
The use of intellectual standards to assess the quality of students' argumentative writings

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ABSTRACT

To comprehensively examine the quality of argumentative writing, it is important to integrate the aspects of structure and substance. This study seeks to foreground the application of Intellectual Standards (IS) as a core component of the argumentative writing process. The research aims to determine the quality of argumentation in terms of structure using the TAP Toulmin concept and substance using IS. The research participants were 80 high school students in Central Java, Indonesia. A mixed method approach with an exploratory sequential QUAL-quan design is adopted. The results show that the quality of the arguments in terms of structure and substance is in the low category. Structurally, 97.5% of students' written arguments ranged from 1.1 to 2.0 on a scale of 0.0-5.0. In substance, 81.25% of students' argumentation ability scores are in the range of 04.9 - 09.6 on a scale of 0.00-24.00. In addition, the findings show that the completeness of the structure influences the substance score. Furthermore, the results of this study can be used as a reference for teachers in teaching argument texts. Elements of warrant, backing, modal qualifier, and rebuttal must be emphasized in preparing argumentative texts.

Keywords: argumentative texts, structure, substance, toulmin, intellectual standards

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INTRODUCTION

Every student should be able to write argumentatively. Wolfe et al. (2009) suggest that argumentative writing can allow students to express opinions about controversial issues. Argumentative writing can develop critical thinking skills (Hidri, 2018; Wingate, 2012). Writing argumentative texts takes work, even though it is human nature to desire to find reasons to make claims (Allagui, 2018; Liu & Stapleton, 2014). Therefore, this study aims to assess students' argumentative writing skills.

The main goal of argumentative writing is to influence readers. Argumentative writing can be assessed for the strength of its influence on the readers from the quality of the arguments. Many researchers have analyzed the quality of arguments using various tools, one of which is by using the TAP Toulmin model (2003). By using the TAP Toulmin model, several studies in Indonesia found that the samples of argumentative writing tend to be less comprehensive (Amielia et al., 2018; Nakrowi & Mulyati, 2021; Syerliana et al., 2018). However, the analysis of this research only looks at the quality of the argumentation from its structure. The aspects of the author's reasoning in writing as a basis for argumentation tend to be neglected. According to Sampson & Clark (2008) the completeness of the argument elements alone will certainly not convince the reader. Moreover, the TAP Toulmin model cannot verify the truth of the claims and evidence presented in argumentative writing. Therefore, a substance assessment is needed to complete the accuracy of the TAP Toulmin model.

Several researchers have carried out modifications of the TAP Toulmin model. Allagui (2018) uses the elemental structure of Toulmin and includes a writing cohesiveness factor. In this study, the quality of claims and supporting evidence is seen from their availability and the relationship between elements of argumentative texts. This research still needs to pay attention to the depth of cognitive content in each element of the argument. Unlike Allagui (2018), Luo et al. (2020) use the SOLO taxonomy to assess the quality of arguments based on the degree of integrity of each element. Each element is categorized into 5 (five) levels based on clarified pre-structural, uni-structural, multi-

structural, relational, and abstract levels. The levels are to show the depth and level of integrity of each element of the argumentative text. This is also what researchers do. The substance assessment focuses on the degree of integrity of each element of the argument.

However, the researcher underlined the importance of using the Intellectual Standards (IS) concept in measuring each argument element's depth and degree of integrity. IS is an assessment standard used to assess the quality of Paul & Elder's (2012) reasoning. Widyastuti (2018) revealed that the ability to write arguments is related to practical, cognitive, and social writing abilities. Argumentative texts must be built on higher-order thinking skills (Atkinson, 1997; Tarvin & Al-Arishi, 1991). Theoretically, IS can be used as an alternative to measuring writers' cognitive aspects or thinking skills that influence the quality of argumentative writing. The use of IS as an assessment element in assessing the quality of arguments is something new. IS consists of clarity, accuracy, precision, relevance, depth, breadth, logic, and fairness. IS is used as a reference in assessing the substance of the argument elements in the form of claim, ground, warrant, backing, modal qualifier, and possible rebuttal.

