COHESION DEVICES IN RELATION TO QUALITY OF ENGINEERING STUDENTS’ GENRE-BASED WRITINGS

Santi Agustina Manalu
Institut Teknologi Del, Laguboti, Indonesia
Corresponding e-mail: santi.manalu@del.ac.id

Abstract: Writing skill is one of the four language skills in learning English in EFL context. In writing, cohesive devices are used to establish the links among the ideas in a sentence and paragraph. This study was aimed at investigating IT Del engineering students’ use of cohesive devices in genre based writing and the relationship between the number of cohesive devices used and writing quality. There were 30 writings selected out of 50 compositions written by the engineering students at IT Del. The quantitative analysis was performed to explore the results. The findings revealed that the students applied a variety of cohesive devices in their English compositions, among which reference category had the highest percentage, followed by lexical and conjunction categories. Furthermore, it was found that there is no significant relationship between the number of cohesive ties used and the quality of writing. The results have some important implications for learning English as a Foreign Language.

Keywords: Cohesive devices, genre-based writing, engineering students’ writings

1. INTRODUCTION
Many studies have viewed that writing skill is difficult in the English as Foreign Language (EFL) context. The difficulty is due to the process needed to generate and organize idea using the appropriate words, sentences, and paragraph organization. Writing in EFL setting as well is one of the most challenging areas for teachers and students. Some studies found in Ahmed (2010), Liu & Qi (2010), Dastjerdi & Samian (2011) reveal that the students encountered some problems in the cohesion of EFL writing.

Cohesion in writing is related to connecting sentences and phrases. Halliday & Hassan (1976) defined cohesion as a semantic relation between sentences within the text and the concept of tie made it possible to analyze a text in terms of its cohesive properties and it gave a systematic account of its patterns and texture. Cohesive devices can be manifested in two major groups: grammatical and lexical cohesion. Grammatical cohesion is realized in the form of reference (the indication of information such as personal, demonstrative, and comparative reference), substitution (the replacement of one component by another), ellipsis (the omission of a component), conjunction (the relationship between other elements of the text, such as additive, adversative, casual, and temporal). While, lexical cohesion is distinguished in the form of repetition of the same lexical items.

The studies is investigating the relationship between the uses of cohesive devices and writing quality show that so far no agreement has been obtained. Some researchers like Wenjun (2000), Yang & Sun (2012), Liu & Braine (2005) revealed that the use of cohesive ties has a significant relationship with quality of writing and the learners having cohesive knowledge were able to write better than those who had less. Meanwhile, the findings from the other studies conducted by Meisuo (2000), Dastjerdi (2011) describe no statistically significant relationship between cohesion devices and writing score. Thus, it is clearly known that there is still the gap in the study on the relationship between the frequency of cohesive ties and the quality of writing and this issue leads this current study in finding the use of cohesive devices in relation to Engineering students’ writing quality. The genre-based writing composed by the student in this study is either technical description text or technical explanation text. This study addressed the following question:
Is there any significant relationship between the frequency of cohesive devices used and the quality of writing composed?

1.1 Significance of the Study

The analysis of cohesion in this study explored the variety of cohesive devices used in learners’ writings and how the use of cohesive devices correlated with the quality of learner writings. The findings of this study are expected to be useful for:

Pedagogical Implications that lead to:

a. A better understanding of the cohesive devices in the students’ English writing.
b. Encourage both learners and teachers to pay attention to the cohesion in writing. The teachers of writing have to avoid focusing on the word and sentence level. They have to teach beyond structure analysis and focus on the whole text features that can give the learner understanding to the fundamental features in achieving unity in writing.
c. Enhance the students’ awareness of the characteristics of good writing including cohesion.

