
THE COHESION ANALYSIS OF STUDENTS' MULTIMODAL TEXT CREATIONS

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Abstract

Examining cohesion of students' compositions (e.g., students' thesis writing, narratives) has been conducted by many researchers, yet cohesion of students' multimodal text creations (a picture with captions) is still paucity. Therefore, this study aims to fill the research gap by examining the cohesion of students' multimodal text creations using grammatical cohesive devices proposed by Halliday and Hasan (2014a) and inter-semiotic cohesive devices proposed by Liu and O'Halloran (2009). The students' caption text analysis showed that students use three cohesive grammatical devices: references at 49%, conjunctions at 46%, and substitution at 5%. The most frequent types of them used by the students are personal references at 76%, additive conjunction at 63%, and clausal substitution at 67%. In addition, the analysis of inter-semiotic cohesive devices shows that parallel structure is hardly found in multimodal texts. Still, surprisingly, inter-semiotic polysemy is utilized by students to create co-contextualize relationships between language and images and experiential convergence. The study concluded that students in the twelfth grade of Nurul Huda Vocational High School lack using various cohesive devices. Nonetheless, they complement their caption with inter-semiotic cohesive devices embedded in the images. This study implies that the students still need more time allocation to study the subject at hand and go through the writing process as professionals do to create a better text for more elaboration and characteristics of written language with accuracy and consistency.

Keywords: caption text, inter-semiotic cohesive devices, multimodal-text creations

Introduction

Writing is an essential part of language skills that need to be acquired by language learners. They are expected to be able to organize their ideas and put them into writing coherently and cohesively. To achieve coherent and meaningful writing, students need to utilize cohesive devices in their writing to tie one idea with another. Halliday and Hasan (2014) stress the significance of cohesiveness and coherence discourse in producing well-constructed and intelligible literature. Solid knowledge of linguistic relationships is required for the construction of coherent ideas. They maintain that the cohesiveness factor may make writing more communicative and thriving and allow readers to comprehend the content of the texts easier.

Considering the significance of cohesion in students' writing, various works and research have been undertaken on this subject. For example, Albana, Marzuki, Alek, & Hidayat (2020) have conducted a study to detect and analyze student argumentative writing using the coherent techniques proposed by Halliday and Hasan (2014). The data was gathered from a single student's essay, and it was analyzed quantitatively by referring to the cohesive devices proposed by Halliday and Hasan (2014) as the coder. The study shows that the student's argumentative essays utilized some cohesive devices to unite the idea in their writing, but the use of grammatical cohesion should be enhanced. Additionally, Abdurrahman et al. (2013) analyze students' thesis writing in terms of grammatical cohesion to identify and quantify the frequencies of grammatical cohesion devices in the students' thesis. The study revealed that students had used some cohesive devices in their writing, but some were still misused. From the previous research, it can be concluded that research on cohesion is still needed.

Current literature also shows a shifting focus of study in the Systemic Functional Linguistics (SFL) approach to multimodal discourse analysis (O'Halloran, 2008). Liu and O'Halloran (2009) identified that in the 1990s, there were some extension interests in systemic-functional grammar to non-verbal semiotic resources and media, such as displayed arts, visual design, mathematical symbolism, action, and music. Moreover, from the late 1990s onwards, Halliday, Hasan, & Hasan (1985) ideational, interpersonal, and textual metafunctions became the focus of study. However, the study on the nature of inter-semiotic semantic relations remains scarce, especially on explaining what features make multimodal text visually-verbally coherent. To fill in the research gap, particularly on the evaluation of cohesiveness of students' multimodal text creations, this study intends to implement grammatical and inter-semiotic cohesive devices in analyzing multimodal-text creations of vocational high school students. Hopefully, this research could assist teachers in discovering and analyzing students' multimodal text creations. In light of the purposes of the study above, we formed the study in our context around two research questions.

- What grammatical cohesive devices do students utilize in writing captions of multimodal text creations?
- To what extent do students' multimodal text creations accomplish the accuracy of grammatical and inter-semiotic cohesive devices?

