Assessing Grammatical Cohesive Devices in the Findings and Discussion of Research Articles by Graduate Students

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Abstract

Writing research articles is a 'tradition' conducted by students in every learning activity in higher education. This study aimed to analyze the use of grammatical cohesive devices found in the findings and discussion of research articles written by graduate students of English Education. Discourse analysis was employed as the research design and a descriptive qualitative approach was utilized to elaborate the analysis. Qualitative data in the form of text consisting of sentences and clauses containing cohesion were the primary data in this research. The data were obtained through observation and documentation by conducting a preliminary study, collecting the research articles, and verifying the data. The data were analyzed by identifying, classifying, describing, and drawing conclusions. The results of the study showed that the students employed all four types of grammatical cohesive devices in the findings and discussion of research articles. The most dominant grammatical cohesive device utilized by the students was reference and conjunction with total use of 2367 and 955 respectively. There was an apparent margin gap between the dominantly used devices and the least employed devices as there were only 5 occurrences of substitution and 12 occurrences of ellipsis. In conclusion, the students preferred to use only two types of grammatical cohesive devices while neglecting the utilization of the other types. Moreover, this study will hopefully provide suggestions for students on how to use grammatical cohesive devices and additional guides for teachers in teaching students on how to compose a well-organized research paper.
INTRODUCTION

Writing is considered as an activity that cannot be separated from the academic life of a student, especially writing in the form of a scientific paper. Constructing scientific paper is part of assignments given by lecturers to students, either as essays, reviews of scientific articles, or research article. Also, it is one of the requirements for completing studies to obtain a bachelor, master, or doctoral degree in the form of an undergraduate thesis, master thesis, and dissertation. The activity of writing scientific papers in the form of research article, especially by graduate students, is expected to be a medium for providing information on new knowledge, ideas, studies, and research results. It is in-line with Sudjana's (2001) statement, who argued that scientific work is essentially a human product based on scientific knowledge, attitudes, and ways of thinking. Therefore, writing research article is a 'tradition' conducted by students in every learning activity in higher education.

The ability to write research articles for students, especially graduate students of English Education, is not only seen in the introduction section but also the findings and discussion sections. In findings, the statistical results of a study in being listed in detail. Whereas discussion is where the results of a study is being interpreted then relate them to the main topic of the research article (Wrinkler & Metherell, 2012).

Meanwhile, in line with the belief that language consists of form and meaning, its relationship in discourse can be divided into two types, namely a form relationship called cohesion and a relationship of meaning called coherence. Furthermore, Cutting (2000) established that in written discourse, the unit can be composed several main clauses long or even just a single one. Henceforth, in written discourse, the relationship between sentences must always be considered to maintain the linkages and sequences between sentences. According to Halliday and Hasan (1976), cohesion is a concept of meaning that refers to the relationship of sentences and is a semantic unity between one sentence and another in written discourse. Similarly, Thornbury (2005) stated that the element of cohesion serves to bind sentences to the ones that preceded them using cohesive devices. Meanwhile, Nunan (1993) suggested that cohesion is a formal aspect of language in discourse (the relationship that appears in a form). He further explained that cohesion is a syntactic organization, where sentences are composed coherently and densely to produce speech or text. Cohesive relationships in discourse are often realized by cohesion devices, both grammatical and lexical. The purpose of using these cohesive devices is to obtain the effect of the text's meaning and clarity of information. Furthermore, the presentation of findings and discussion needs to pay attention to the relationship between sentence formulation and language structure, as well as the construction of the text by utilizing the appropriate cohesive devices to express the relationship between clauses or sentences.

Cohesive devices are vital to determine the relationship between one clause and another, and one sentence with another. Cohesion in research articles must always be maintained to achieve coherence. Brown and Yule (1983) established that if cohesion is related to the formation of texts, then coherence is an aspect of meaning that refers to elements of speech which describes how implied propositions can be interpreted and concluded. Meanwhile, Renkema (2004) argued that coherence is the interweaving of parts in discourse; semantic coherence that can be achieved by factors outside the discourse. If the research article has cohesion and coherence, it will look systematic so that the ideas contained in the research article can be interpreted and understood by readers. It will also lead the discourse to become cohesive, not just a bunch of clauses and sentences containing a different subject matter, but an element in the text that show the concept of unity.