This study thus aims to analyze the quality of the argument from structure (shell) and substance. This step creates a more comprehensive form of argument quality assessment. In addition, the use of IS to assess the quality of arguments has never been used in previous studies. The research involved high school students in Central Java, Indonesia. Suseno (1984) argues that Javanese society, especially Central Java, has *ewuh-pekewuh* values. This value is a form of commitment to maintain harmony and to stay away from disputes. Suseno (1984) even argues that such a commitment made the Javanese people reluctant to express differences of opinion explicitly. This contradicts the argumentation concept, namely that everyone's opinion does not have to be the same and aligned. Another consideration is that Central Java is included in 10 (ten) provinces with a low reading interest index (Kemendikbud et al., 2019). To compose qualified argumentation writing, good reading skills are needed. Someone with good reading skills can formulate claims and reasons based on the information obtained, selected, analyzed, and concluded.

METHOD

A mixed-method approach is adopted in this study. The type of design used is Exploratory sequential QUAL-quant (Creswell, 2013). This means that this research focuses on qualitative aspects. Meanwhile, quantitative analysis is used to obtain a quality score of arguments in terms of completeness of structure and substance. Structure values range from 0.0-1.0 (very low) to 4.1-5.0 (very high). The structure assessment rubric is adapted from Toulmin's (2003) thinking which has been simplified by Katchevich et al. (2011). The structure assessment rubric can be seen in Table 1.

Table 1. Argument Structure Assessment Rubric

Argument Structure	Score
C- Not supported by evidence	0
C- supported by one type of evidence (G/W/B/Q/R)	1
C- supported by two types of elements of evidence (G-W/G-B/G-Q/G-R/W-B/W-Q/W-R/B-Q/B-R/Q-R)	2
C- supported by three types of evidence (G-W-B/G-W-Q/G-W-R/G-B-Q/G-B-R/G-Q-R/W-B-Q/W-B-R/B-Q-R)	3
C- supported by four types of evidence elements (G-W-B-Q/G-W-Q-R/G-B-Q-R/W-B-Q-R)	4
C- supported by five types of evidence elements (G-W-B-Q-R)	5

Notes:

- C (claim)* : The author's response to a topic that must be defended in an argumentative text.
G (ground) : Data or facts used by the author to support or strengthen claims.
W (warrant) : Connector that shows the relationship between claim and ground.
B (backing) : Concept theory, legal basis, social norms that strengthen warrants.
Q (modal qualifier) : The author's degree of confidence in claims by considering ground, warrant, and backing.
R (rebuttal) : Exceptional conditions (abnormal) that cause false claims.

Table 2. Convert Value Structure Arguments

Average Score	Level
0.0 - 1.0	Very low
1.1 - 2.0	Low
2.1 - 3.0	Medium
3.1 - 4.0	High
4.1 - 5.0	Very High

The substance assessment is developed from Knudson's (1992) rubric pattern which refers to Toulmin's (2003) concept and adaptations using IS Paul & Elder (2012). The argument substance assessment rubric can be seen in Table 3.

Table 3. Argument Substance Assessment Rubric

Element	Level	Score	Criteria based on IS
claim	None	0	No claims submitted.
	Low	1	Claims are not clear, accurate, precise, and logical, so they are difficult to understand.
	Medium	2	Claims are quite clear, accurate, precise, and logical, but requires author's clarification.
	High	3	Claims are quite clear, accurate, precise, and logical, but less complete.
ground/ warrant/ backing	Very High	4	Claims are quite clear, accurate, precise, and logical, so easy to understand.
	None	0	None.
	Low	1	Irrelevant and no discussion.
	Medium	2	Less relevant and brief discussion.
modal qualifier/ rebuttal	High	3	Relevant, but the discussion is less in-depth and complete.
	Very High	4	Very relevant, in-depth, and extensive discussion.
	None	0	None.
	Low	1	Noticing information that is contrary to claims, but it is not clear how it will be used in defending claims.
	Medium	2	Fair to see information that contradicts claims, but not well explored.
	High	3	Fair to see that information contrary to claims has been explored, but not completely presented.
	Very High	4	Fair to see information that contradicts claims, has been completely explored, and presented.

