (DC) with reference (+R) but no quotation marks (-QM)
d) Direct copy (DC) with no reference (-R) but with quotation marks (+QM)
e) Direct copy (DC) with wrong reference (WR) and no quotation marks (-QM)
f) Close copy (CC) with reference (+R) but no quotation marks (-QM)
g) Close copy (CC) with no reference (-R) but with quotation marks (+QM)
h) Close copy (CC) with wrong reference (WR) and no quotation marks (-QM)

RESULTS AND DISCUSSION
The study identified eight plagiarism patterns and one acceptable form of source use, that is, Quotation with Reference and Quotation Marks (Q+R+QM) in the undergraduates’ essays. As Table 1
indicates, 257 instances of plagiarism were found in the students’ essays based on online sources and 174 instances of plagiarism were discovered based on print sources. The results showed more units of appropriate source use in essays written based on print than online sources, and this indicated that plagiarism was more prevalent when the sources of information were from the Internet.

The most common type of plagiarism in the students’ essays was Direct Copy with no Referencing and Quotation Marks (DC-R-QM). Only one Quotation with no Referencing but with Quotation Marks (Q-R+QM) was found as the least occurring plagiarism pattern in students’ writing using print sources (Table 1).

### Table 1

<table>
<thead>
<tr>
<th>Item</th>
<th>Plagiarism pattern</th>
<th>Online source use</th>
<th>Print source use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Direct copy (DC) with no referencing (-R) and quotation marks (-QM)</td>
<td>127</td>
<td>56</td>
</tr>
<tr>
<td>2</td>
<td>Direct copy (DC) with referencing (+R) and no quotation marks (-QM)</td>
<td>7</td>
<td>48</td>
</tr>
<tr>
<td>3</td>
<td>Quotation (Q) with wrong referencing (WR) and quotation marks (+QM)</td>
<td>25</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td>Direct copy (DC), wrong referencing (WR) and no quotation marks (-QM)</td>
<td>41</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>Close copy (CC) with no referencing (-R) and quotation marks (-QM)</td>
<td>39</td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>Close copy (CC) with referencing (+R) and no quotation marks (-QM)</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Close copy (CC), wrong referencing (WR) and no quotation marks (-QM)</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Quotation (Q) with no referencing (-R) and with quotation marks (+QM)</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total** 257 174

Acceptable source use

<table>
<thead>
<tr>
<th>Item</th>
<th>Plagiarism pattern</th>
<th>Online source use</th>
<th>Print source use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quotation (Q) with proper referencing (+R) and quotation marks (+QM)</td>
<td>6</td>
<td>15</td>
</tr>
</tbody>
</table>

*Students’ Plagiarism Patterns in Academic Essays (n=70)*
In addition, a statistically significant difference was found between the mean of plagiarism patterns in students’ writing based on the two source modes (p=0.004)*. The results revealed that the mean of plagiarism patterns based on online sources was significantly higher than that of the print sources. Since the p-value was less than 0.05, there was a significant difference in the mean scores of the plagiarism pattern for each of the two groups (online and print sources) (Table 2). In other words, patterns of plagiarism were observed more in students’ writing based on online sources than those based on printed sources.

Table 2
Comparison of Means in Plagiarism Patterns by Source Modes
(n=70; online source=35, and print source=35)

<table>
<thead>
<tr>
<th>Source mode</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online</td>
<td>35</td>
<td>7.34</td>
<td>3.55</td>
<td>0.004*</td>
</tr>
<tr>
<td>Print</td>
<td>35</td>
<td>4.97</td>
<td>3.06</td>
<td></td>
</tr>
</tbody>
</table>

*p-value<0.05 is significant

In addition, Vieyra et al. (2013) indicated direct copying of text as the most common type of plagiarism. Most instances of plagiarism have no citations or include incorrect ones. The present study indicated that plagiarism pattern numbers 1 (DC-R-QM) and 4 (DC WR-QM) in the writing of students who used online sources were higher than in the writing of students based on print sources. This finding is similar to Gilmore et al.’s (2010), who found that students’ writing contained substantial instances of plagiarism including copying and pasting from websites and a lack of paraphrasing or quotation marks for direct copying.

Ison (2012) also found that nearly all dissertations from online institutions had at least one case of inappropriate paraphrasing and citation, and almost half of the students had direct copying without any citation. This finding also corroborates with that of Walker (2010), who reported that students mostly presented a direct quotation as paraphrased material with correct citation but no quotation marks or copying word for word without source citation.

The current study discovered that the ESL students copied or changed the sourced material used without providing acknowledgement. This problem can be attributed to insufficient language skills and inability to use correct citation techniques (Shi, 2004). Similar forms of plagiarism were also reported in another study that investigated the use of online and non-Internet sources (Selwyn, 2008). Almost the same number of students were engaged in some similar form of offline and online plagiarism. Nearly all the students had copied a few unattributed sentences from either a book, an article or online source. Also, Scanlon and Neumann’s (2002) survey on online plagiarism among college and university students in the USA reported their use of the Internet to copy and paste without citation. Many students use Internet material to copy and paste in their assignments. In addition, in a study conducted by Austin, Simpson and Reynen
(2005), students were found to have used information from an Internet site without proper citation.