However, based on the preliminary observations in English Education Journal
there were still students who had not maximized the use of cohesion devices in their research articles. Those research articles have yet to meet the requirements of cohesion between clauses and sentences, especially in the findings and discussion section. This results in the relationship between clauses and sentences not being well connected. Therefore, the coherence aspect was not fully achieved. In line with this research there were several researchers who also conducted research concerning similar topic. Abualail (2020) analyzed the use of grammatical cohesive devices in grade 11 L2 learner's descriptive essays at a private school in RAK, UAE. Meanwhile, Gunas et al. (2020) investigated the aspects of cohesion and coherence in the students writing tasks on descriptive and narrative text genres whereas Kumalasari (2020), analyzed how the students of eleventh grade use cohesive devices in their writing report text.

Another research was conducted by Abdurahman et al. (2013) who tried to find out types of grammatical cohesive devices students mostly used in their thesis writing and how these devices create cohesive discourse. Suwandi (2016) attempted to reveal the coherence of the abstracts of the final project reports of the undergraduate students of PGRI University Semarang. Meanwhile, Jemadi (2017) analyzed the type of cohesive devices used in the theses of graduate students of English as a foreign language.

On the other hand, Abbas et al. (2016) investigated the effects of Arabic language as a mother tongue (L1) on the use of English grammatical cohesive devices in students' argumentative essays. Afrianto (2017) investigated the type of cohesive devices in students' writing as a part of discourse analysis. Amperawaty and Warsono (2019) analyzed cohesion and coherence devices in the background sections of the students' formal writing. Ahmed and Seddaig (2019) investigated the difficulties faced by EFL students in using grammatical cohesion and coherence in written discourse, while Albana et al. (2020) analyzed a piece of argumentative writing produced by fifth semester students in term of cohesion issues of discourse analysis. Meanwhile, Omar et al. (2020) explored the cases of anaphoric pronoun resolution of university level Kurdish Learners of English. Kirana et al. (2020) investigated the types of lexical cohesion and grammatical cohesion used in thesis abstracts composed by undergraduate English department students.

Similarly, Lestari and Sutopo (2020) analyzed the use of cohesive devices in narrative texts written by 11th grader of Pelita Bangsa School. Sari et al. (2022) attempted to analyze the use of cohesive devices in reading texts of English textbook. Meanwhile, this research was conducted to assess the characteristics of grammatical cohesive devices in the findings and discussion of research articles written by graduate students of English Education. The results of the research are expected to provide some contributions. Theoretically, the characteristics of grammatical cohesive devices will empirically contribute in-depth exploration related to cohesion in research paper by students of higher level. Practically, it will supply suggestions for students on how to use cohesion in their research paper. Pedagogically, it will provide additional guides for teachers in teaching students on how to compose a well-organized research paper.

**METHODS**

In this research, a discourse analysis was employed as the research design. This research design was chosen to analyze the object of the study because it revolves and focuses on the element of cohesion. Accordingly, a descriptive qualitative approach was utilized to elaborate the analysis. Meanwhile, the object of this research was the findings and discussion section of research articles written by graduate students of English Education, Universitas...
Negeri Semarang. Whereas the subject of this research was graduate students of English Education, Universitas Negeri Semarang. Both the object and subject were chosen to be analyzed based on the preliminary observations that there were still many students who had not maximized the use of cohesive devices in the findings and discussion of their research articles event though the section contains the substantial elements of a research that should be delivered to readers properly.

As for the data, this research used qualitative data in the form of text consists of sentences and clauses containing cohesion. The data was obtained from the findings and discussion sections of research articles written by graduate students of English Education, Universitas Negeri Semarang as the unit of analysis. They were also obtained through observation and documentation. Creswell (2012) established that observation is the process of gathering information by observing people, object, and places at a research site. This procedure was conducted to observe the research articles written by graduate students of English Education, Universitas Negeri Semarang that may have the possibility to be chosen as the source of the data.

The research articles analyzed were determined through random sampling. The samplings were collected through documentation. There were two data sources in this research, namely primary and secondary data. The primary data were obtained from the results and discussions section of students’ research article. Meanwhile, the secondary data were obtained from various references related to the topic of the research, for example, research articles and other references. The research data did not include documentation in the form of photos because there was no field observation for this research. Therefore, there were no interviews conducted with the authors of the articles. Moreover, there were three procedures in collecting the data, namely 1) conducting a preliminary observation, 2) collecting the articles to be analyzed using random sampling technique, and 3) verifying the data by reviewing articles to find sentences or clauses that contain cohesive devices. Aside from collecting the data, there were several procedures in analyzing the data in this research, such as 1) identify the cohesive devices found in the findings and discussion of the research articles written by graduate students of English Education, Universitas Negeri Semarang by underlining the devices and put them in bold font, 2) classify the cohesive devices found in the research articles written by graduate students of English Education, Universitas Negeri Semarang and presented them in a table, 3) describe the data and explain them accordingly using some of the examples from each classification found in the findings and discussion of the research articles collected, and 4) conclude the result of the analysis regarding the assessment of cohesive device used in the findings and discussion of the research articles written by graduate students of English Education, Universitas Negeri Semarang.