Table 4. Conversion of Argument Substance Score

Score	Level
00.0 - 04.8	Very Low
04.9 - 09.6	Low
09.7 - 14.4	Medium
14.5 - 19.2	High
19.3 - 24.0	Very High

The next instrument, to find out the relationship between the two aspects, is SPSS. The three instruments are used to analyze students' argumentative writing. The argumentative writing in this study results from an assignment by high school students in Central Java, Indonesia. The number of research samples is 80 students from four schools (20 students per school each). The selection of samples was done randomly. Of the entire sample, it was found that the number of male students = 28 and female = 52. The schools were selected from the city center and two from the border areas (outskirts).

The data in argumentative writing is then validated using theoretical triangulation (Denzin & Lincoln, 2011). Theory validation ensures that the content of argumentative writing falls into the category of argumentative writing. After the data is declared valid, the analysis is carried out with the coding stage, a description of the findings, and a conclusion statement (Miles, 1994).

RESULTS AND DISCUSSION

Results

The results demonstrate that the quality of students' arguments is in the low category, both in rural and urban schools. Only 1 (one) student from school C has moderate-level argumentation skills. Table 5 presents data on the quality of student arguments based on the element structure.

Table 5. Students' Argumentation Ability Structurally from the Average Score

School (Geographical)	Level	Percentage (%)
A (Rural)	Very Low	0
	Low	100
	Medium	0
	High	0
	Very High	0
B (Rural)	Very Low	5
	Low	95
	Medium	0
	High	0
	Very High	0
C (Urban)	Very Low	0
	Low	95.00
	Medium	5.00
	High	0
	Very High	0
D (Urban)	Very Low	0
	Low	100
	Medium	0
	High	0
	Very High	0

Another result of this study shows that the quality of students' arguments based on the presence of substance is in the low category. This substance assessment is measured using IS considerations (Paul & Elder, 2012). Table 6 demonstrates the results of the research findings in more detail.

Table 6. Students' Argumentation Ability in Substantially from the Average Score

School (Geographical)	Level	Percentage (%)
A (Rural)	Very Low	25.00
	Low	75.00
	Medium	00.00
	High	00.00
	Very High	00.00
B (Rural)	Very Low	15.00
	Low	85.00
	Medium	00.00
	High	00.00
	Very High	00.00
C (Urban)	Very Low	10.00
	Low	85.00
	Medium	05.00
	High	00.00
	Very High	00.00
D (Urban)	Very Low	20.00
	Low	80.00
	Medium	00.00
	High	00.00
	Very High	00.00

No students have high or very high categories of argumentation skills. Fourteen students have very low substance argumentation skills (five from school A, three from school B, two from school C, and four from school D). Students with an argumentation level in substance are only 1 (one) at the medium level, namely from school C. This means that, overall, there are 65 or 81.25% of students' argumentation abilities in the low category in the substance domain.

Discussion

Geographic Factors on Argument Ability

Geographical factors do not have a significant influence in determining the quality of student arguments. Students from rural and urban schools have difficulty constructing arguments with complex structures. One of the media in Indonesia found that geographical factors affected the quality of reading literacy (Solopos, 2021). From the results of the study, reading literacy skills affect writing skills (argument writing) (Shao & Purpur, 2016; Stavans et al., 2019). Even so, of course, the assessment of their argumentative writing is more complex than just the structural aspect.

