
A CONTENT ANALYSIS OF ARGUMENTATIVE STRUCTURE IN PRE-SERVICE TEACHERS' WRITING

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Abstract

This study aims to describe the argumentative structure in pre-service teachers' writing. The model argument structure was based on the adapted Toulmin (1958, 2003) consisting of six elements (i.e., *claim*, *data*, *counter-argument claim*, *counter-argument data*, *rebuttal claim*, and *rebuttal data*). The objects of this study are the writings of the fifth semester pre-service teachers' who, at that moment, were joining an academic writing course. The findings revealed that *data* dominated the constituent of argumentative structure based on adapted Toulmin's model, then followed by a *claim* in the second place. The other structure was also found; however, it moderately in a small amount. The position and the relevancy of the papers were varied. As the implication, this study used as a model of scaffolding for pre-service teachers for giving basic knowledge of writing argumentative writing for students, so they have good skills in argumentation writing.

Keywords: *Argumentative Structure, Argumentative Writing, Toulmin's adapted model.*

INTRODUCTION

Academic writing, as indicated by Irvin (2010), refers to any writing task done in order to fulfill the necessity of a college or university, including research papers. Eemeren et al. (1996) reported that arguments have continuously been a fundamental element of society since before Aristotle era. Nearly every field of our lives will

have arguments such as in educational field composing a persuasive paper and debating, or persuading in a political campaign to vote, to selling a vehicle or settling on real-life choices (Crowhurst, 1987; Knudson, 1992; Larson, Britt, & Larson, 2004). Argumentation is significant for students not only because of the mental work involved but also because it is a focal piece of disciplinary discourse. Arguments are likewise central to disciplinary inquiry since they establish the link between the data researchers collect and the theories they produce (Osborne, 2004). Each discipline has different demands for argument writing (Paz & Felton, 2010).

Simultaneously, Crowhurst (1990) and Nippold (2000) had a similar idea that throughout the school years and ahead, argumentative writing is a significant skill. Also, it reported that high demand for writing and reading arguments occurred at the university level (Bridgeman and Carlson, 1984; Feak and Dobson, 1996; Varghese and Abraham, 1998). Zhu (2001) reported that for college students, precisely second-language students, as a model, argumentative writing in academic writing has an essential role in second-language learners' academic experience. They provide a managerial decision, argue for international policy, or evaluate a model developed to solve a particular problem.

However, students have challenges in writing argumentative writing. Crowhurst (1990) reported that there are issues in the argumentative genre for students to conceptualize their structural elements. Furthermore, she demonstrated that the shortcomings incorporate absence lack of support for judgments, inadequate association, less reason, and undeveloped language. Additionally, Scardamalia and Bereiter (1986) stated that argumentative writing needs to draw upon the writers' insight of argumentative discourse then build subgoals associated with supporting a hypothesis. Consequently, a wholly created argumentative organized with a particular goal in mind that constitutes a statement of claim with support, a counter-argument, a rebuttal, and a concluding statement that underpins the original hypothesis. The writer granted by the various psychological requirements, it is not unexpected that it is challenging for some students to ace composing argumentative

writing (Felton & Herko, 2004). Argumentative writing is a mandatory course that is taught in the writing course, especially for pre-service teachers of English Education at a university in Central Java, Indonesia. Based on the syllabus, primary materials for argument building involves constituents such as claim, reasons, evidence, warrant, and acknowledgment. Meanwhile, this study uses the remarkable framework of argument structure from Stephen Toulmin. In education and research of argumentative writing, the Toulmin model of argument structure (1958, 2003) has broadly utilized. In English argumentative writing, this framework has been utilized broadly, denoting the development of an argument that is representing several components. Teaching explicitly about the concept of argument as well as strategies to distinguish, sum, and assess argumentative elements is necessary that aids students in enhancing their skills in reading and writing of argumentative texts (Walton, 2006).