On the other hand, triangulation technique employed in this research was by comparing the characteristics of cohesive devices in the research articles that were analyzed. The data validity test in this research aimed to check, confirm, and ensure that this qualitative research follows the mechanisms and principles used during the research process. Morse et al. (2002) described that data validity checking ensures that the formulation of research problems, literature reviews, data source, data collection techniques, and analysis was examined systematically. The data validity checking was executed to confirm whether the research conducted is genuinely scientific and test the reliability of the data obtained.

RESULTS AND DISCUSSIONS

Based on the taxonomy of cohesive devices by Halliday and Hasan (1976), the data analysis showed that not all types of cohesive devices were utilized by the students to create cohesion in the findings and discussion sections of each research article. The following table
was presented to show the number of occurrences of grammatical cohesive devices found in the findings and discussion sections of the research articles.

**The characteristics of grammatical cohesive devices in the findings and discussion of research articles**

Based on the findings, the four types of grammatical cohesive devices occurred in the research articles. However, among the four types, reference and conjunction were dominantly occurred, whereas substitution and ellipsis’ occurrence were scarce.

**Table 1. The occurrence of grammatical cohesive devices in the findings and discussion**

<table>
<thead>
<tr>
<th>Research Article</th>
<th>Grammatical Cohesive Devices</th>
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<tbody>
<tr>
<td></td>
<td>Reference</td>
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<tr>
<td>1</td>
<td>231</td>
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<tr>
<td>2</td>
<td>244</td>
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<td>3</td>
<td>202</td>
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<td>283</td>
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<tr>
<td>9</td>
<td>183</td>
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<tr>
<td>10</td>
<td>241</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2367</td>
</tr>
</tbody>
</table>

**Reference**

As aforementioned, reference was the most dominant cohesive device that occurred in the findings and discussion sections of research articles written by graduate students of English Education Universitas Negeri Semarang. They occurred for a total amount of 2367. This finding was similar with the findings from Abbas et al. (2016), Abuallail (2020), Gunas et al. (2020) in which reference became the most dominant grammatical cohesive device occurred in third year Iraqi EFL students’ argumentative essays, grade 11 L2 learner’s descriptive essays at a private school in RAK, UAE, and high school students’ writing tasks on descriptive and narrative text genres in Langke Rembong district, respectively. The occurrences were divided into personal reference, demonstrative reference, and comparative reference.

**Personal Reference**

Personal reference is defined as a specific function and role of something that occurred in a text or speech (Halliday & Hasan, 1976). Based on the characteristics of reference in the findings and discussion sections of research articles, there were many types of personal reference occurred. Some of the examples will be presented below.

a) Based on the mentalist input, students are believed to have ‘a black box’, they are equipped with innate knowledge of the possible forms that any single language can take, and enable learners to arrive the rules of the target language.

b) As behavior or attitude assessment is new for the teacher who has been more than thirty years being a teacher, it is quite hard to be conducted by the teacher.

In the findings and discussion sections of research articles, personal pronouns and possessive pronouns occurred the most. Some of them were ‘he,’ ‘their’, ‘it’, ‘they’, ‘them’, and ‘one’s’. These examples of personal reference were primarily referred to their preceding sentences or clauses, in which defined as anaphora reference. In-line with this, the study conducted by Omar et al. (2020) demonstrated that many students tended to employ anaphora reference in their writing assignments. Additionally, among the personal reference occurred in the research articles, such as ‘they,’ ‘them’, ‘their’, and ‘one’s’ were primarily used to refer to students.

**Demonstrative Reference**

Demonstrative reference refers to a type reference that usually appears as a verbal pointing through locating the object being referred to on a proximity scale. Several types
of demonstrative reference occurred in findings and discussion sections of research articles were this, these, those, here, and the.

There are three different views of input in language acquisition. **Those** are the behaviorist, the mentalist, and the interactionist (Ellis, 1994: 243).