Literature Review

Grammatical cohesion

According to Halliday and Hasan (1976), there should be four components related to cohesive grammatical devices: reference, substitution, ellipsis, and conjunction. All of them are cohesive grammatical devices with their characteristics. The type of cohesion specified by the nature of the information retrieved is referred to as reference (La, 2006; Yule, 1996). There are three types of reference: personal reference, demonstrative reference, and comparative reference (Morley, 2000; Wales, 2014). A personal reference is a type of reference made in a speech situation using a function and a person category. Personal pronouns, possessive determiners (usually), and possessive determiners (usually) were all included in the type of personals: possessive pronoun and possessive adjective (also known as possessive adjective). For example, Raisa is eating her dinner (Her as a possessive adjective refers to the subject Raisa).

The term "demonstrative reference" refers to a reference made by pointing to a specific spot. There are a few different kinds of demonstratives. First, the adverbial demonstratives here, there, now, and then indicate the process's position in space or time. Second, nominal demonstratives like this, those, and here conveys proximity to the speaker, whereas those and there imply distance. Consider the following example: Take that umbrella, please! Indirect reference based on likeness or identity: The general comparison communicates the similarity and contrast of two objects, whereas the detailed comparison expresses the similarity of two things in terms of a specific feature. Consider the following scenario: She is a better woman than I am.

The second is substitution. The relationship between linguistic elements, such as words or sentences, was known as substitution, but the relationship between meanings was known as reference (Halliday & Hasan, 2014; Wiraningsih, 2014). Substitution is divided into three types; are nominal substitution (one, ones; For example, my pencil is too blunt. I must get a sharper one (1). The word one is the substitution for pencil. Verbal substitution (do); For example, Does Jean sing? – No, but Mary does (In the first example, do substitutes sing; in the second example, do substitutes know the meaning of half those long words). Clausal substitution (so, not); For example, '...if you've seen them so often, of course, you know what they're like. 'I believe so,' Salma replied thoughtfully. Here, so substitutes, I know what they're like.

The third is ellipsis. It is a language style that omits a section of a phrase readily perceived by the reader and clarifies its meaning. There are three types of ellipsis. Nominal ellipsis means the ellipsis within the insignificant group. For example: Take these pills three times daily. And you'd better have some more of those too. Verbal ellipsis means the ellipsis within the vocal group. For example, have you been Jogging? – Yes, I have. Clausal ellipsis, the English sentence, has a two-part structure consisting of modal and prepositional elements. It indicates various speech functions such as assertion, inquiry, answer, etc. For example, the duke would plant a row of poplars in the park. (Modal element) (Prepositional element).

The fourth is Conjunctions. It is words that link words, phrases, and clauses in sentences. These words may add to (or enlarge on) what has previously been said, or they may elaborate or

illustrate it (for instance, thus, in other words). They may compare new and old knowledge, or they may present an opposing viewpoint (or, on the other hand, however, conversely). They may connect further information to previous information using clauses (so, because, for this reason, therefore) or time (previously, then, in the end, next) or a summary (by the way, to sum up, anyway, well).

Lexical cohesion

Lexical cohesion consists of two elements; they are reiteration and collocation. Reiteration is the repetition of a lexical item or a synonym, where the two occurrences share the same reference, referred to as reiteration. There are four types of reiteration: repetition, synonymy, superordinate, and general word.

Furthermore, Azzouz (2009), Tsareva (2010), and Trisnaningrum, Alek, & Hidayat (2019) research studies were primarily concerned with examining grammatical cohesiveness in essay writing. They both assigned pupils to prepare an argumentative essay. The writers were interested in investigating a similar variable in students' writing caption text. For the reasons above, the writers were interested in learning about the quality of students' writing when they use grammatical cohesiveness to combine sentences in their caption text work. The writers first tracked down cohesive grammatical devices used to measure such points. Additionally, when students use cohesive grammatical devices –such as conjunction or reference– wrongly, it distracts the flow of their ideas.

