
LOGICO-SEMANTIC RELATIONS IN A UNIVERSITY STUDENT'S ARGUMENTATIVE ESSAY: CONTENT ANALYSIS OF CLAUSE COMPLEXES

By

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Abstract:

An argumentative essay is one of the most difficult types of writing for university students, especially in constructing sentences that are logical, cohesive, and coherent, which is called a logico-semantic relation in systematics functional linguistics (SFL). Thus, the objective of this research was to find out the logico-semantic relations manifest in the argumentative essays crafted by university students and a teacher's perspectives on the use of logico-semantic relations in students' writing. The analysis showed that the essay comprised 10 clause complexes and exhibited logico-semantic relations, as evidenced by the identification of expansion and projection relations. The data on expansion relation revealed that out of 10 clause complexes, 5 clauses 50% had elaboration relations, 3 clauses 30% had enhancement relations, and 2 clauses 20% had extension relations. Among 10 clauses, 3 belonged to the category of idea projection marked by words such as "debate, find out, thinking, based on", while 2 belonged to the category of locution projection marked by words "tell, say", and the remaining two clauses did not belong to any category of projection. Concerning the interview, the teacher possessed a solid comprehension of the concept of logico-semantic relations, which are the techniques of linking clauses or sentences to convey the logical and semantic meanings of the text. The teacher also emphasized the importance of logico-semantic relations for attaining cohesion and coherence in academic writing.

Keywords: *Argumentative essay; Logico-semantic; systematics functional linguistics (SFL).*

Abstrak:

Esai argumentatif adalah salah satu jenis tulisan yang paling sulit bagi mahasiswa, terutama dalam menyusun kalimat yang logis, kohesif, dan koheren, yang disebut relasi logiko-semantik dalam linguistik fungsional sistematis (SFL). Tujuan penelitian ini adalah untuk mengetahui relasi logiko-semantik yang terwujud dalam esai argumentatif yang dibuat oleh mahasiswa dan perspektif seorang guru tentang penggunaan relasi logiko-semantik dalam tulisan mahasiswa. Analisis menunjukkan bahwa esai tersebut terdiri dari 10 kompleks klausa dan memperlihatkan relasi logiko-semantik, yang dibuktikan dengan identifikasi relasi ekspansi dan proyeksi. Data mengenai hubungan ekspansi mengungkapkan bahwa dari 10 kompleks klausa, 5 klausa (50%) memiliki hubungan elaborasi, 3 klausa (30%) memiliki hubungan peningkatan, dan 2 klausa (20%) memiliki hubungan perpanjangan.

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Di antara 10 klausa tersebut, 3 termasuk dalam kategori proyeksi gagasan yang ditandai dengan kata-kata seperti “debate, find out, thinking, based on”, sementara 2 termasuk dalam kategori proyeksi lokusi yang ditandai dengan kata-kata “tell, say”, dan dua klausa lainnya tidak termasuk dalam kategori proyeksi manapun. Mengenai wawancara, guru memiliki pemahaman yang kuat tentang konsep hubungan logika-semantik, yaitu teknik-teknik menghubungkan klausa atau kalimat untuk menyampaikan makna logis dan semantis dari teks. Guru juga menekankan pentingnya hubungan logika-semantik untuk mencapai kohesi dan koherensi dalam penulisan akademik.

Kata kunci: *Esai argumentatif; Logiko-semantik; linguistik fungsional sistematis (SFL)*

INTRODUCTION

Writing is a complex skill that requires not only linguistic competence but also rhetorical awareness and logical reasoning. Writing an argumentative essay is one of the most challenging tasks for many university students, especially those learning English as a foreign language (Zhao, 2017).

One of the challenges that university students face when writing argumentative essays is how to establish coherent and meaningful connections between different ideas, both within and across sentences (Ozfidan & Burlbaw, 2019; Ozfidan & Mitchell, 2020). These connections are known as logico-semantic relations, and they can be realized by various linguistic devices, such as conjunctions, prepositions, and clause complexes (Halliday & Matthiessen, 2014). Conjunctions and prepositions are linguistic devices that establish logical semantic connections between clauses, while clause complexes are structures that enable the comprehension of the functional organization of sentences (Banks, 2019). The logical structure of the content also reflects its meaning (Halliday & Matthiessen, 2004). As a structural entity, a clause complex reveals how a sentence is functionally organized. It shows how multiple clauses within a sentence are logically and semantically related. Halliday (1994) characterized this as the functional semantic associations that form the logic of natural language. These associations are intrinsically connected to the propositions, their segments, constituents, and the links between them. In other words, clause complexes are grammatical and semantic units that systematically and meaningfully connect two or more clauses (Eggins, 2004). They are essential for academic writing, particularly for argumentation, as they enable the writer to express complex ideas and relationships among them. However, writing effective clause complexes is challenging for

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many EFL students, as it requires sophisticated cognitive and linguistic abilities (Nippold & Scott, 2010).