CONCLUSION

Plagiarism is a serious concern in the higher education system. To improve academic honesty and prevent plagiarism among ESL students, their understanding and knowledge of plagiarism need to be enhanced. Instructors should teach students how to synthesise and properly acknowledge the words and ideas taken from the original authors. Universities should use anti-plagiarism software as a pedagogical tool to provide opportunities for students to check and correct their writing in terms of appropriate source attribution before final submission of their written work.

To summarise, plagiarism can range from copying texts to copying ideas, without acknowledging the original authors (Alzahrani et al., 2011). There are various forms of plagiarism but most people view plagiarism as unattributed copying from a source text (Park, 2004). In addition, some common types of plagiarism patterns include poor paraphrasing with citation; direct quotes as paraphrased material with no quotation marks but with source attribution; verbatim copying with or without citation (Abasi, Akbari, & Graves, 2006; Chanock, 2008; Gilmore et al., 2010; Pecorari, 2010; Walker, 2010; Ison, 2012); properly paraphrased material but without in-text citation; and wrong acknowledgement of original ideas (Ellery, 2008). Furthermore, in all forms of plagiarism, the writer wants the reader to believe that the written material is his/her original words and ideas (Maurer, Kappe, & Zaka, 2006).

In general, one of the essential and important aspects of academic writing is the use of information sources. Teachers need to show and explain the central role of using information from original sources in writing. For the student, teacher or researcher, an academic essay is engaging with others in a specific discourse. Therefore, information details from sources are used and they must be integrated to make an argument. The writer can agree, disagree or elaborate on others’ ideas but to discuss the idea, the writer needs to acknowledge the others’ views in the writing (Moody, 2007).

In this study, the most common type of plagiarism among the Malaysian undergraduates was direct copy with no referencing and quotation marks (DC-R-M). The prevalent instances of plagiarism among the ESL learners may have been due to inadequate knowledge of source use and citation. In addition, the study revealed that the incidence of online plagiarism was higher than offline plagiarism. In other words, writing based on online sources contained significantly more plagiarism than writing using print sources.

According to this study, identification of students’ plagiarism patterns in academic writing helps to increase students’ and lecturers’ awareness about plagiarism in.
academic contexts as well as to provide them with knowledge of sources of plagiarism. Therefore, pedagogical strategies rather than punishment are needed to improve writing skills among L2 students to prevent plagiarism (Pecorari & Petrić, 2014). Moreover, instructors need to provide students with the necessary research tools and skills and help them manage the writing process. Also, it would be more helpful if students wrote the research paper in class under the instructor’s supervision (Erkaya, 2009).

The study recommends that teachers take pedagogical measures and emphasise citation and referencing skills in their writing instruction. They should provide examples of correct source use in teaching students appropriate techniques in using secondary sources in writing to help reduce plagiarised texts. In addition, the university needs to implement appropriate policies and practise more stringent use of anti-plagiarism tools to further discourage plagiarism among students.

REFERENCES


APPENDIX A

Writing Task

Writing Task Based on Print Sources. Read the two attached articles on “Global Warming”. Based on the information from the articles and your own views, write an essay on the following topic. You need to write about 500 words in three to five paragraphs and include an introduction, body and conclusion.

Topic: What are the causes of global warming and what measures can governments and individuals take to tackle the issue?

Please type the essay, and email the soft copy to samanehzm@yahoo.com.

Writing Task Based on Online Sources. Read the two online articles on global warming from the two URL links that have been emailed to you. Based on the information from the online articles and your own views, write an essay on the following topic. You need to write in about 500 words in three to five paragraphs and include an introduction, body and conclusion.

Topic: What are the causes of global warming and what measures can governments and individuals take to tackle the issue?

Please type the essay, and email the soft copy to samanehzm@yahoo.com.
APPENDIX B

Sample of Student Essay Checked by Turnitin

Writing based on printed sources

Topic: What are the causes of global warming and what measures can governments and individuals take to tackle the issue?

Global warming is defined as the increase of the average temperature on Earth. As the Earth is getting hotter, disasters like hurricanes, droughts and floods are getting more frequent. Over the last 100 years, the average air temperature near the Earth’s surface has risen by a little less than 1 degree Celsius or 1.3 degrees Fahrenheit. Deforestation increases the severity of global warming. The ocean is a huge carbon sink, holding about 50 times as much carbon as the atmosphere (Venkataramanan and Smitha, 2011).

Greenhouse gases build-up in the atmosphere and increasing growth of global population (especially in developing world) are main causes of global warming. Climate change is the final result of the global warming caused by the enhancing greenhouse gases build up in the Earth’s atmosphere and oceans, also caused by the global population growth which is enhancing.

After we found out the factors that cause the existing of global warming, we should think about the solutions to solve it. Firstly, the government should take out responsibilities to execute related policy to deal with the global warming issue, especially the developed and developing counties, as Antipas T.S. Massawe (2012) state that, “In different ways, all countries in the developed and developing worlds are answerable for the enhancing global population growth and intensification of global activities in wealth creation which are accompanied by the greenhouse gases build up caused global warming. This is because all human beings on the planet are interdependent and interrelated in their process of wealth creation and consumption.” The government can conduct policy to reduce the usage of private vehicles on the road to lower the harmful gases in the environment for cleaner air and better health. The government can provides subsidies on public transports to encourage the citizen using them for their daily lives such as commuter trains and buses. Also, the government should proposes suitable economy planning, more green lungs should be preserved instead of focus on residential development.

Moreover, individuals also should involve themselves on solving problem of global warming. Reduce, Reuse, Recycle is one of the most popular acts that known in