

Thematic Analysis in Physics Text Entitled “*Energy Can Neither Be Created Nor Destroyed*”

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Abstract. Departing from systemic functional linguistics theory, this study is aimed at analyzing textual function found in physics text entitled “*Energy Can Neither Be Created Nor Destroyed*”. This study used descriptive qualitative method. The data were in the form of clauses totaling to 28 clauses from 8 paragraphs. From the result of the analysis, it was found that marked and unmarked Theme were realized in the data. Then, the dominant Theme found which reaches 20 Themes from the 28 Themes found or it is equal to 71,42%. It can be interpreted that the text use common structure in the clause.

Keywords: *systemic functional linguistics, physical text, textual function*

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1. Introduction

In the past, teaching English required teachers to concentrate on the development of grammar through drills and translations. By using these techniques students were supposed to learn English. Due to new educational requirements, some students are no longer passive learners; they are more autonomous in learning, active thinkers, and analysts of everyday encounters. Thus, the ministry of education in Indonesia has set out very useful standards to help learners construct their own knowledge, develop discourse skills, improve students' communicative and linguistics abilities, as well as develop their competences as well as character in order to encourage them to be autonomous and critical thinkers. All these aspects challenge teachers to look for effective methods and approaches to improve their teaching and avoid the traditional teaching practices wherein students are not encouraged to debate, reflect, and suggest. Instead they are asked to just internalize sets of words and rules in isolation. These methods can be useful in some cases but when used repetitively in our classes, students will not be given the chance to explore more critical and analytical methods to learn English as active thinkers rather than passive ones.

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Nowadays, students should not only acquire aspects regarding vocabulary, grammar, and pronunciation, but they also need to know how to use the language in real situations [1], [2]. Additionally, learners should learn how to identify the purpose of news or magazine article texts. Students need to be given the necessary tools to identify the structure of texts in terms of language, genre, functions, form, linguistic features, words, and intentions in order to lead them to complex analyses of discourses. These in-depth analyses will help students recognize the type of text or articles they are dealing with, that is, whether it is a spoken or written discourse [3], which words, rules, and language characteristics the text contains in order to accomplish a specific purpose.

During the study, we considered discourse analysis not only as a tool to identify anomalies in texts or characteristics of texts that might cause reading difficulties, but also as a very important source to help students become active readers. We also find it meaningful as a way to encourage students to become effective analysts of texts/conversations in order to identify ideologies, purposes, and aims of both written and oral discourses. Teaching students how to approach information in order to analyze messages given in texts is a wonderful process since learners are not reading in order to answer simple questions. On the contrary, they are analyzing a variety of aspects which are not evident or obvious in the texts.

According to [4], discourse analysis is fundamental in helping students identify aspects such as the field, tenor, and mode of discourse (topic, characters, context of situation, channel of communication). By identifying these issues in texts, students are aware of the organization of paragraphs, language choices, participants involved in the texts, and textual meanings. Consequently, discourse analysis—along with SFL—provide an excellent means to discover and analyze texts used in reading classes and to identify linguistic characteristics of texts that were affecting students' reading levels.

Text has simultaneous meanings called language meatfunction [5]–[7]. Another feature of texts is related to the concepts regarding the Theme and rheme of a sentence or clause which is part of textual function. To define Theme and Rheme, it is important to understand that a sentence is organized by using a subject, verb, and the complement. The Theme has main function to indicate the progression of 'what is the text about' and to signal what the speaker think is important starting point [8]. These types of organization of language choices let us analyze many issues of both written and oral discourses [9]. From sentences following these patterns or other complex ones we can draw out aspects such as the topic of conversation and complements.

I am Claudia Cassaignee.
I live on Rue Martel, Paris.
I work in the centre of Paris.
I like classical music.

(From *Cosmopolitan*, September 1985, p. 5 as cited in [10])

In the example we can easily identify *I* as the Theme or topic of conversation and in *Rue Martel, Paris* known as the complement or rheme of the topic. Therefore, *I* is the point of departure known as Theme. According to [7], [9], [11], alternatively, the Theme can be seen as the point of departure of the message. Then, the rest of the clause is called as Rheme. The Theme can be divided into marked and unmarked Theme.