The clause complexes constitute an interconnected system that encompasses two subsystems: “taxis” and “logico-semantic relations.” Taxis refers to the interdependency between clauses, which can be either paratactic (equal status) or hypotactic (unequal status). Logico-semantic relations, on the other hand, deal with the nature of the relationship between two clauses forming a clause complex. These relations can be categorized into two main types: expansion and projection (Halliday & Matthiessen, 2014). Expansion includes elaboration, extension, and enhancement, while projection involves the representation of ideas or speech (Egins, 2004; Gerot & Wignell, 1994). According to Halliday (1994), the elaboration relation in a clause is the one that explicates the content of one meaning with another meaning by describing and arranging the relation of the clause. The symbol of the elaboration relation is “=”. The examination of the paratactic elaboration clause incorporates the symbol (1=2) and is segmented into three divisions: elucidation, illustration, and amplification, contingent on the conjunction or conjunctive adjunct employed (Mardianto et al., 2018).

The scrutiny of the hypotactic elaboration clause applies to the symbol ($\alpha=\beta$). About extension, Gerot and Wignell (1994) define “extension” as a tight-knit relationship between two clauses that carry identical meanings, with the latter clause introducing an additional element to the former. This relationship is symbolized by the “+” sign. Extension clauses can be categorized into two types: paratactic and hypotactic extensions. Concerning the enhancement relation, Gerot and Wignell (1994) defined it as a linguistic relationship that augments the semantic value of clauses through the utilization of conjunctions pertaining to temporal, spatial, conditional, causal, concessive, and modal aspects. Meanwhile, the second relation, projection, can be classified into two categories: locution and idea. Locution refers to a clause that is projected by another clause, which represents it as a locution or a linguistic construction (Halliday, 1994).

Numerous studies about logico-semantic and complex clauses have been conducted by several researchers. One study done by Nguyen et al. (2020) analyzed the interdependency and

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logico-semantic relations of clauses in the final project backgrounds written by English education students. They used the descriptive qualitative method and interactive analysis of Miles and Huberman's model. They found that the students mostly used hypotactic clauses and expansion relations in their writing. The other study conducted by Allagbé et al. (2022) analyzes the logical relations in the argumentative essays written by second-year English major students at the Université de Zinder, that the students used more clause complexes than clause simplexes in their essays, suggesting thus spoken mode.

The findings also indicated that the students deployed a lower number of rank-shifted relations compared to the tactic relations found in their texts. In addition, Rasool and Mahmood (2023) compared the taxis and logico-semantic relations in AI-generated and human-written argumentative essays. They used the system of clause complexes and the UAM tool as the theoretical framework and annotation tool. They found that AI-generated essays had more clause complexes, paratactic structures, and positive additive relations, while human-written essays had more variation, alternation, and conditional relations. Research in the same context was also conducted by Yuniar (2018) identified and analyzed the logico-semantic relations of clauses in analytical exposition texts written by the third-semester students of Tidar University. They employed systemic functional linguistics and UAM tool as the framework and annotation tool to analyze the data. They found that the students mostly used expansion of enhancement, and projection of locution in their texts.

Previous studies have also shown that EFL students often have problems with using logico-semantic relations in their argumentative essays, resulting in texts that are unclear, inconsistent, or illogical (Allagbé, 2022; Yuniar, 2018). Logico-semantic relations are important for creating cohesion and coherence in academic writing, as they signal the writer's stance, attitude, and purpose to the reader (Rasool & Mahmood, 2023). However, previous research on logico-semantic relations in argumentative essays has been limited in scope and depth. A study has focused on the frequency and types of logico-semantic relations used by students from different linguistic and cultural backgrounds (Rasool & Mahmood, 2023),

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without examining how these relations contribute to the overall quality and effectiveness of the essays.

Moreover, few studies have explored teachers' perspectives, who are the main evaluators and feedback providers of students' writing (Allagbé et al., 2022). Teachers' views and expectations of logico-semantic relations may differ from those of researchers and students and may influence how they assess and respond to students' writing. Therefore, this study aims to fill the gap in the literature by conducting a content analysis of logico-semantic relations in university students' argumentative essays and by investigating the teacher's perspective on the use and importance of these relations. The researcher hoped that this study would provide insights into the strengths and weaknesses of university students' argumentative writing skills, as well as the challenges and strategies of teaching and learning logico-semantic relations. The findings of this study can also contribute to the development of effective teaching materials and methods for improving students' argumentative writing performance and confidence.