One factor that determines students' argumentation abilities is the use of appropriate learning models. Shinta & Filia (2020) succeeded in improving students' argumentation skills from a completeness point of view using the collaborative learning model. Conceptual understanding and the process of arranging argumentation paragraphs affect the writing produced by students. In addition, students can construct arguments with complete elements by understanding the concept of argumentative text. Graff et al. (2017) even suggest that teachers use templates. With the template, students will be more focused on writing argumentative texts. Templates help students understand teacher instructions (Deane & Song, 2014).

Student Argumentation Patterns

As for structure, the low quality of student arguments is caused by incomplete argument structures or argumentation patterns. The pattern introduced by Toulmin (2003) can assess the argument structure because it is considered more logical than others (Ramage et al., 2019). This study uses the Toulmin model to see the quality of the arguments. The dominant pattern of students' argumentative texts is the supporting element C-1 structure. Students argue by submitting claims followed by supporting data/facts. Data findings can be seen in Table 7.

Table 7. Percentage Element Structure Argument

School (Geographical)	Structure	Variant Pattern	Percentage (%)
A (Rural)	C no supporting elements		0
	C-1 supporting elements	C-G	95.45
	C-2 supporting elements	C-G-W	4.55
	C-3 supporting elements		0
	C-4 supporting elements		0
B (Rural)	C-5 supporting elements		0
	C no supporting elements	C-C	2.27
	C-1 supporting elements	C-G	81.82
	C-2 supporting elements	C-G-W/C-G-Q	13.64
	C-3 supporting elements	C-G-W-B	2.27
C (Urban)	C-4 supporting elements		0
	C-5 supporting elements		0
	C no supporting elements		0
	C-1 supporting elements	C-G	88.37
	C-2 supporting elements	C-G-W	9.30
D (Urban)	C-3 supporting elements		0
	C-4 supporting elements	C-G-W-B-R	2.33
	C-5 supporting elements		0
	C no supporting elements		0
	C-1 supporting elements	C-G	89.66
	C-2 supporting elements	C-G-W	10.34
	C-3 supporting elements		0
	C-4 supporting elements		0
	C-5 supporting elements		0

From the 80 argumentative texts studied, students delivered 138 arguments (school A=22, school B=44, school C=43, and school D=29). Almost all arguments are accompanied by supporting evidence. There is 1 (one) argument that only conveys a claim. That is, students can understand how to convey arguments. Stapleton & Wu (2015) state that a reasonable claim would be of low value if it is not accompanied by evidence.

The C-1 supporting elements (C-G) pattern is dominant compared to other school structures. This pattern is difficult to use to convince readers. Sampson & Clark (2008) state that a claim accompanied by 1 (one) piece of evidence needs to have better value in argumentative texts.