2. REVIEW OF LITERATURE

2.1. The Concept of Cohesion

The theory of cohesion is clearly explained in Halliday and Hassan’s (1976) Cohesion in English book. The concept of cohesion in text is related to semantic ties or “relations of meanings that exist within the text, and that define it as a text. Cohesion significantly contributes to a text meaning construction. Without cohesive ties, sentences or utterances would seem to lack any type of relationship to each other and might not be considered text. Halliday and Hasan state cohesion as a semantic between sentences within the text:

“Cohesion occurs when the interpretation of some elements in the discourse is dependent on that of another. The one presupposes the other, in the sense that it cannot be effectively decoded except by resource to it. When this happens, a relation of cohesion is set up, and the two elements, the presupposing and the presupposed, are thereby at least potentially integrated into a text” (1976:4)

Cohesion is expressed by organizational language. Language can be described as a multiple coding comprising three levels of coding: semantics (meanings), lexicogrammar (forms) and the phonology and graphology (expressions). Cohesion is expressed through the grammar and vocabulary.

The cohesive devices defined by Halliday and Hassan are divided into two major groups: grammatical and lexical cohesion. These two groups are categorized as follows:

1. Grammatical Cohesion
   a. Reference
   b. Substitution
   c. Conjunction
   d. Ellipsis

2. Lexical Cohesion
   a. Reiteration
   b. Collocation

2.2. Cohesive Devices

2.2.1. Grammatical Cohesion

a. Reference

In reference, “the information to be retrieved is the referential meaning, the identity of the particular thing or class of things that is being referred to; and the cohesion lies in the continuity of reference whereby the same thing enters into discourse on a second time” (Halliday & Hasan 1976)

There are three main of cohesive references: personal, demonstrative, and comparative. Personal reference refers to the speech situation using noun pronouns such as he, him, she, her, etc. and possessive determiners like mine, yours, his, hers, etc. Demonstrative reference keeps tracks of information through location using proximity such as this, these, that, those, here, there, then, and the. Comparative reference uses comparative referring expressions such as similarly, such, equal, identical, etc.

b. Substitution

The types of substitution identified by Halliday and Hasan are nominal, verbal, and clause. In nominal substitution, the typical substitution words are one, and ones. The most common word in verbal substitution is the verb do. In clausal substitution, the entire clause is substituted.

c. Conjunction
Halliday and Hasan state that conjunction is used to connect neighbouring sentences according to certain semantic relations (additive, adversative, causal and temporal). Additive conjunction is signalled by and, too, furthermore, additionally, etc. Adversative conjunction is to indicate contrary expectation and expressed by yet, though, only, but, in, in fact, rather, etc. Causal conjunction is to express result, reason and signalled by so, then, for, because, as a result, etc. Then, temporal conjunction is expressed by the words such as then, and then, next, afterwards, after that, sequentially, etc.

2.3. Lexical Cohesion

2.3.1. Reiteration
Reiteration is classified into four types: repetition, synonym, superordinate word, and general word.

2.3.2. Collocation
This type of cohesion deals with the relationships between words on the basis of the fact these often occur in the same surroundings.

2.4. Genre Approach Writing
Genre approach refers to an approach to teaching writing focusing on teaching particular genre such as essays, assignments, and other pieces of writing that students need to be able to produce in academic settings (Paltridge 2004 as cited in Eliwarti & Maarof 2014).

In the genre approach, samples of a specific genre are introduced, and some distinctive characteristics of the given genre are pointed out so that students notice specific configurations of that genre.

3. METHODOLOGY

3.1. Participants
The selected samples of this study were drawn randomly that each individual had the same probability of being chosen at any stage during the sample taking. Thus, the participants in this study were 90 engineering students who enrolled in an English subject. The participants came from different majors: engineering management, bioprocess engineering, mechanical engineering, information system engineering and informatics engineering. At the end of the course, the students were assigned to write different types of genre based compositions namely technical and explanatory writings.

3.2. Data Collection
During the semester, the students were taught the theories of genre-based writing including the purpose, organization, and linguistic features. The students were assigned to produce the genre-based writings on the topics provided. The students wrote the technical writing in group. There were 30 compositions from 90 students to be analyzed. The writing scores considered as the indicator of writing quality were collected from the lecturers’ assessments.