Upon all, the authors set research questions to guide the answers of this study. The research questions are as follows:

1. What logico-semantic relations manifest in the argumentative essays crafted by university students?
2. How do teachers perceive the use of logico-semantic relations in students' writing?

METHOD

Design

This research is a descriptive qualitative research method that deals with the description of the word (Ary et al., 2010), intended to describe and identify the logico-semantic system from the clause complexes found in the student's argumentative essay by using content analysis (Donald et al., 2010).

Instruments and procedures

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This study employed document analysis and interviews as data collection methods. To address the research question concerning logico-semantic relations in university students' argumentative essays, a targeted data collection procedure was conducted. One EFL student from Lambung Mangkurat University was selected based on her voluntary participation and willingness to share her draft. The student submitted her argumentative essay electronically through a secure online platform. The essay was an original piece of coursework, composed within the standard length of 1,000 - 1,500 words, and structured according to conventional argumentative essay components: an introduction, body paragraphs, and a conclusion. The essay was written in English to maintain consistency in the analysis. Upon receipt, the essay was assigned a unique identification code to ensure the anonymity of the participant, with personal identifiers removed. The essay was securely stored in a password-protected database accessible only to the research team, with backup copies maintained to prevent data loss. A preliminary review of the submitted essay was conducted to ensure it meets the inclusion criteria.

The interview was also used to collect data. One lecturer was purposively chosen to participate in the interview (Merriam & Tisdell, 2015) based on several justifications: 1) he has more than three years of teaching experience. 2) he is professional in writing and teaching writing. 3) he is easy to contact. It means that the participant was selected purposefully for her capacity to elucidate a particular theme, concept, or phenomenon, as well as her knowledge of, and/or involvement with, the topic under empirical scrutiny (Robinson, 2014). Following the ethical principles of a qualitative study (Wiles, 2013), the participant's identity was kept confidential in all forms of communication (Hennink et al., 2017). The researcher used five open-ended questions to enable the participant to share her experiences freely, without being affected by the researcher's views or prior research findings. This provided opportunities for responding (Creswell et al., 2018). The interview question was divided into two themes: (1) teacher understanding, (2) the importance, and (3) evaluation. The interview process was conducted in Bahasa Indonesia to avoid ambiguity (Hitimala & Wirza, 2024).

Data analysis

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This study employed a systematic approach based on the logical function analysis framework (Saragih & Saragih, 2021) to analyze the logico-semantic relations in the selected argumentative essay. Table 1 presents the steps of the analysis.

Table 1. Logical function analysis (Saragih & Saragih, 2021)

<i>Separating the text into clauses.</i>	<i>The analysis began by reading and re-reading the student's essay to ensure a thorough understanding of the text. The essay was then separated into individual clauses.</i>
<i>Analyzing each clause in terms of the categories of logical functions</i>	<i>Each clause was analyzed in terms of the categories of logical functions, following the clause complex analysis rules from Halliday and Matthiessen (2014). This involves classifying each clause based on its logical function within the text. The elements and meanings of these logical functions were identified and categorized.</i>
<i>Classifying elements and meaning of the logical function used in the texts.</i>	<i>The next step involved identifying the types of clause complexes (logico-semantic relations) used in the argumentative text. This includes both Expansion relations (such as elaboration, extension, and enhancement) and Projection relations (such as the projection of ideas and facts). The analysis determined the most dominant types of logico-semantic relations present in the essay. The frequency and distribution of Expansion and Projection relations were calculated and described statistically. Additionally, specific examples of logico-semantic relations are presented to provide a deeper qualitative understanding of how these relations are used in the student's argumentative essay. The findings were interpreted and compiled into a comprehensive report that includes the main results, discussion, and implications of the use of logico-semantic relations in the essay.</i>

Moreover, to analyze the interview data, a thematic analysis approach as outlined by Braun & Clarke (2006) and Creswell (2012) was employed. The process *begins with familiarization with the data*, which involves reading and re-reading the transcribed interview responses to gain a deep understanding of the content. This step ensured that the researchers

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were thoroughly acquainted with the data before proceeding to the next stages. *The second step is generating initial codes.* During this phase, the researchers highlighted the participant's answers that are relevant to the research objective. These highlighted segments served as the initial codes, representing significant features of the data that are pertinent to the research questions. *Next, the researchers identified themes by categorizing the participants' answers into potential themes.* This involves organizing the initial codes into broader patterns that capture the essence of the data. These themes represent the underlying meanings and patterns within the interview responses. Once potential themes have been identified, the researchers *reviewed the themes* to ensure their coherence. This step involves working collaboratively with other researchers to check the validity of each theme. The themes were then refined and adjusted as necessary to ensure they accurately represent the data. After reviewing the themes, the researchers *defined and named the themes.* This involves creating clear definitions and names for each theme and writing a detailed analysis of each theme through discussion. *Finally, the researchers produced the report.* This involves choosing the best examples from the data to illustrate each theme, explaining how these examples answer the research questions, and connecting the findings to other studies.