Toulmin (1958, 2003), the writer should be likewise mindful of the different components that are distinct to argumentation. Argumentation is made out of the following components: a) introduced in response to an issue, an assertion can consider as *claim*, b) the grounds or proof on claims are *data*, c) established the connection between the claim and data is called *warrant*, d) acknowledged as strengthens of the warrant, is *backing*, e) a term showing the likely idea of the claim, is *qualifier* and f) associates with the circumstances which the warrant will not hold and cannot sustain the claim is *reservation* (Crammond, 1998). The three primary components that mostly found in every composed argument are a *claim*, *data*, and *warrant*. It is worth mentioning that not all these three components must be express, and now and again, warrants will not have to be expressed in a real-life argument. Continuously, the condition of argument may extend the structure of the argument (second-level elements) like a *backing*, *qualifier*, and *rebuttal* will be used (Toulmin et al., 1979, 1984).

Regarding the past studies above, most studies of argumentative writing have occurred at different academic levels, varying from elementary to university in L1 or L2 settings. A limited descriptive study, however, analyzing structures of EFL

argumentative writing has not been conducted, mainly Indonesian pre-service teachers. Meanwhile, the problem of this study is to what extent argument structures, given the adapted Toulmin model, happens in EFL pre-service teachers' English argumentative papers?

REVIEW OF LITERATURE

In writing research, either the structure or the purpose of arguments is the favored concentrating on the interpretations of the term argument. Both are focal to the now (Varghese and Abraham, 1998). Toulmin (1958) and Halpern (1989) described an argument as an accumulation of statements, which some of them might support one another. Premises are those supporting statements, and conclusions are the statement supported. Thus, the scene of comprised arguments, every of which consists of statements offered in support of another statement. It appears that argument or argumentation abilities do not naturally emerge. Additionally, academic writing, according to Steinke (2012), uses a formal style, well organized to present objective analysis by using clear, precise language while avoids using emotive language.

At the point when predicted in academic writing, Raimes (1983) reported that there are further complexities in academic writing for its intrinsic features of the writing skill. Thus, when the setting is in a foreign or second language, it gets considerably sophisticated. Consequently, in a composing essay, a fundamental criterion of the assessment of academic success for learners of English as a foreign language (EFL) is the skill of arguing persuasively, which it reflects the potentials of critical thinking, logical organization of data, and development of arguable claims from the students (Björk, 2003; Graff, 2003; Smagorinsky, Johannessen, Kahn, & McCann, 2011; Stirling, 2009; Mayberry, 2009; Oshima & Hogue, 2007).

As indicated by Toulmin (1958, 2003), claim, data, and warrant are the three primary components of written argument. In a real-life argument, it is worth mentioning that not all these three components must be express, and sometimes, warrants will not have to be expressed. Continuously, the condition of the argument may

extend the structure of the argument (second-level elements) like backing, qualifier, and rebuttal.

Based on previous researches, the argumentative writings have adapted the Toulmin elements. For instance, even though some of these components will have various names, but the initial definitions will be the same after some period. Be that as it may, the meaning of rebuttal has revised continuously. Formerly, in the Toulmin (1958), it implied excellent conditions or circumstances that might moderate the validity of a claim. Presently (Maimon et al., 2007; The Purdue Owl Purdue University Online Writing Lab, 2007; Troyka, 2004), refer rebuttal as the responses to the possible contrary positions/views to a claim. In the current writing textbooks or resources, a new concept with a similar change of the definition of rebuttal occurs too; they are counter-argument, counterclaim, objection, or reservation (e.g., Maimon et al., 2007; The Purdue Owl Purdue University Online Writing Lab, 2007; Troyka, 2004), that have the meaning of potential opposing judgments of writer's claim that might dispute its validity. Furthermore, this research distributes the counter-argument into counter-argument claim and counter-argument data, then the rebuttal into rebuttal claim and rebuttal data varying from the Toulmin (1958, 2003) model.