Inter-semiotic cohesive devices

According to Liu and O'Halloran (2009), "Inter-semiotic texture refers to a matter of semantic relations between different modalities realized through inter-semiotic cohesive devices in multimodal discourse. It is the crucial attribute of multi-semiotic texts which create integrations of words and pictures rather than a mere linkage between the two modes." (Liu & O'Halloran, 2009) According to Liu and O'Halloran (2009), "Inter-semiotic parallelism refers to a cohesive relation which interconnects both language and images when the two semiotic components share a similar form. This type of cohesive relation can take effect as Hosmospatiality on the expression plane or parallel structure at the discourse stratum. Both are important in meaning-making devices and contribute to semantic expansions in multi-semiotic text." Hosmospatiality is a type of spatial parallelism between language and pictures on the expression plane. Parallel structures will take shape in the multi-semiotic texts when two modes share a similar Transitivity configuration. Inter-semiotic polysemy refers to the cohesive relations between verbal and visual components, which share multiple related meanings in multi-semiotic texts (Liu & O'Halloran, 2009). Polysemy signals similarities rather than differences between meanings (Finegan, 2008). Therefore, inter-semiotic polysemy brings about co-contextualization relations between language and images and experiential convergence in multi-semiotic texts (Liu & O'Halloran, 2009).

Methodology

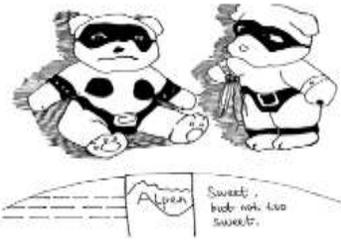
This study aimed to discover and analyze student writing caption text using the coherent techniques proposed by Halliday and Hasan (2014). This study used a qualitative method. According

to Heigham and Croker (2009), qualitative research includes collecting primarily textual material and analyzing it using interpretative analysis.

Twelfth grade students wrote sixty-six multimodal texts in the form of pictures and captions of Nurul Huda Vocational High School. All subjects were instructed to draw a picture about nature and write a caption below the picture. Their works were then examined in two ways. Firstly, the verbal text in the form of captions is analyzed in terms of the number of cohesive devices utilized and coded on the basis of discourse structure adapted from (Halliday & Hasan, 1976). Secondly, the visual texts are analyzed using inter-semiotic cohesive devices, particularly on inter-semiotic parallelism and inter-semiotic polysemy, as shown in Table 1.

Table 1. Grammatical devices

Cohesive Devices	Category	Subcategory	Examples
Halliday & Hasan (Halliday & Hasan, 2014a) grammatical cohesive devices	Reference	pronominal demonstrative comparative	he, his the, that more, last
	Substitution	nominal verbal clausal	one do so
	Ellipsis	nominal verbal clausal	“He bought a yellow car, but I like the red. “You did” “Is she? She didn’t tell me ()
	Conjunction	addition contrast causal temporal continuation	and but because next well
	Lexical	same (root) synonym superordinate general item	depend, dependence angry, mad car, vehicle car, thing
Liu & O’Halloran (Liu & O’Halloran, 2009) inter-semiotic cohesive devices	Inter-semiotic parallelism	Hosmospatiality (Does the image function simultaneously as the typography word(s) used in the caption?)	 (Drawing of Fei, 2004, p.204) (Fei,

			<p>2004). The visual image emitted by the campfire functions simultaneously as the typography for the word 'hot'.</p>
		<p>Parallel structure (Does the caption comply with the picture?)</p>	 <p>(Liu & O'Halloran, 2009) Israeli army dog attacks Palestinian woman.</p>
		<p>Inter-semiotic polysemy (Do verbal and visual components share multiple related meanings in multi-semiotic texts?)</p>	 <p>(Liu & O'Halloran, 2009)</p>

The procedure of data analysis was begun by scanning the captions embedded in the students' multimodal text creations to find and categorize the cohesive devices used by the students. After that, the categorization of the cohesive devices is presented in the form of percentage by using the following formula.