RESULT AND DISCUSSION

Result

Before examining the logico-semantic relations among clauses in the student's argumentative essay, the researchers first identified the types of clauses. As presented in Table 2, the distribution reveals that the essay comprises 10 clause complexes and 30 single clauses, indicating a predominance of simple sentences over complex ones.

Table 2. The kinds of clause

<i>Type of clause</i>	<i>Number</i>	<i>Percentage</i>
<i>Clause complex</i>	<i>10</i>	<i>25%</i>
<i>Clause simplex</i>	<i>30</i>	<i>75%</i>
<i>Total</i>	<i>40</i>	<i>100%</i>

Logico-semantic relation

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In terms of logico-semantic relation analysis, the two logico-semantic relations, expansion and projection, were found in the student’s essay.

Expansion relation

First, about expansion, there are three types of expansion: extension, enhancement, and elaboration. Table 4 shows the number and percentage of each type of expansion in the essay:

Table 3. The distribution of logico-semantic relation between clauses in the expansion relation

<i>Type of expansion</i>	<i>Number</i>	<i>Percentage</i>
<i>Elaboration</i>	5	50%
<i>Extension</i>	2	20%
<i>Enhancement</i>	3	30%
<i>Total</i>	10	100%

As shown in Table 3, the total percentage of elaboration is 50%, while the total percentage of extension is 20% and the enhancement relation is 30%. This means that the essay uses more clauses that provide additional information or clarification than clauses that add new elements or modify the circumstances.

Regarding **elaboration relation**, Table 4 indicates 5 clause complexes that show the elaboration relation. Out of five clause complexes, none were categorized as paratactic.

Table 4. Elaboration relation examples

Clauses	<i>Paratactic</i>	<i>Hypotactic</i>
<i>The debate over whether or not students should be allowed to bring smartphones to school has persisted for some time</i>	-	$(\alpha), (= \beta)$
<i>The first reason most students bring smartphone to school is that their parents tell them to be safe</i>	-	$(\alpha), (= \beta)$
<i>In addition to the two negative sides above regarding abuse when students bring smartphones to school as a media to exchange answers and see negative content</i>	-	$(\alpha), (= \beta)$
<i>Based on Laka (2020), with smartphones, students can cheat in exams</i>	-	$(= \beta), (\alpha)$

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<i>All in all, after seeing the two opposite sides above, there is no way we can disagree with what they say regarding the ban on bringing smartphones to school</i>	-	$(\alpha=\beta)$
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As shown in Table 4, the first clause complex is hypotactic and consists of a main clause and a subordinate clause. The main clause is “*The debate over whether or not students should be allowed to bring smartphones to school,*” and the subordinate clause is “*has persisted for some time*”. The subordinate clause modifies the main clause by providing additional information about the duration of the debate.

In the second clause complex, the elaboration relation is realized by hypotaxis, because the second clause is dependent on the first clause. The first clause is the dominant clause that introduces the main idea, while the second clause is the dependent clause that explains the reason for the main idea. The subordinating conjunction “**that**” marks the hypotactic relation between the clauses. The clause complex can be diagrammed as follows: “*The first reason most students bring smartphones to school | α _ is | = β |_ that their parents tell them to be safe*”. The diagram shows the structure of the clause complex and the hypotactic elaboration relation between the clauses. The dominant clause is on the left, and the dependent clause is on the right. The vertical line indicates the main clause, and the horizontal line indicates the subordinate clause.

The third clause complex consists of two clauses: the main clause and the dependent clause. The main clause is: “*In addition to the two negative sides above*”. The dependent clause is: “*regarding abuse when students bring smartphones to school as a media to exchange answers and see negative content*”. The dependent clause elaborates the meaning of the main clause by specifying what the two negative sides are. The dependent clause is introduced by the subordinating conjunction “**regarding**” and contains two relative clauses: “*when students bring smartphones to school*” and “*as a media to exchange answers and see negative content*”. These relative clauses further elaborate the meaning of the dependent clause by providing temporal and causal information. Therefore, this clause complex has a hypotactic elaboration relation,

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because the dependent clause is subordinated to the main clause by using a subordinating conjunction.