This research analyzes argumentative structure based on six components, which are: claim, data, counter-argument claim, counter-argument data, rebuttal claim, and rebuttal data. The main reason is these six components are recognized approximately reliable and also often used in the related studies of argumentative writing (Crammond, 1998; Knudson, 1992; McCann, 1989; Nussbaum and Kardash, 2005). However, it is notably low frequencies of the warrant, backing, and qualifier (the original Toulmin model) in related studies. For this study, the researcher adopted the Toulmin Elements, which also consider the model from Stapleton and Wu (2015).

Table 1. Adapted argumentative structural based on Toulmin (1958, 2003) and Stapleton and Wu (2015)

No.	Argumentative structural elements	Definition and examples from student writing
1	Claim	An assertion in response to a contentious topic or problem. Example: - Launching a drug testing scheme is a good idea ... - I am in favor of the view that the effectiveness of the scheme is in serious doubt.
2	Data	Evidence to support a claim. It can take various forms, such as facts, logical explanations, suppositions, statistics, anecdotes, research studies, expert opinions, definitions, and analogies. Example: - ... because it can cultivate an anti-drug and healthy culture in schools. - Firstly, the scheme violates students' privacy.
3	Counter-argument claim	The possible opposing views that can challenge the validity of a writer's claim Example: - While this argument has some merit, it does not ... - Some may claim/think skeptically that ...
4	Counter-argument data	Evidence similar to "Data" (above) to support a counterargument claim Example: - ... the scheme could unjustly label individuals or schools. - The reason for this is that the scheme could lower the number of drug abusers via the program's deterrent effect ...

5	Rebuttal claim	Statements in which the writer responds to a counter-argument Example: - This argument misses the point. - Nevertheless, I think ...
6	Rebuttal data	Evidence to support a rebuttal claim which includes the identification of possible weaknesses in the counterargument claim, data or assumptions, such as logical fallacies, insufficient support, invalid assumptions and immoral values (Ramage & Bean, 1999) Example: - There will be no unjust labeling because only those who test positive for drug use will be named. - The results of the test are not reliable because students could choose to take the test or not.

Researchers have done studies on argumentative writing. Crammond (1998), concerned with how the levels of expertise would develop the Toulmin elements' frequencies and qualities, also similar to (McCann, 1989) on grade levels. This research analyzed thirty-six argumentative essays composed by twelve American students in each grade from 6th, 8th, and 10th-grade and seven argumentative pieces composed by proficient writers who are utilizing the adapted Toulmin model, both of them in the similar topic. Other than previously-mentioned, there was a research of argumentative writing in both L1 and L2 settings, which examined the framework of the Toulmin model as a heuristic instrument to teach students argumentative writing. Yeh (1998) pointed that there was effectiveness in applying the combination of immersion activities and specific guidance based on the Toulmin model than only immersion activities in order to help in understanding argument awareness and strategies, and moreover, in implementing the insight

in new materials for 7th graders. The participants are American students from middle-school (generally the background is from non-English speaking family). Qin and Karabacak (2010) investigated adapted Toulmin elements on university students' argumentative essay structure who are the second language (L2) students. The last, similar to Qin and Karabacak, research by Stapleton and Wu (2015) focuses on argumentative structure and substance.

RESEARCH METHOD

The method of research used content analysis conducted under the qualitative approach. Mayring (2014) explains a collection of procedures for the systematic analysis of texts of numerous varieties, tending to show not particularly visible content but also the themes and center ideas. Further, as the name suggests, statistical analytic methods do not use in the qualitative content analysis. The explanation above presents it similar to, yet different from some other methods in qualitative research. Qualitative content analysis can be utilized to investigate current issues, explain the complex phenomena, thoroughly analyze bunch contrasts, and develop and test theories. Nevertheless, as opposed to primary and interpretive strategies to content analysis, the purpose of it is a report of regularities or patterns discovered in the data (Crabtree & Miller, 1999; Tesch, 1990).