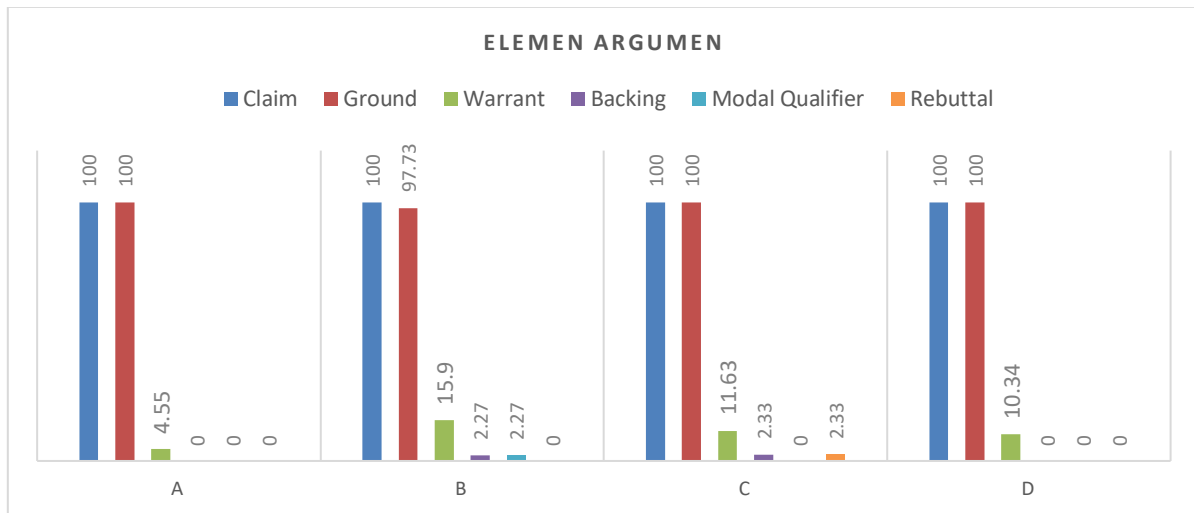


Figure 1. Percentage of Appearance of Argument Elements

At school A, out of 20 students, 22 argumentative paragraphs are found, using elements C=22 times, G=22, W=1. At school B, 20 students produced 44 arguments, using elements C=44, G=43, W=7, B=1, and Q=1. At school C, 20 students produced 43 arguments, using elements C=43, G=43, W=5, B=1, and R=1. At School D, 20 students produced 29 arguments, using C=43, G=43, and W=3. This shows that students often use elements C and G in building arguments. This is in line with Allugui (2018) who argues that students at UEA in their first year also often use two elements in compiling argumentative texts.

Students need help to present complex argument structures. Theoretically, the more complex the argumentation structure, the better the quality is (Utomo et al., 2019). The same thing was revealed by Shinta & Filia (2020) that students in Indonesia need help in compiling complete claim-supporting elements.

The study level factor has no significant effect on the completeness of the argument structure in students' writing in Indonesia. Research conducted by Utomo et al. (2019) was conducted in junior high school, while Shinta & Filia (2020) was conducted in tertiary institutions, and this research was conducted at the high school level; the results were that students needed to convey more complex arguments. McCann (1989) postulates that young children can express opinions and give reasons. Although at the level of selection and use of evidence, they experience difficulties. This is because this stage requires complex skills (Brem, 2000).

The topic factor chosen in the argumentative text also does not significantly impact the completeness of the argument structure. Utomo et al. (2019) make limitations on controversial topics; while this study uses free topics, the findings are the same; namely, the structure of the argument is simple. This differs from Allugui (2018) stating that the choice of topic affects the completeness of the argumentation structure.

Assessment of Arguments in Substance

The ability to write arguments is not a trivial matter. Hillocks (2002) states that the ability to write arguments is a complex skill in schools. Often the teacher's assessment must be carried out on a solid theoretical basis. The teacher assesses only by a will or instructions in the textbook. Assessment criteria

should be used as information and reference for students in producing argumentative texts.

Assessment of the quality of the argument must be carried out by involving the substance of the content. This is an evaluation movement towards assessing arguments based on structure alone. Argumentative text may have a complete structure, but if it is not interconnected, supported, and even contradicted, it will damage the quality of the argument.

The assessment of arguments relies on selecting a claim position and presenting supporting evidence. Therefore, it is difficult to test the quality of student arguments using the multiple-choice model (Altıntaş & Schoville, 2021). This study also uses writing practice to measure the quality of students' arguments.

The findings show that students with low levels dominate the quality of argumentation. Setyaningsih & Rahardi (2019) argue that Indonesian students' ability to argue in argumentative writing needs to be improved. This is because students still need to understand the indicators of the strength of the argument.

Another fact reveals that the incomplete structure of the argument causes the low value of the substance of the argument. The scores obtained by students are still in the low category when divided by the maximum score. The core element scores (claim and ground) show positive results. A high level dominates the average claim score, while the ground is at a medium level. Table 8 shows the score for each element of the argument.