In the fourth clause complex, it has two clauses: **the main clause** and **the dependent clause**. The main clause is “*With smartphones, students can cheat in exams*”, while the dependent clause is “*Based on Laka (2020)*”. The dependent clause elaborates the meaning of the main clause by providing a source of information or evidence. The dependent clause is introduced by the subordinating conjunction “**based on**” and contains a proper noun, “Laka (2020)”. Therefore, this clause complex has a hypotactic elaboration relation, because the dependent clause is subordinated to the main clause by using a subordinating conjunction.

As shown in Table 4, the fifth clause complex consists of three clauses: “*All in all*”, “*after seeing the two opposite sides above*”, and “*there is no way we can disagree with what they say regarding the ban on bringing smartphones to school*”. The first clause is an **independent clause** that functions as a **conjunction** to introduce a summary or conclusion. The second clause is a **dependent clause** that functions as an **adverbial** to modify the main clause by expressing a **condition**. The third clause is an **independent clause** that functions as the **main clause** to express the main idea or argument. The relationship between the clauses is **hypotactic**, meaning that there is a hierarchy of importance and dependency among them. The first and second clauses are subordinate to the third clause, which is the dominant one. The second clause is also subordinate to the first clause, which is the initiating one.

Moreover, regarding **extension relation**, the table below lists two clause complexes that have extension relation types. The first clause complex consists of a paratactic and hypotactic extension. The second has only paratactic extension. The examples are as follows.

Table 5. Extension relation examples

Clauses	Paratactic	Hypotactic
<i>Besides to communicate easily, especially if there is a sudden incident that requires parents to message their child (student) or when students leave school early</i>	-	(α), ($+\beta$)

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<i>They have a point in thinking like that, however, students can misuse cell phones behind these reasons</i>	(1), (+2)	-
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As shown in Table 5, the first clause complex is hypotactic, where it has two clauses, an independent clause that can stand alone and a dependent clause that cannot stand alone. The second clause modifies the first clause by providing a condition for the communication. Additionally, the word “**Besides**” strongly indicates extension. Meanwhile, the second clause complex is paratactic since it consists of two independent clauses that are related to each other. The second clause adds a contrast to the first clause by using the adversative conjunction “**however**”.

Third, concerning **enhancement relation**, table 6 portrays four clauses that each have paratactic enhancement.

Table 6. Enhancement relation examples

Clauses	<i>Paratactic</i>	<i>Hypotactic</i>
<i>Even though the school has made regulations regarding this matter, however, there are still students who do not obey or even care about it</i>	(1x2)	-
<i>Therefore, this essay was written to find out what is being debated regarding the school’s ban which prohibits students from bringing smartphones, especially the counter opinions regarding this issue</i>	(1x2)	-
<i>Therefore, to avoid the negative impact of students who bring mobile phones to school, it is better if the school needs to make strict policies regarding the prohibition of students bringing smartphones to school and provides sanctions for students who violate them</i>	(1x2)	-

As shown in Table 6, the first clause complex has a paratactic enhancement with the coordinating conjunction **however**, which links two independent clauses that have equal status. The first clause is “**even though the school has made regulations regarding this matter**”. It is an independent clause that expresses a causal circumstance. It implies that the school’s regulations are expected to prevent or discourage the students’ disobedience. In terms of the

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second clause complex in Table 6, it has a paratactic enhancement with the coordinating conjunction **therefore**, which links two independent clauses that have equal status.

The first clause is **Therefore**. It is an independent clause that expresses a causal circumstance. It implies that the essay was written as a result of something that happened before. The other paratactic enhancement is **especially**, which adds a selective circumstance to the subordinate clause. It indicates that the counter-opinions are more important or relevant than other aspects of the debate.

Moreover, the third clause complex in Table 6 has a paratactic enhancement with the coordinating conjunction “**therefore**”, which links two independent clauses that have equal status. The first clause is “**Therefore**”. It is an independent clause that expresses a causal circumstance. It implies that the main clause is a result of something that happened before. The second clause is “**it is better if the school needs to make strict policies regarding the prohibition of students bringing smartphones to school and provides sanctions for students who violate them**”. It is an independent clause that expresses a contrastive circumstance. It shows that the main clause is a recommendation or a suggestion.

To sum up, the data related to expansion relation shows that out of 10 clause complexes, there are 5 clauses 50% that contain elaboration relation marked by words such as “that, based on, regarding, and all in all”, 3 clauses 30% that show enhancement relation marked by words such as “however and besides”, and 2 clauses 20% that show extension relation marked by words such as “therefore, however, and especially”.