Figure 1. *Percentage formula*

$$P = \frac{N}{T} \times 100\%$$

P = Percentage
 N = Types or sub-types of grammatical cohesive devices
 T = Total Grammatical cohesive devices produced by students

Having done with the analysis of grammatical cohesive devices, the analysis of inter-semiotic cohesive devices was conducted to get more explanations of students' multimodal text creations. Of sixty-six texts, six texts are selected by considering the compliance with the task and instructions given by the teachers. To find the six texts that were potentially to be further analyzed, the researchers asked the teachers to help make a decision.

Results

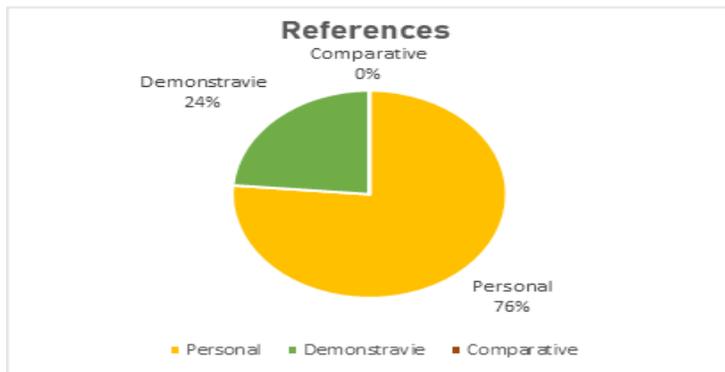
Grammatical cohesive devices

The table below shows that the most dominant grammatical cohesion devices students used by the students in the twelfth grade are references with 49%, conjunction with 46%, and substitution with 5%. On the other hand, we can see that ellipsis has a low rank with 0%. The data shows that students in the twelfth grade rarely use cohesive grammatical devices. It means that students are likely not to have experience in using substitution and ellipsis rather than references and conjunction. It indicates that students are still lacking in the use of cohesive grammatical devices in terms of comprehension, knowledge, and ability in writing, particularly for substitution and ellipsis.

Table 2. *The most frequent use of grammatical cohesive device*

Type of Grammatical Cohesive Device	Students' Grammatical Cohesive Device Use	
	N	%
References	55	49%
Substitution	6	5%
Ellipsis	0	0%
Conjunction	52	46%
Total	11	100%
	3	

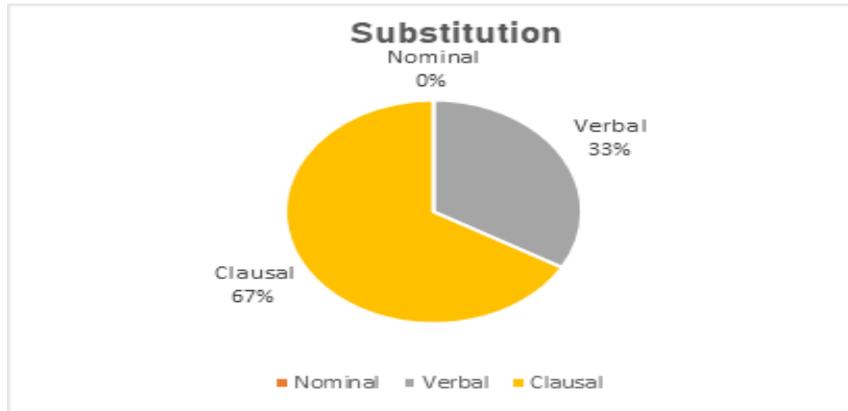
Figure 2. *The frequent use of references*



The doughnut chart above shows that the frequent use of references in the first position is personal references with 76%. The second position is demonstrative references with 24% and comparative references with 0%. The researchers found 55 references used by students in their caption text. The total of personal references is 42, and it is used by students such as *we, you, he, us, our, and your*. Regarding writing captions about nature, they describe it and include the other person (male/female) and object as references. The finding also shows that students use that demonstrative