3.3. Data Analysis
The data collected were analyzed through two procedures: identifying and counting the number of cohesive ties and assessing the quality of the writings. For the first step of data analysis, cohesion features were used to find out the types of cohesive devices used in genre-based writings. Then, calculating the frequency, mean of each cohesive ties, and the correlation between each devices and writing quality was correlated using SPSS statistical application. However, two categories of cohesive devices, Ellipsis and Substitution, were not analyzed because they were seldom used in formal writing (Liu & Braine, 2005). The types of cohesion devices were coded so that the writer could identify the cohesive devices easily in the participants’ writings. The coding scheme is presented in Table 1.

Table 1. Summary of Types of Cohesion and Coding Scheme

<table>
<thead>
<tr>
<th>Cohesion</th>
<th>Coding</th>
<th>Cohesion</th>
<th>Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference</td>
<td>RC</td>
<td>Lexical Ties</td>
<td>LC</td>
</tr>
<tr>
<td>Personal</td>
<td>PR</td>
<td>Repetition</td>
<td>RL</td>
</tr>
<tr>
<td>Demonstrative</td>
<td>DR</td>
<td>Synonym</td>
<td>SL</td>
</tr>
<tr>
<td>Definite Article</td>
<td>AR</td>
<td>Hypernym</td>
<td>HL</td>
</tr>
<tr>
<td>Comparative</td>
<td>CR</td>
<td>Hyponym</td>
<td>HPL</td>
</tr>
<tr>
<td>Conjunction</td>
<td>CJC</td>
<td>Collocation</td>
<td>CL</td>
</tr>
<tr>
<td>Additive</td>
<td>AC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adversative</td>
<td>ADC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Causal</td>
<td>CC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temporal</td>
<td>TC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. RESULTS AND DISCUSSION

4.1. Cohesive Devices Used in Genre-Based Writings
The type and number of cohesive devices were analyzed by applying Halliday and Hasan’s (1976) cohesive theory as the foundation for data analysis of this study. Table 1 described the frequency and percentage of
various subcategories of cohesive devices. As shown in the data, the participants used a variety of cohesive devices. It could be seen that the participants employed reference devices (44.51%) more frequently than lexical devices (33.21%), followed by conjunction devices (22.28%).

Table 2. Cohesive Devices Used in Writings

<table>
<thead>
<tr>
<th>Cohesion</th>
<th>RC</th>
<th>CJC</th>
<th>LC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>721</td>
<td>361</td>
<td>538</td>
<td>1620</td>
</tr>
<tr>
<td>Percentage (%)</td>
<td>44.51</td>
<td>22.28</td>
<td>33.21</td>
<td>100</td>
</tr>
</tbody>
</table>

To describe the variety of different subcategories of cohesive ties, the detailed analysis is presented below.

4.1.1 Reference Devices Used in Writings

The data shown in Table 3 described that among the four subcategories of reference devices, definite article devices (68.65%) were the most frequently used, followed by personal reference (20.80%), demonstrative devices (9.15%) which had the least frequency of ties.

Table 3. Reference Devices Used in Writings

<table>
<thead>
<tr>
<th>Cohesion</th>
<th>PR</th>
<th>DR</th>
<th>AR</th>
<th>CR</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>150</td>
<td>66</td>
<td>495</td>
<td>10</td>
<td>721</td>
</tr>
<tr>
<td>Percentage %</td>
<td>20.80</td>
<td>9.15</td>
<td>68.65</td>
<td>1.39</td>
<td>100</td>
</tr>
</tbody>
</table>

These findings differ from the studies conducted by Liu and Brain (2005), Dastjerdi & Samian (2011) in which the number of personal references had the highest frequency of ties.

When identifying the cohesive ties used by the participants, the writer found the participants used the article “the” more frequently than other articles.

4.1.2 Conjunction Devices Used in Writings

Table 4 described the frequency and percentages of the subcategories of conjunction devices. Among these four categories additive devices (90.30%) had the largest percentage of use, and then followed by causal devices (4.99%), temporal devices (3.60%) and adversative devices (1.11%) that occupied the least percentage.