Projection Relation

The analysis shows that 10 clause complexes that are identified have projection relation. Out of 10 clauses that are identified, 3 of them belong to the category of idea projection (first clause in Table 4, second clause in Table 6, fourth clause in Table 4), 2 belong to the category of locution projection (second clause in Table 4, last clause in Table 4), and 3 do not belong to any category of projection.

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Therefore, one example of clause complex (first clause in Table 4) that has *Idea projection* relation can be explained as follows. The clause “**The debate over whether or not students should be allowed to bring smartphones to school has persisted for some time**” has a hypotactic projection with the projecting verb “**debate**” and the projected clause “**whether or not students should be allowed to bring smartphones to school**”. The projected clause is a nominal relative clause that acts as the complement of the verb **debate**. This is an “**idea projection**”, because the projecting clause reports the thoughts or beliefs of the people who are involved in the debate.

Regarding locution projection, one example of clause complexes that have this type of projection is the second clause in Table 4. The clause “**the first reason most students bring smartphones to school is that their parents tell them to be safe**” has a hypotactic projection with the projecting verb “**tell**” and the projected clause “**them be safe**”. The projected clause is a finite clause that acts as the complement of the verb “**tell**”. This is a “**locution projection**” because the projecting clause quotes the words or speech of the parents.

In conclusion, from 10 clauses, 3 of them belong to the category of idea projection marked by words such as “debate, find out, thinking, based on”, while 2 clauses belong to the category of locution projection marked by words “tell, say”, and the remaining two clauses do not belong to any category of projection.

The teacher’s perspective and evaluation of the use of logico-semantic relations in students’ essays

In relation to the interview, the teacher confidently shared his views regarding logico-semantic. The teacher understands that *logico-semantic relations are the connections between clauses or sentences that express the logical and semantic meanings of the text*. The teacher responded.

“I think logico-semantic relations are how clauses or sentences link together and show the logic and meaning of the text. Some kinds of logico-semantic relations are adding more information, saying or thinking something, changing the message, and explaining the meaning.”

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As shown in the excerpt above, the teacher has a sufficient understanding of the concept of logico-semantic, as evidenced by implicitly mentioning some examples of it, such as adding information that represents expansion, changing message or projection, and elaboration. The teacher also added that logico-semantic is important to create coherence and cohesion, as the teacher stated.

“Yaa, of course, logico-semantic relations are very important for creating cohesion and coherence in academic writing because they show the relationships and evidence of the text.”

The above excerpt inferred that understanding logico-semantic relations greatly helps in creating coherent writing that connects one sentence with another. In addition, the teacher, in his assessment of the quality of good argumentative writing, used logico-semantic relation indicators to evaluate the accuracy and clarity of the content of the writing, as the teacher informed.

“I evaluate students’ use of logico-semantic relations in their writing by using accuracy, clarity, and variety as criteria. I use comments, examples, and exercises as methods. I provide feedback to students by pointing out the strengths and weaknesses, suggesting improvements or corrections, and illustrating the correct or effective use of logico-semantic relations in their writing.”

As shown in the above excerpt, the teacher not only evaluated but also gave feedback to the students on what was still lacking in their writing while providing suggestions on how to write cohesively well according to logico-semantic standards.

Discussion

This research has analyzed the clause complexing in systemic functional linguistics, focusing on the types and functions of expansion and projection relations of logico-semantic relation in a student’s argumentative essay, and addressed a teacher’s perspectives on the use of logico-semantic relations in a student’s writing. Based on the analysis, the essay has more clause simplexes than clause complexes, meaning it has more simple sentences than complex sentences. The finding **contradicts** the research of Allagbé et al., (2022) who analyzed the logical relations in the argumentative essays written by second-year English major students in the Université de Zinder, indicated that the students used more clause complexes than clause

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simplexes in their essays, **thus implying** a spoken mode. Therefore, this could suggest that the essay is written straightforwardly, but it could also imply that it lacks variety, sophistication, and meaning in its sentence structure. Eggins (2004) stated that Clause complexes are grammatical and semantic units that link two or more clauses systematically and meaningfully. This also confirmed that students still struggle to organize connected and meaningful essays. It is in line with Nippold and Scott (2010) asserted that EFL students struggle to write effective clause complexes, requiring sophisticated cognitive and linguistic abilities.