Table 8. Substantial Distribution of Elements of Argumentation Scores

Element	Level	School A (N=22)	School B (N=44)	School C (N=43)	School D (N=29)
C	None	0	0	0	0
	Low	0	0	0	0
	Medium	6 (27.27%)	5 (11.36%)	5 (11.63%)	8 (27.58%)
	High	14 (63.64%)	34 (11.27%)	35 (81.39%)	19 (65.51%)
	Very High	2 (9.09%)	5 (11.36%)	3 (6.98%)	2 (6.90%)
G	None	0	1 (2.27%)	0	0
	Low	2 (9.09%)	2 (4.54%)	0	2 (6.90%)
	Medium	11 (50.00%)	28 (63.64%)	26 (60.46%)	16 (55.17%)
	High	9 (40.91%)	13 (29.55%)	14 (32.56%)	11 (37.93%)
	Very High	0	0	3 (6.98%)	0
W	None	21 (95.45)	38 (86.36%)	39 (90.70%)	26 (89.65%)
	Low	0	0	0	0
	Medium	1 (4.55%)	0	0	1 (3.45%)
	High	0	5 (11.36%)	2 (4.65%)	2 (6.90%)
	Very High	0	1 (2.27%)	2 (4.65%)	0
B	None	22 (100%)	43 (97.73%)	42 (97.67%)	29 (100%)
	Low	0	0	0	0
	Medium	0	0	1 (2.33%)	0
	High	0	0	0	0
	Very High	0	1 (2.27%)	0	0
Q	None	22 (100%)	43 (97.73%)	43 (100%)	29 (100%)
	Low	0	0	0	0
	Medium	0	0	0	0
	High	0	1 (2.27%)	0	0
	Very High	0	0	0	0
R	None	22 (100%)	44 (100%)	42 (97.67%)	29 (100%)
	Low	0	0	0	0
	Medium	0	0	1 (2.33%)	0
	High	0	0	0	0
	Very High	0	0	0	0

Some of the claims students convey still require confirmation and must be completed. This will reduce the quality of the claim.

Example 1 - claim with a medium category from school A. ("Zaman sekarang memang berbeda

dengan zaman dulu”).

Example 2 - claim with a high category from school C. (“Pada masa sekarang banyak sekali orang-orang yang tidak peduli dengan lingkungan”).

Example 3 - claim with a very high category from school D. (“Harus diakui bahwa bahasa Indonesia tidak kebal terhadap pengaruh globalisasi.”)

Example 1 requires confirmation from the author. Students should be able to elaborate more clearly on the differences between the past and present. Example 2 shows the clarity of student statements. However, students can still focus on the form of human indifference to the aspects of cleanliness. In example 3, the claims submitted by students are obvious and have a logical relationship with the title. Students want to convey that the Indonesian language is currently very vulnerable to the era of globalization.

In argumentative writing, claims are only sometimes stated explicitly (Zhang et al., 2021). In the context of this study, most of the claims are implicitly stated by students. Students do not state "positive" or "negative" position statements on the topics discussed directly. The teacher gives freedom to students regarding the chosen topic. Different results may take place if the teacher determines a controversial topic and students set their point of view (proposition or opposition).

Example 4 - claims without supporting elements from school B. (“Masa remaja adalah masa yang paling indah. Banyak hal yang terjadi dimasa ini, dunia remaja memang unik, sejuta peristiwa terjadi dan sering keluar ide-ide yang cemerlang dan positif. Namun tidak sedikit juga ide-ide dan pemikiran yang negatif terjadi.”).

Claims which are not accompanied by supporting evidence cannot be categorized as argumentative paragraphs (Toulmin, 2003). It means that the writing is just general writing. According to Liu & Stapleton (2020), this type of case is caused by students wanting to express their ideas and thoughts in written form. As a result, the efforts to prove the ideas in the form of ground, warrant, and backing are not realized.