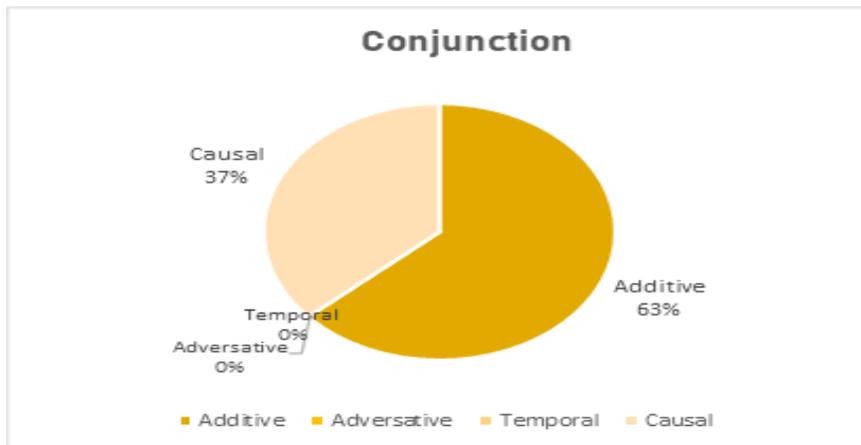
reference with 13. Thus, the results indicate that most students are just familiar with using the references in their captions.

Figure 3. *The frequent use of substitution*



Based on the doughnut chart above, the frequently used substitution in the first position is clausal substitution with 67%. The second position is verbal substitution with 33%. And the third position is nominal substitution with 0%. Substitution, the researchers found two verba substitutions in students' captions, such as *can* and *do*. Then following clausal substitution is not and so with the total 4. Thus, the findings indicate that most students are not familiar with the use of substitution. We can see that the grammatical cohesion devices specification result is only 6 for verbal and clausal substitution.

Figure 4. *The frequent use of conjunction*



Based on the doughnut chart above, the frequent conjunction use in the first position is additive with 63%. The second position is clausal conjunction with 37%, and the last position is temporal and adversative conjunction with 0%. Conjunction, the researchers found 33 additive conjunctions

such as and, that is, while. The following result is on causal conjunction of so, for, otherwise, because, with the total 19. The finding also indicates that most college students are just familiar with conjunction. Otherwise, many conjunctions can be used, but most students experience using the familiar conjunction as explained before.

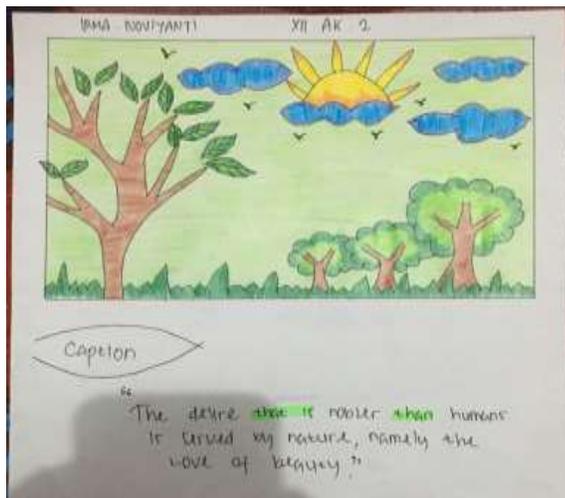
Inter-semiotic cohesive devices

Inter-semiotic cohesive devices are used as complementary analysis, and the devices used in this analysis are limited only to two categories, namely inter-semiotic parallelism and inter-semiotic polysemy. In Picture 1, the word “nature” is represented by trees, sun, clouds, and some birds. Also, every picture functions simultaneously as the typography for words: tree, sun, cloud, bird. However, the picture does not comply with the caption. In other words, the parallel structure does not exist in multimodal text#1. But when looking closely at the inter-semiotic polysemy, *co-contextualization relations* (Liu & O’Halloran, 2009) between language and images and experiential convergence in multi-semiotic texts can be found. For Example, the word ‘beauty’ is closely related to ‘nature’. In Picture 2, it is hard to find parallel structure and inter-semiotic polysemy. The only inter-semiotic device is hosmospatiality; the sun image refers to the word ‘sun’ in the caption.