The analysis revealed that the student's essay contains logico-semantic relations, as evidenced by the identification of expansion relation and projection relation. Gerot and Wignell (1994) state that clauses can be combined through one logico-semantic relation: expansion and projection. Expansion relation is a type of relation that adds something to the meaning of the clause, while projection relation is a type of relation that reports or reflects the speech or thought of someone or something. These relations are important for creating coherent and cohesive texts in academic writing. Thus, the data of expansion relation shows that out of 10 clause complexes, there are 5 clauses 50% that contain elaboration relation marked by words such as “that, based on, regarding, and all in all”, 3 clauses 30% that show enhancement relation marked by words such as “however and besides”, and 2 clauses 20% that show extension relation marked by words such as “therefore, however, and especially”. This means that the majority of the clauses in the essay are used to provide more information or details about the same phenomenon (elaboration), while the rest are used to express some temporal, spatial, causal, or conditional connection (enhancement) or to add something new or different to the previous clause (extension).

Meanwhile, regarding projection relation, from 10 clauses, 3 of them belong to the category of idea projection marked by words such as “debate, find out, thinking, based on”, while 2 clauses belong to the category of locution projection marked by words “tell, say”, and the remaining clauses do not belong to any category of projection. This means that more clauses express the speaker's or writer's thoughts, opinions, beliefs, or perceptions (idea projection) than clauses that report the speech or writing of someone else (locution projection). The clauses

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that do not belong to any category of projection are likely to be simple clauses that do not involve any verbal or mental process. It aligns with Allagbé et al., (2022) mentioned that what is generally expected in an argumentative essay is the projection of ideas. However, the student could also improve their essay by using more locution projection, to show the sources of their information or claims and to acknowledge different perspectives or voices in the academic discourse.

Moreover, the analysis has shown that clause complexes can be classified into paratactic and hypotactic relations, depending on the status and dependency of the clauses. Based on the data analysis of 10 clause complexes, there are more hypotactic relations than paratactic relations. This is in line with Egging (2004), who observes that “Hypotaxis” is generally more common in written text because dependency relations require more care by the writer to construct and more effort by readers to interpret than parataxis.’

The findings show that the teacher has a good grasp of the concept of logico-semantic relations, which are the ways of linking clauses or sentences to convey the logical and semantic meanings of the text. The teacher demonstrated his knowledge of these types of logico-semantic relations by providing examples from his teaching practice, such as adding information, changing messages, and explaining meaning. The teacher also emphasized the importance of logico-semantic relations for creating cohesion and coherence in academic writing, essential for constructing a clear and persuasive argument. Halliday and Matthiessen (2014) argue that logico-semantic relations are the connection between various linguistic devices, such as conjunctions, prepositions, and clause complexes, to create logical meaning. The teacher used various criteria and methods to assess and provide feedback to his students on their use of logico-semantic relations in their writing, such as accuracy, clarity, variety, comments, examples, and exercises. The findings suggest that the teacher has a high level of awareness and competence in teaching and applying logico-semantic relations in academic writing.

CONCLUSION AND IMPLICATION

Conclusion

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The research was to find out the logico-semantic relations manifest in the argumentative essays crafted by university students and a teacher's perspectives on the use of logico-semantic relations in students' writing. The data revealed that the essay has 40 clauses, 30 clauses belong to clause simplex and 10 clauses belong to clause complex. The 10 clause complexes found exhibit logico-semantic relations, as demonstrated by the detection of expansion and projection relations. The expansion relation data indicates that among 10 clause complexes, 5 clauses 50% have elaboration relation signalled by words such as "that, based on, regarding, and all in all", 3 clauses 30% display enhancement relation signalled by words such as "however and besides", and 2 clauses 20% manifest extension relation signalled by words such as "therefore, however, and especially. Out of 10 clauses, 3 falls into the category of idea projection signalled by words such as "debate, find out, thinking, based on", while 2 fall into the category of locution projection signalled by words "tell, say", and the remaining two clauses do not fit into any category of projection. Regarding the interview, the results reveal that the teacher has a solid understanding of the concept of logico-semantic relations, which are the methods of connecting clauses or sentences to communicate the logical and semantic meanings of the text. The teacher also stressed the significance of logico-semantic relations for achieving cohesion and coherence in academic writing, which is crucial for building a clear and convincing argument.

Limitation

The authors of this study acknowledge its limitations. The generalizability of the findings is constrained by the small and specific sample of one student's essay and one teacher's feedback. Moreover, the study did not investigate the impact of logico-semantic relations on the quality of student writing but only explored their occurrence and the teacher's perception. Future studies could address these gaps by involving more diverse participants and examining the effects of logico-semantic relations on writing outcomes.