Example 5 - ground with a low category from school D. (“Seni tari memiliki aturan yang pakem.”).

Example 6 - ground with a medium category from School B. (“Hanya menggunakan sepatu dan kaos, kita dapat melakukan olahraga lari.”).

Example 7 - ground with a high category from school A. (“Selain untuk menutup aurot, jilbab juga berfungsi untuk mempertegas perbedaan wanita muslim dan wanita pada umumnya.”).

Example 8 - ground with a very high category from school C. (“saat ini pemerintah telah mengeluarkan kebijakan-kebijakan yang salah satunya meliburkan aktivitas belajar mengajar.”).

Example 5 shows that there is no discussion of the ground being conveyed. The author does not explain the strictness of the rules in dance. Therefore, the ground quality is in the low category. Example 6 looks better in quality than example 5. In example 6, students have conveyed the ground accompanied by an explanation that running is a simple sport. You only need shoes and a T-shirt for running. However, the author's explanation still needs to be more. The ground can be more specifically conveyed by the target (amateur or professional runners). Whereas in examples 7 and 8, the author clearly describes the reasons that support the claim. Even in example 8, the ground presented is the government's policy. This means that the truth value is absolute, so data like this can be used as a basis for claims (Smolkowski et al., 2020).

Example 9 - Warrants in the moderate category from school D. (“Ternyata pandemi covid-19 ini banyak memakan korban.”).

Example 10 - Warrants in the high category from school B. (“Oleh karena itu, kita sebagai siswa

tidak boleh merokok.”).

Example 11 - Warrants in the very high category from school C. (“Bahkan banyak yang hanya memberi tugas dan tidak memberikan penjelasan...”).

Example 9 shows that the warrants given are less relevant to the ground. The ground did not discuss the number of people who became victims of Covid 19 in China. In contrast to examples 10 and 11, which present warrants as a confirmation element of the ground. That way, the relationship between claim and ground can become more robust. This means that warrants can validate the truth of the ground by providing a more detailed explanation (Rybacki & Rybacki, 2014; Toulmin, 2003).

Example 12 - backing with a medium category from school C. (“Menurut WHO, pola hidup sehat adalah cara hidup yang dapat menurunkan risiko terjadinya penyakit”).

Example 13 - backing with a very high category from school B. (“UU Nomor 31 tahun 2022 Pasal 13 ayat 3, mengharuskan ada keterlibatan...”).

In examples 12 and 13, students try to produce arguments with backing elements. Thus, the credibility of the warrants presented can be guaranteed (Franqueira & Horsman, 2020). It is just that example 12 needs more detail in mentioning the reference source, in contrast to example 13, which presents the reference source in detail.

Example 14 - Modal qualifiers in the medium category from school B. (“Meskipun demikian semua itu masih seperti uji coba yang belum terselesaikan.”).

Example 14 shows the existence of honesty from students to show the level of confidence in claims based on factual data. However, its delivery is not explored. So, the Modal Qualifier appears to be floating around without an in-depth review. If left unchecked, this can threaten the strength of the claims submitted. This is because the modal qualifier tests scientific truth in argumentative texts (Yuliana Setyaningsih et al., 2023).

Example 15 - Rebuttal with a medium category from school C. (“Namun hal itu saja mungkin tidak cukup apalagi bagi anak-anak.”).

In Example 15, student presents a rebuttal for the claims submitted. However, in the delivery, students need to explore in detail. Students need to elaborate on why children do not brush their teeth regularly enough to maintain healthy teeth. Students can strengthen by presenting examples; for example, children often eat chocolate and candy. Therefore, the quality of students' rebuttal is in the medium category.

Comparison of Completeness of Structure and Quality of Argumentation Substance

The relationship between the structure's completeness and the arguments' quality is processed using SPSS. Table 9 shows the results of processing data on the relationship between the two.