Primarily, this research used directed content analysis. "Sometimes, existing theory or prior research exists about a phenomenon that is incomplete or would benefit from further description. The qualitative researcher might choose to use a directed approach to content analysis" Hsieh and Shannon (2005), and Potter and Levine-Donnerstein (1999) based on their definitions on the role of theory might classify this was deductive research. However, the fundamental principles of the naturalistic paradigm form are the foundation in study design and analysis as a general approach. The purpose of it involves validating or extending the framework or concept of theory. The research question can be more focuses because of the help of the existing theory or research. It can present foresight about the interest variables or the relationships among variables, thus assisting in deciding the

beginning scheme of coding or relationships between codes. The object of this research is argumentative writing in the form of an article that is produced by fifth-semester students. There are five articles with the pages that vary from eight pages up to fifteen pages. The author of each article is concealed for their privacy.

FINDINGS AND DISCUSSIONS

In this research, the researcher analyzed the articles written by fifth-semester students. The articles are generally written in the same styles, which consist of a title, the authors, abstract, introduction, literature review, research method, findings, discussion, conclusion, references/bibliography. However, in the section 'research method' and 'references/bibliography,' it is reduced because there is not any argumentation in that part. Also, some pictures and interview scripts are not included in the analysis for this research.

For this study, the researcher adopted the Toulmin elements, which also consider the model from Stapleton and Wu (2015). Crammond (1998) and Stapleton (2001) argue that sometimes the semantic structures and linguistic elements can work as the signals of the appearance of argumentative components. For instance, (a) statements such as *"I think," "I believe," "In my opinion,"* and (b) assertions such as *"Without doubt,..."* are two linguistic patterns to identify *claims*. The explicit subordinators such as *"because"* and prepositional phrases, such as *"for that reason," "consequently,"* and *"for one thing"* are to identify *data*. A *counter-argument* statement and a *rebuttal* statement frequently worked hand in hand. Particular sign phrases and words were suggestive, such as *"It is said that... but...;" "a few people claim that... however..." "although," "despite,"* and *"even though"* to identify them. Once in a while, because students did not use sign phrases or words as listed above explicitly to imply their positions, reasons, counter-arguments, and rebuttals, analysts require to address their perceptions based on their understanding of reasoning structures. In sum, the amount of components of the research findings is presented in Table 2.

The findings of the research show that EFL pre-service teachers have used argumentative structure based on Toulmin's

adapted model in their academic writing. The EFL pre-service students well mastered the uses of claim and data in their writings; however, there was a lack of using the counter-argument claim, counter-argument data, and rebuttal claim. Additionally, there was none of the use of rebuttal data. The position and forms of those elements varied. Furthermore, in general, the relevancy of the association of each element is precise; there was small irrelevancy of the elements in the papers.

Based on the findings above, nearly all of the samples have six argumentative structure components based on the Toulmin's adapted model, Toulmin (1958, 2003) and Stapleton and Wu (2015), i.e., claim, data, counter-argument claim, counter-argument data, rebuttal claim, and rebuttal data. However, three papers do not have rebuttal data at all. Data dominate the elements in the first place, the second claim, later followed with counter argument claim, counter argument data, rebuttal claim, and rebuttal data. This finding is similar to the findings from Qin and Karabacak (2010) Stapleton and Wu (2015) that data dominated the portion of the structure, even though both of these studies in the L2 context and the piece of writing was in the essay form. In Qin and Karabacak (2010), the finding was on the average paper; at least four data would sustain one claim.

In this research, it was found that at a claim is supported with data vary from one data up until fifteen data. However, in this research, some claims did not have reason or support at all, and this phenomenon happened in all the samples. This phenomenon might occur because the claim involves the "conclusion of an argument, a potentially controversial, observation, prediction, or characterization" (Lunsford, 2010, p.152).

Meanwhile, the findings of counter-argument claim, counter argument data, rebuttal claim, and rebuttal data in this research are also in the small number. This research is in line with previous studies by Qin and Karabacak (2010) and Stapleton and Wu (2015). Those four elements are the term from the original term rebuttal from Toulmin. Those elements can be distinguished and may have a different general goal. The two general goals can be as assistance

as additional data, or it can be mentioned to validate or counter the applicability of a Toulmin's warrant, Toulmin (2003).