Implication

The findings of this study have several pedagogical implications for teaching academic writing in EFL contexts. First, lecturers should explicitly teach logico-semantic relations, particularly expansion and projection, to help students construct coherent and logically

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connected arguments in their essays. Writing instruction should also incorporate exercises that train students to use clause complexes effectively so that their writing demonstrates greater syntactic variety and logical development. In addition, teachers may integrate analysis of authentic argumentative texts to illustrate how logico-semantic relations function in academic discourse. Finally, assessment and feedback should focus not only on grammar accuracy but also on the logical organization of ideas, enabling students to develop clearer and more persuasive academic writing.

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Appendices

Appendix-1 Interview guidelines

Questions
Understanding
<p>1. How do you define logico-semantic relations in writing? What are some examples of these relations that you use or teach in your writing classes?</p> <p>Response: <i>I think logico-semantic relations are how clauses or sentences link together and show the logic and meaning of the text. Some kinds of logico-semantic relations are adding more information, saying or thinking something, changing the message, and explaining the meaning.</i></p>
<p>2. How important do you think logico-semantic relations are for creating cohesion and coherence in academic writing? Why?</p> <p>Response: <i>yaa of course, logico-semantic relations are very important for creating cohesion and coherence in academic writing because they show the relationships, provide additional information or evidence, and indicate the source or origin of the information or evidence in the text.</i></p>
Evaluation
<p>3. How do you evaluate students' use of logico-semantic relations in their writing? What criteria and methods do you use?</p> <p>Response: <i>I evaluate students' use of logico-semantic relations in their writing by using accuracy, clarity, and variety as criteria. I use comments, examples, and exercises as methods.</i></p>
Challenges
<p>4. How do you provide feedback to students on this aspect of their writing?</p> <p>Response: <i>I provide feedback to students by pointing out the strengths and weaknesses, suggesting improvements or corrections, and illustrating the correct or effective use of logico-semantic relations in their writing.</i></p>

Appendix-2 Student's Essay samples

<p>Name : -</p> <p>Class : Academic Reading and Writing A3</p> <p style="text-align: center;">The Positive Side Regarding the Prohibition of Bringing <u>Smartphones</u> to School</p> <p>The debate over whether or not students should be allowed to bring smartphones to school has persisted for some time, even as recently as a few years ago. Many schools, from elementary school to senior high schools have policies prohibiting students bring smartphones to school. Even though the school has made regulations regarding this matter, however there are still students who do not obey or even care about it. In fact, students bringing smartphones to school have a greater negative impact than a positive impact. Therefore, this essay was written to find out what is being debated regarding the school's ban which prohibits students from bringing smartphones, especially the counter opinions</p>

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regarding this issue, because they think that schools should prohibit students from bringing smartphones to school.

The first reason most students bring smartphones to school is that their parents tell them to be safe. As said by Geser (2004), parents want their kids to have a mobile phone for safety concerns. Besides to communicate easily, especially if there is a sudden incident that requires parents to message their child (student) or when students leave school early, for example, when the teachers suddenly hold meeting. According to Davie et al., (2004), parents can still contact their children even when they are outside. Another of students' reason for this prohibition was to use their smartphone as additional learning media because with the smartphone they could get learning references quickly. The reason students bring cell phones to school is to look for subject matter (Rinaldi et al., 2019).

They have a point in thinking like that, however, students can misuse cell phones behind these reasons. Obviously, this is inseparable from the negative impact on the students themselves, because bringing smartphone to school will disrupt the teaching and learning process which makes students unable to concentrate and pay more attention to their smartphones than learning and causes a decrease in student achievement. Laka (2020) stated that many students used their smartphones to chatting and playing games while they were in class. Furthermore, with students bringing cell phones to school they will be engrossed in their cell phones which creates social tension between students and students to teachers. Mobile devices can gradually alter teenage behavior patterns such as empathy, respect for others, and an active social life, turning them into individuals in different society (Wahyudin, 2017).

In addition to the two negative sides above regarding abuse when students bring smartphones to school as a media to exchange answers and see negative content. Teachers frequently come across students who have been discovered sharing answers and cheating on exams, both school exams and national exams. Based on Laka (2020), with smartphones, students can cheat in exams. The more severe impact of this problem is that students can see things that are not appropriate to see, such as pornographic content that can be widely spread among students. Istifadah (2018) confirms that many students keep things pornographic.

All in all, after seeing the two opposite sides above, there is no way we can disagree with what they say regarding the ban on bringing smartphones to school. This is because the school policy that prohibits students from bringing smartphones to school certainly has big positive impacts because most students are still not wise with the smartphones they have. Therefore, to avoid the negative impact of students who bring mobile phones to school, it is better if the school makes strict policies regarding the prohibition of students bringing smartphones to school and provides sanctions for students who violate them so that students can concentrate on learning and the learning process runs efficiently.