When looking at Pictures 3-6, hosmospatiality always exists, meaning that there is at least one word that functions as the typography of the image. However, the parallel structure does not always happen, except in Picture 4. Surprisingly, inter-semiotic polysemy can be found in all six pictures, resulting in *co-contextualization relations* (Liu & O’Halloran, 2009) between language and images and experiential convergence in multi-semiotic texts. It can be concluded that the students’ multi-modal text creations do not utilize inter-semiotic devices properly.

Pictures. *Sample of students’ multimodal text creations and the existence of inter-semiotic cohesive devices*

Pic. 1



The desire that is nobler than human is served by nature, namely the love of beauty.

- Hosmospatiality
- Parallel structure
- Inter-semiotic polysemy

Pictures. *Continuation...*

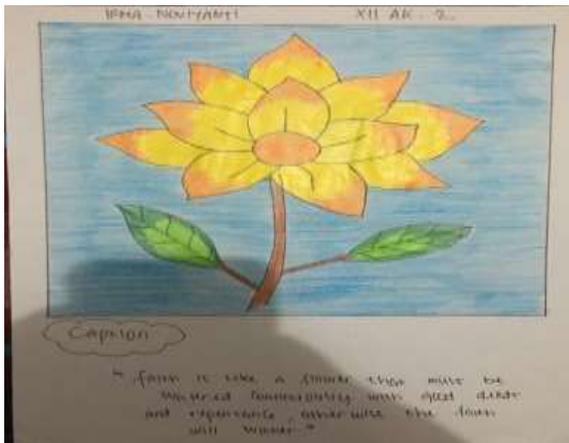
Pic. 2



The benefit of the morning sun (is) very good for (the) health of our bodies and useful for accelerating the process of photosynthesis in plants.

- Hosmospatiality
- Parallel structure
- Inter-semiotic polysemy

Pic. 3



Faith is like a flower that must be watered continuously with good deeds.

- Hosmospatiality
- Parallel structure
- Inter-semiotic polysemy

Pic. 4



The butterfly beside is sucking flower nectar.

- Hosmospatiality
- Parallel structure
- Inter-semiotic polysemy

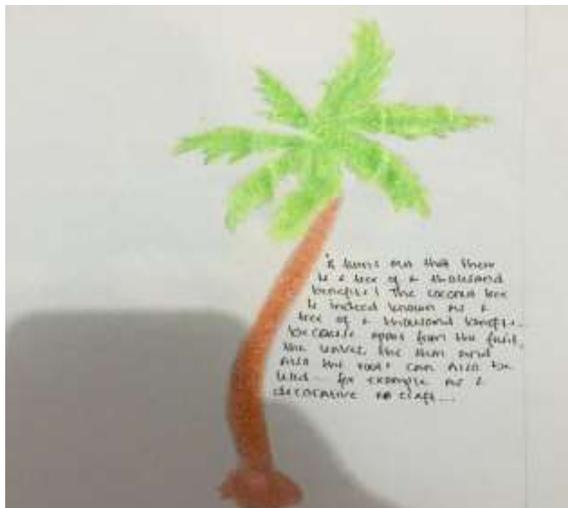
Pic. 5



Hygienic, simple and no need to be afraid of not unraveling! This banana leaf can be used as an alternative to plastic, which is very easy, and there is no need to be afraid that this banana leaf waste cannot be decomposed by the soil.

- Hosmospatiality
- Parallel structure
- Inter-semiotic polysemy

Pic. 6



It turns out that there is a tree of a thousand benefits! The coconut tree is indeed known as a tree of a thousand benefits because apart from the fruit, the leaves, the stems, and also the coats can also be used ...for example as decorative as craft...