[7] states that Theme is coded by the first element of the transitivity system. This implies that an element of the clause may occupy more than one function. Thus an element of the clause may function as an actor, subject and Theme simultaneously. The status of the Theme i.e. whether it is unmarked or marked is associated to the mood. This specifies that in every kind of mood there is unmarked Theme. In the clause of declarative mood where a Theme simultaneously function as the subject the Theme is called unmarked. In different way, when the Theme is not conflated with or mapped on the subject the Theme is marked. [3] analysed the use of Theme markedness in their research. The data were taken from clauses in recount text written by English department student. They figure out that unmarked Theme dominates the thematic realization in the text. It signals that the students use standard grammatical structure by employing subject to start the clause in declarative sentence. The following clauses show the unmarked and marked Theme in association with the mood. See table 1.

Table 1. Unmarked and Marked Theme in Clause	
Unmarked Theme	Marked Theme
<i>Maria</i> picked up a flower yesterday	<i>Yesterday</i> , Maria picked up a flower
<i>Open</i> the door now.	<i>Now</i> open the door
<i>Did you</i> open the door just now	<i>Just now</i> did you open the door?

The writer decided to implement the use of systemic functional linguistics (SFL) theory by Halliday to analyze the discourse related with physical text. Thematic analysis is beneficial to the text development especially ideas development [12]. The writer was interested in characteristics of texts used in discourse that prevented students from effectively understanding messages conveyed in everyday texts as well as in analyzing teachers' methodology when applying reading activities. So, this study attempts to find out types of Theme in the physics text entitled "*Energy Can Neither Be Created Nor Destroyed*".

2 Research Method

The design of this research is descriptive qualitative research method. Kirk and Miller (1986) which include method and technique of collecting data randomly. Reducing the data, analysing the data, presenting the analysis and drawing a conclusion. Method and technique of analyzing data as well as method and technique of presenting the analyses. In order to analyze the information gathered in the study, the data of this study was taken from the article of physics text which accessed from : <http://www.scientificamerican.com/article/energy-can-neither-be-created-nor-destroyed/> in February 2015. To limit the study the writer took 28 clauses from the 8 paragraphs of all data randomly. In order to analyze the data to answer the research questions, the data were analyzed based on [7], [11]. The data were tabulated based on their clauses then analyzed based on their transitivity, types of Theme and noun in groups in order to determine the level of lexical density of the text.

3. Result and Discussion

Based on the analysis of 28 clauses of 8 paragraphs of physics text, it is found that unmarked Theme is the dominant of the overall data totaling to 20 occurrences. The percentage comparison is presented in table 2 followed by the clause analysis.

Table 2 The Percentage of Type of Theme Frequency in physics text “Energy Can Neither Be Created Nor Destroyed”

Analyzed Units	Paragraph								Σf	Σf%
	1	2	3	4	5	6	7	8		
Themes										
Unmarked	4	2	2	3	3	2	3	1	20	71,42%
Marked	1	0	2	0	0	2	1	2	8	28,58 %
Total	5	2	4	3	3	4	4	3	28	100%

Paragraph 1

1.	The conservation of energy is an absolute law,	
	Unmarked Theme	Rheme

The clause above is considered as the representation of unmarked Theme. It is reasonable since the subject directly functions as Topical Theme. If we refer to interpersonal function, the structure is subject + finite+ predicator. So, the Topical Theme is the phrase “the conservation of energy” and it fulfils the function of unmarked Theme.

Paragraph 5

15.	As scientists have better understood the forms of energy, they have revealed new ways for energy to convert from one form to another			
	As scientists have better understood the forms of energy, they have revealed new ways for energy to convert from one form to another	They	have revealed	new ways for energy to convert from one form to another
	As scientists have better understood the forms of energy		they have revealed new ways for energy to convert from one form to another	
	Marked Theme		Rheme	

The clause 15 above is categorized as marked Theme since the subject is not functioned as topical Theme. The clause is started by the circumstantial adjunct. According to [2], [7], [9], [11], the clause is considered to be marked if the clause is not started by the subject. The result clearly shows that unmarked Theme domineers the Thematic realization in physics text. The other research conducted by [3] also found the same phenomenon even though they observe different genre. [5] also empowers that marked Theme is easily found in spoken discourse rather than written discourse. This is affected by the mode used by the speaker/writer that characterizes the discourse [9].

4. Conclusion

The unmarked Theme type reaches the high level it can be stated that the physics text always states and explain something from the main point of the material Based on the result, It is suggested to the English teachers who teach reading comprehension to give the students the knowledge of systemic functionoanal linguistic in order to make the students easier in comprehending the text especially scientific texts. By analyzing the types of process, the thymes and rhemes as well as the noun, verb, adjective in group the text will be easier to be understood. Then, it is suggested to other reseachers to use the theory of systemic functional linguistic to analyze other genres of texts in order to make a comparison with this study.

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