**The** finding showed that **the** students tended to be correct in pronouncing words from three to six syllables.

In the example, selective nominal demonstrative ‘those’ referred to three views of input in language acquisition. Moreover, there also occurred demonstrative reference ‘the’ which acted as modifier only. Demonstrative ‘the’ played a role as the most dominant type of cohesive device occurred in all the findings and discussion sections of research articles written by graduate students of English Education. This particular tool basically became the pillar in the students’ research articles in their efforts to establish a cohesive text. This finding was aligned with the study conducted by Abdurahman et al. (2013) which suggested that demonstrative reference dominate the occurrence of reference in student’s theses writing. Additionally, Jemadi’s (2017) study also revealed that definite article ‘the’ was employed the most in the graduate students’ theses background section. However, this finding contradicted with the findings from Kumalasari (2020), which illustrated that many of the students did not utilize any demonstrative reference in their report text.

### Comparative Reference

Comparative reference is a type of reference which compare an identity or similarity of something. According to Halliday and Hasan (1976), there are two types of comparative reference, namely general comparison and particular comparison. Some of the examples of comparative reference occurred in the findings and discussion sections of research articles were shown as follow.

a) But sometimes he could express happiness, not because he was purely happy but more to a satire to his own mistakes.

b) Other evidence showed that passive members impeded cooperation while the good teamwork determined the achievement of the group.

Based on the results of the research, it was revealed that various kinds of system under the comparative reference occurred in the research articles, some of which were ‘the same’, ‘more’, ‘different’, ‘similar’, ‘better’, ‘other’, and ‘not equal’. The expression ‘the same’, ‘similar’, ‘different’, and ‘other’ belong to the system of general comparison. Meanwhile, the expression ‘better’ and ‘not equal’ belong to the system of particular comparison.

On the other hand, the general comparison took dominance in occurrences of comparative reference found in the findings and discussion sections of research articles written by graduate students of English Education, though the system of particular comparison were not left much behind. However, the characteristic of comparative reference in the students’ research articles were evident through the dominant utilization of general comparison ‘other’ and particular comparison ‘more’.

### Substitution

The findings illustrated that substitution rarely occurred in the findings and discussion sections of research articles. There were only 5 occurrences of substitution classified into nominal substitution and verbal substitution found in the ten research articles that were analyzed. This rare occurrence was in-line with findings from Afrianto (2017), Ahmed and Seddaig (2019), and Albana et al. (2020). However, in Afrianto's (2017) and Albana et al. (2020) studies, instead of occurred only a few times, it was revealed that there was no occurrence of substitution in the students' writing at all.

a) Therefore, the null hypothesis was accepted that the students with high or low motivation showed the same results in which the students’ achievement data from the posttest did not provide a significant difference.
b) This phenomenon explains that ST does not show the executors explicitly while TT does.

In the research articles that were analyzed, there was only one example of nominal substitution. It indicated that the students tended to neglect using this substitution in their research articles. In contrast with nominal substitution, there were four occurrences of verbal substitution found the findings and discussion sections of research articles analyzed.

Generally, although not uncommon, verbal substitution rarely made appearance in a formal writing such as research article. However, among the ten research articles written by graduate students of English Education, 4 occurrences appeared in the findings and discussion sections of two research articles – research article 2 and 8.

Meanwhile, in contrast with Amperawaty and Warsono's (2019) finding which indicated that the occurrence of clausal substitution was 35 (29%), there was no occurrence of clausal substitution in this study.

Ellipsis

Ellipsis is often called ‘substitution by zero’. It means that something in a text is omitted, yet the implication is still being understood by readers. In the findings of this research, it was illustrated that the total of occurrences for ellipsis was 12. On the contrary, although there were only 12 occurrences of ellipsis in this study, there was only one occurrence of ellipsis in the study conducted by Kirana et al. (2020). It indicated that the students were still lacking in maximizing the utilization ellipsis in their writing. Additionally, among the three classification of ellipsis, only nominal ellipsis occurred. Some of the examples of its occurrence were presented as follow.

a) Besides, teachers can enhance students’ curiosity by having closed emotional to the students. By those, students are really inspired by their others active friends to learn English language and students are enjoying with the atmosphere of learning.

b) In the findings section, it aimed to show the result of the data analysis. The first was person deixis used by English teacher and students.

Generally, nominal ellipsis is the kind of ellipsis which occurred within a nominal group. This classification consists of three macro level categories, which are the specific deictic, the non-specific deictics, and the post-deictic. The examples demonstrated that ellipsis ‘those’ was employed to refer to having closed emotional. Meanwhile, ellipsis ‘the first’, as a part of the ordinals that belonged to the post-deictic was used to describe the results of the study in the preceding sentence. This classification of nominal ellipsis also appeared the most among all the research articles.