- Hosmospatiality
- Parallel structure
- Inter-semiotic polysemy

Discussion

The findings show three forms of grammatical cohesive devices utilized in writing captions of multimodal text creations. The first is references. There are two sorts of references found: personal and demonstrative. *We, you, he, us, our,* and *your* are the personal reference elements present in the data. The demonstrative reference items are *that, there*. Those items are used by the students when they show everything around them. According to Halliday and Hasan (1976), reference employed a function in the speech context through the category of person

In contrast, demonstrative reference is a reference through the place on a scale of closeness. Substitution is the second cohesive device discovery. The function of substitution is to substitute or replace a word or phrase with a filler word such as *one, so, do*, etc. The findings show verbal and clausal grammatical coherence substitution. Two examples of word substitution in this data are *can* and *do*. On the other hand, the clausal replacement examples are “not” and “so”. The last is the conjunction. The types of conjunction are additive and causal conjunction. The objects discovered in the data are additive conjunctions: *and, and while*; causal conjunction: *so, for, otherwise, and because*. According to the notion, conjunction is the way the writer wants the reader to link what is about to be said to what has already been stated (Baker, 1991).

In this research, inter-semiotic cohesive devices are used as complimentary analysis, and the devices used are limited only to two categories, namely inter-semiotic parallelism and inter-semiotic polysemy. Table 2 shows six samples of students' multimodal text creations, and every picture has a different result analysis. In Table 2, Pictures 1, 2, 3, and 5 the parallel structure does not exist in the multimodal, but we can find homospatiality and inter-semiotic polysemy. While in Table 2, Picture 4, in this caption text, we can find the parallel structure.

This study focuses on grammatical cohesive devices students utilize in writing captions of multimodal text creations and to what extent students' multimodal text creations accomplish the accuracy of grammatical and inter-semiotic cohesive devices. The difference between this research and the previous research is in the object of the study. The object of this study discusses the caption, especially the topic is nature, and the sample is students in Vacation High School. Moreover, in this research, inter-semiotic cohesive devices are used as complementary analysis, and the devices used are limited only to two categories. Abdurahman (2013) showed similar results in cohesive devices, namely that the most common kind of grammatical cohesion is reference and conjunction. Akbar (2019) found additive conjunction is the most frequent conjunction used by the students. Alarcon, Ninfa, and Morales (2011) found that the student's highest type of grammatical cohesion is the reference, with 90.76%. Albana et al. (2020) found grammatical cohesion reference and conjunction types, but substitution is not found here. Almutairi (2017) found the most frequent reference used by the students is a personal reference, and the most frequent conjunction used by the students is additive conjunction. Furthermore, another research found three types of grammatical cohesion reference, substitution, and conjunction (Dewi, 2008; Emilia, Habibi, & Bangga, 2018; Hidayat, 2017; Maizanti, 2018; Maulida, Surtiana, & Nugraha, 2020; Musdiawardhani, 2016; Saputra, 2021).

Conclusion and Recommendations/Implications

Students' grammatical cohesive devices in writing captions of multimodal text creations are references, followed by conjunction in the second place and substitution in the third place. In reference, the most frequent use is a personal reference. The most frequent use of substitution is clausal substitution. The most frequent use of the conjunction is additive conjunction. The data can also be assumed that students in the twelfth grade of Nurul Huda Vocational High School are just familiar with three subtypes of grammatical cohesion devices, as the finding showed.

The analysis of to what extent students' multimodal text creations accomplish the accuracy of grammatical and inter-semiotic cohesive devices showed that it is hard to find parallel structure

and inter-semiotic polysemy. However, from six pictures inter-semiotic polysemy can be found in all which results in *co-contextualization relations* between language and images and experiential convergence in multi-semiotic texts.

The study suggests that English teachers improve students' knowledge, comprehension, and ability to cohesive grammatical usage. English teachers can motivate students to learn cohesive grammatical types in many topics and ask them to practice, and then give feedback on their writing in a simple way. Besides, the students must realize the importance of using grammatical and inter-semiotic cohesive devices in writing. Hence, they have to practice writing a lot and apply it.

Disclosure statement

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