Table 4. Conjunction Devices Used in Writings

<table>
<thead>
<tr>
<th>Cohesion</th>
<th>AC</th>
<th>ADC</th>
<th>CC</th>
<th>TC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>326</td>
<td>4</td>
<td>18</td>
<td>13</td>
<td>361</td>
</tr>
<tr>
<td>Percentage %</td>
<td>90.30</td>
<td>1.11</td>
<td>4.99</td>
<td>3.60</td>
<td>100</td>
</tr>
</tbody>
</table>

In terms of conjunction devices used, the participants strongly preferred using simple words to longer phrases to link the ideas in their writings. Among the additive items, the words “and”, “or” and “also” were the highest frequency of use. In terms of adversative items, they often used “but” to describe contrast. In temporal features, the participants often employed “then”, “next”, “finally”, “first”, “second” to describe the logical sequences. In causal ties, “because of”, “because” were dominantly used in their compositions. When describing the reasons, most participants were not able to differentiate how to use “because” and “because of”. It can be concluded that the participants had difficulty using cohesive devices and most of them were not familiar with using other complex cohesive devices such as “on the other hand”, nevertheless to show an opposite idea or exception, and “in addition”, “furthermore” to introduce an additional idea.

4.1.3 Lexical Devices Used in Writings

As shown in Table 5, repetition ties (86.43%) were calculated the largest percentage of use, followed by hyponym items (8.92%), synonym ties (3.16%), hyponym devices (0.93%) and collocation ties (0.56%).

Table 5. Lexical Devices Used in Writings

<table>
<thead>
<tr>
<th>Cohesion</th>
<th>RL</th>
<th>SL</th>
<th>HL</th>
<th>HPL</th>
<th>CL</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>465</td>
<td>17</td>
<td>48</td>
<td>53</td>
<td>3</td>
<td>586</td>
</tr>
<tr>
<td>Percentage %</td>
<td>86.43</td>
<td>3.16</td>
<td>8.92</td>
<td>0.93</td>
<td>0.56</td>
<td>100</td>
</tr>
</tbody>
</table>

These study findings correspond to the studies conducted by Liu & Brain (2005), Dastjerdi & Samian (2011) indicating that the participants had the difficulty to convey their ideas, choose the right words in writing. As the result, most of their writings were filled with the repeated same words which affected the quality of their writings.

4.2 Correlation between the Number of Cohesive Devices and Writing Quality

The main purpose of this study was to investigate the relationship between the number of cohesive devices and writing scores. To reach the purpose of this study, the numerical writing scores and the number of cohesive ties were correlated by Pearson Product Moment Correlation Coefficient.

Table 6. Correlation between the Number of Cohesive Devices and Writing Scores
The analysis of conjunction devices stated that additive devices (90.30%) had the largest percentage of cohesive devices used and adversative devices (1.11%) occupied the least percentage. It was found that the participants preferred using simple conjunctions such as and, or, also, but, because more frequently than other conjunction devices like on the other hand, nevertheless, furthermore.

In lexical devices, repetition ties (86.43%) were calculated the largest percentage of use and collocation ties (0.56%) were the least frequently used. It was found that the major problem in writing was lack of vocabulary and choosing the right words.

Analyzing the correlation between the numbers of cohesive devices and writing quality, it was found that there is no significant relationship between the number of cohesive devices used by the participants and their writing quality. This is to say that the number of cohesive devices did not determine the participants’ writing scores.

The findings of this study suggest some implications both for English teacher and EFL learners. Firstly, the learners need to have
lexical knowledge which is fundamental in enhancing the quality of writing. Secondly, because the samples in this study were found difficulty using cohesive devices properly, the learners need to be taught how to use them properly with the concrete examples.

In short, this research analyzed the cohesive devices specifically in genre-based writing by engineering students. This limitation is mentioned for further research to analyze the cohesive devices in other writings.

6. ACKNOWLEDGEMENT

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7. REFERENCES