Conjunction

As the second most dominant cohesive devices in the findings and discussion sections of research articles, there were a total of 955 conjunction that occurred. The conjunction appeared in the research articles were divided into four types, which were additive, adversative, causal, and temporal, which were discussed as follow.

Additive

The notion of additive in conjunction is more often than not occurred structurally in the by taking the form of coordination. Moreover, it is divided into four categories, such as simple additive relations, complex additive relations, comparative relations, and appositive relations. One of the examples was explained as follow.

a) Afterwards, the students were assigned to read and analyze the reading.

Based on the findings of the research, the example (a) indicated that the additive ‘and’ was part of the element simple additive relations. The simple additive relations ‘and’ was used to express the internal type of conjunction. It was implicated that the conjunction was meant to convey that there was more to be said in the writer’s explanation though the connection with the preceding clause. This finding is aligned with the study conducted by Suwandi (2016) and Lestari and
Sutopo (2020), which implied that the students tended to employ conjunction ‘and’ as a realization of additive relations between clauses in their narrative texts. This finding was further supported by the finding of the study by Sari et al. (2022) who stated that additive conjunction was the most dominant conjunction in students’ reading texts.

Adversative

Adversative conjunction if often executed in a way that the expectation strays away from the content of what was discussed. The conjunction is divided into four elements, namely adversative relations, contrastive relations, corrective relations, and dismissive relations. However, out of the four elements of adversative conjunction, only three elements were occurred in the findings of the research. An example found in the findings of the research was shown as follow.

a) However, just like the behavior assessment, the teacher yet has found the proper way to conduct skill assessment as it is not conducted frequently by the teacher.

The adversative ‘however’ in example (a) fell under the element of contrastive relations. Specifically, it belonged to the simple contrastive relations of adversative conjunction. The adversative conjunction ‘however’ signified that the sentence, where the conjunction was placed, was associated with intonational prominence, and acted separated from the sentence that followed.

Causal

Causal conjunction is the type of conjunction usually asserted through the marker so, those, hence, therefore, consequently, accordingly, and other similar markers. This conjunction consists of four elements. They are general, specific, conditional, and respective. An example from the findings of the research was presented as follow.

a) Therefore, Madurese local language give significant positive influence on the students’ pronunciation of two syllable English words in first position.

The causal conjunction in the example belonged to the element of general causal conjunction, particularly simple general relations. The conjunction marker presented in the example was utilized by the writer to express connection that what was delivered in the sentence was possible if the condition in the presupposed sentence was fulfilled.

Temporal

Temporal conjunction is often delivered through its simplest form, which is by conjunction marker then. Temporal conjunction consists of three elements, which are simple temporal, complex temporal, and conclusive. Two examples of temporal conjunction were explained as follow.

a) Then, the presenters have an obligation to give respond to the audience in target language too.

As presented in the example, the marker ‘then’ was the simplest form of temporal conjunction. Henceforth, the temporal conjunction ‘then’ belonged to the element of simple relations. In addition, ‘then’ was used in a way that the sentence where the marker was placed indicated that the temporal cohesion contained the linkage that was simultaneous time.

Based on the findings elaborated, it can be inferred that this study differs from the previous studies which analyzed cohesion. This study primarily focused on the findings and discussion section of academic paper by EFL graduate students which has not been really conducted before, whereas most of the previous studies with similar topic on cohesion focused more on the abstract and introduction sections. Furthermore, as the subject of the study was graduate students which classified as advanced EFL learners, their utilization of grammatical cohesive devices exceeded the students analyzed in the previous studies.
CONCLUSION

The results of the research showed that the utilization grammatical cohesive devices were divided into four types of occurrences, which were reference, substitution, ellipsis, and conjunction. Consequently, grammatical cohesive device became the most dominant cohesive device which occurred in the findings and discussion of their research articles written graduate students of English Education, with reference and conjunction leading the occurrences. Furthermore, almost all the findings and discussion of the research articles have similar consistency in establishing the cohesion and unity aspect of their written text, including using similar type of grammatical cohesive device and employing similar cohesion marker. Also, in each research articles, there was a huge margin between the utilization of each type of grammatical cohesive device. To sum up, most of the findings and discussion of their research articles written graduate students of English Education have successfully established cohesion in their research articles to achieved coherent text.

However, there was still imbalance in the employment between the four types of grammatical cohesive devices.

REFERENCES