In summary, pre-service teacher students have already presented the elements of argumentative writing based on Toulmin's adapted model. However, the use of counter-argument and rebuttal is in a considerably small amount, even though both of the elements are secondary elements, but they have significant benefits for generating argumentative writing. Below are figure 1 and table 2 of the complete structured argument.

In educational practice, it is impossible to make claims about what exactly constitutes effective PA; similar to that case, which PA measures benefit student learning and yield satisfactory psychometric qualities such as reliability and validity (Teasdale and Leung, 2000). [D5] The conditions under which PA occurs differ, a diversity of methods can be applied, and many different outcomes can emerge. [C5] However, it complicates the drawing of inferences about causes and effects. [CAC5] It is because the literature usually straightforwardly describes PA very simple way, that is, without specifying all the variables present concerning conditions, methods, and outcomes. [CAD5] Several research reviews have already recognized the large variety in PA practices, but explicit relations between variables that underlie the PA practices, such as conditions, methods, and outcomes, have rarely been investigated (i.e., the variables are not held to account for causes and effects). [CAC5] However, Topping (1998) provides a comprehensive overview of PA variables in higher education, but no indication of the relations between these variables. [RC5] He did not find any outcomes of peer assessment through his research. [CAC5]

Moving to the 20th century, there are lots of more profound questions related to peer assessment. [RC5] The similarity between previous research and this research is both of the research talks about the role of peer assessment. [RC5] However, there were no researches that talked about the enhancement and the outcomes of peer assessment. [CAC5] On the other hand, we bring something new to this research. [RC5] The novelty of this research is it is not only focused on the role of peer assessment but also the outcomes of peer assessment. [RC5] The main questions of this study were, "is there any role of peer assessment in argumentative essay class?" and "does peer assessment enhance the students' writing ability?". [RD5] These questions added value of this study in comparison to previous reviews to investigate are there any roles of PA and are outcomes whether beneficial or not. [RD5]

Figure 1 Findings of the Elements structure based on adapted Toulmin's model

Table 2 Findings of the Elements structure based on adapted Toulmin's model

No.	Name of article	Claim	Data	Counter argument claim	Counter argument data	Reb uttal clai m	Reb uttal data
1	A	25	28	4	1	1	-
2	B	39	64	11	4	9	4
3	C	23	48	18	8	1	-
4	D	27	83	3	6	-	-
5	E	29	56	7	7	3	6

CONCLUSION AND IMPLICATION

Based on the data analysis of the elements of argumentative writing based on Toulmin’s adapted model on the five articles written by pre-service teachers, it concluded that the adapted Toulmin elements had been applied. The six elements: *claim*, *data*, *counter-argument claim*, *counter-argument data*, *rebuttal claim*, and *rebuttal data*, had been applied in the paper. However, three papers do not have *rebuttal data*. *Data* dominate the elements in the first place, followed by *a claim* in the second place, later followed with *counter-argument claim*, *counter-argument data*, *rebuttal claim*, and *rebuttal data*. The form and position of the elements are varied. Additionally, in some cases was found those elements that were not sound or irrelevant.

The outcome of the research reveals that the two elements (i.e., *claim* and *data*) of the argumentative structure are still dominant in the students' paper. However, if an argument just based on those two elements is still acceptable. It will be stronger or valid if students can apply all the six elements. It is also worth noting that even though students have applied the structures, the elements must bear the soundness or relevancy. The implication of this study, especially for pre-service teachers, is that the lecturers can teach argumentative structures explicitly in order to the students, can have precise knowledge about it. Also, based on this study, the other elements such as *counter-argument* and *rebuttal* need to be taught more often since noting the benefits of them in the argument structure so that the students can have better argumentative writing. Teachers

also can teach about the coherence of writing so the students can maintain the soundness or relevancy of each element.

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