Table 9. Pearson Correlations Between Structural Scores and Argument Substance

		Structure	Substance
Structure	Pearson Correlation	1	.871**
	Sig.		.000
	N	138	138
Substance	Pearson Correlation	.871**	1
	Sig.	.000	
	N	138	138

The quality of the argument structurally has a positive correlation towards substance with a perfect degree (0.871). The completeness of the structure is considered if you want to get the maximum

score in assessing the quality of the substance of the argument. Achieving a good quality argumentation is a challenging matter. According to Liu & Stapleton (2020), it is necessary to pre-write arguments using brainstorming, discussion, or debate to improve the quality of arguments. These methods are related to the development of thinking skills.

Activities that are oriented toward the quality of Thinking are necessary for developing argumentation skills. Thinking and arguing are two identical things. They were born from the same scientific family, namely informal logic (Marni et al., 2019). Informal logic is very close to developing a student's cognitive qualities. Therefore, learning models or instructions can be based on thinking skills (e.g., critical, analytical, or reflective) in developing students' argumentation skills.

Critical Thinking as a Factor that Can Substantively Improve the Quality of Arguments

Arguing requires the ability to explore, formulate, and construct all information related to a certain topic. This ability is useful for preparing a thesis, presenting evidence, and drawing conclusions. Critical thinking skills are required to apply these abilities in argumentative writing. Shurter & Pierce (1966) argues that critical Thinking is a core part of argumentation. Therefore, improving the quality of arguments can be done by accustoming the writers/students to critical thinking.

One of the critical thinking concepts that can be adopted in improving argumentation skills is the Paul-Elder critical thinking model. Mozaffari et al. (2021) in his research found that the Paul-Elder critical thinking model can improve students' thinking skills. Paul & Elder (2014) argues that elements of Critical Thinking encompass: goals, questions, information, interpretations, concepts, assumptions, implications, and points of view. These elements can be included as a basis in the learning syntax.

Illustrations of habituation of Critical Thinking in teaching argumentative writing can be done as follows: 1) determine the goals or goals of writing argumentative texts; 2) formulate critical questions according to the topics discussed; 3) seek information to answer the questions that have been asked; 4) draw conclusions and consider other possible conclusions as a product of the interpretation of information; 5) find the conceptual dimension of the process of formulating conclusions; 6) find the weak points and strengths of the process of conclusions; 7) weighing the consequences of the conclusions drawn; 8) constructing a frame of reference as the final point of view of the student.

With the learning process above, students can get accustomed to producing excellent argumentative texts. Claims result from the explanation, interpretation, formulation, and construction of all information obtained by students. All of this information can be used as evidence, reasons, and backing in preparing arguments. Furthermore, the process of interpretation, conception, assumption, implication, and point of view can help students compile warrants and rebuttals. After all aspects and processes of Critical Thinking have been passed, students can be confident in expressing their degree of confidence (qualifier capital) towards the proposed claims.

CONCLUSION

The skill of writing argumentative text requires high-level thinking skills. Therefore, aspects of reasoning or thinking manifested in written form must be considered in assessing the quality of argumentative texts. The results show that students construct argumentative texts using the supporting element C-1 pattern. The dominance of this simple pattern puts the quality of student arguments in the low category. Based on the study of the degree of integrity of each element, it shows a positive thing. That is, there is sufficient potential for students to compile good-quality argumentative texts if given a sufficient understanding of the concept of a good argument.

Focusing on these findings, future research must think of learning models that can build awareness of the importance of reading for students. By reading, students can find the concept of an excellent argumentative text. With adequate knowledge related to argumentative texts, students will find it easier to find ways to write good argumentative texts. Reading material should also be directed at multi-text. Students need to be sufficiently provided with handbooks or student books. The information in student books is very limited in providing students with the knowledge, especially in the context of writing argumentative texts. In addition, the learning model must also consider the concept of critical thinking. By practicing critical thinking skills, students can compose elements of argumentation with a better degree of integrity.

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