

ECOLOGICAL AWARENESS REPRESENTATION IN TOY STORY 4 MOVIE: A MULTIMODAL ANALYSIS

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Abstract

The movie portrays aspects of human life, including ecological awareness, which extends beyond preserving natural elements like mountains and rivers to encompass human impact, waste, pollution, vehicles, and global warming. This research aims to examine how Toy Story 4 (2019) conveys ecological awareness through verbal and visual semiotics in selected scenes. The study focuses on a 3-minute and 20-second segment featuring Bonnie, the first character to display ecological awareness. Using a qualitative descriptive approach, 237 data points were analyzed based on theories by Kress & Van Leeuwen, Baldry & Thibault, and Halliday. These data were categorized into phases and sub-phases. While the film's utterances predominantly feature declarative moods (88%), along with imperative and interrogative moods (6% each), none directly address ecological themes. Instead, ecological awareness is visually represented in Toy Story 4 (2019) through visual grammar, particularly interactive meaning, to effectively illustrate and encourage environmental action for young audiences.

Keywords: *ecological awareness; movie; representation; semiotic*

1. Introduction

Multimodality refers to the incorporation of diverse techniques (such as words, images, sounds) to convey meaning within a text. Multimodal analysis looks at how different forms of communication, like pictures, film, and sound, are used together with words to make meaning. It also studies how texts are structured and how these relationships create meaning (Xing, 2022). Multimodal textual analysis examines the interconnections among various texts. When analyzing a text, it is essential to take into account how it relates to other texts. On the other hand, texts of all kinds consistently demonstrate intertextuality, entwining elements from different sources and integrating multiple voices within their own structure. Intertextuality is when different texts are connected because they have similar meanings, patterns, and organization. Different pictures and symbols in the text are used to show how the authors feel or what they think about something; pictures can be adjusted to show emotions and opinions, just like words can (Baldry & Thibault, 2006)

As one of the mass communication media, movie connects the communicator and communicant in a huge area and it is able to give an effect to its communicants. Movie reflects a representation of something happened in human life (Animbom, 2020), such as

ecological awareness. According to Barnett (2018) ecological awareness means understanding that there are many different scales of time and space, and human beings are just a small part of a much larger and diverse range of possibilities. Additionally, it indicates the importance of recognizing that the human scale is not the primary or superior scale. Ecological awareness encompasses more than just the preservation of mountains, rivers, trees, and bears. It also includes humans, garbage, toxins, automobiles, and global warming. The concept of ecology revolves around the examination of the coexistence and interaction between a variety of living beings, encompassing humans and nonhuman organisms. Furthermore, it involves the study of how living beings interact with elements that lack life. In addition, social consciousness and independent thought give rise to ecological awareness, a difficult and multifaceted idea. It entails altering values and disrupting preexisting thought patterns in order to change how humans interact with the natural world. It entails growing in awareness to make the appropriate decisions and actions, averting inadvertent destruction (Corraliza & Collado, 2019). The essential components make up ecological awareness, they are knowledge, values, and operational guidelines (Evans, Otto, & Kaiser, 2018). Furthermore, this study investigates and reveals how ecological awareness is delivered in verbal and visual semiotic sources from the selected scene from Toy Story 4 (2019).

The researchers opt for Toy Story 4 (2019) as the subject of research because it is a combine of drama, comedy, action, and romance, so this animated film is additionally preferred by children, as it is captivating and adorable, but adults involving animated films as well, and animated films may develop into favorite film. This research focused on the scene when Bonnie went to the school for her first day of in kindergarten orientation. This scene was taken into the data because these data addressed the topic of the research about ecological awareness as the one of the messages of this movie. This scene shows when another kid takes Bonnie's supplies for art, Woody dumps rubbish on Bonnie's table. Bonnie crafts a doll out of a spork and other things from trash can and names him as Forky (Alegre, 2021). In this scene, Bonnie shows her awareness towards her surroundings, especially on recycling the plastic waste into a toy named Forky.

In addition, representation is a social construction to explore social meaning-making and for the investigation of how meanings are produced across diverse contexts (Barker, 2016). This representation can take the form of words or writing and also be seen in the form of moving images or movies. Representation not only involves how cultural identity is presented or constructed in a text but also constructed in the process of production and perception by the society that consumes the represented cultural values (Arianto, Sayuti, & Efendi, 2021)

2. Literature Review

There are several studies on ecological awareness, such as Hyuo-won Lee and Jeong-Jin Youn (2017) who do previous study on Reading Film from an Ecological Perspective. It intends to examine the Disney film 'The Odd Life of Timothy Green' from an ecological standpoint and draw educational implications. This study employed Chatman's (1978) movie narrative technique, which breaks epic material into stories and plots, and stories into events and beings again. Except for scenes that do not provide any specific information, the data consists of the last 40 scenes of the film. This study discovers that living harmoniously with both people and nature is essential for a good life and for recovering from difficulties.

Another previous research is conducted by Alfiah, Putra, & Gultom (2020) on Ecological Issues in the film *The Chronicles of Narnia: Prince Caspian*. They attempt to describe ecological issues based on Greg Garrard's ecocritical study. According to this study, there are ecological issues in the film *The Chronicles of Narnia: Prince Caspian* as a result of human activity. The interaction between humans and nature, the extinction of wildlife, and the devastation of the natural world are some of the ecological issues that the film explores.

Previous research on *The Role of the Ecological Awareness and the Influence on Food Preferences in Shaping Pro-Ecological Behavior of Young Consumers* which is conducted by (Wierzbinski, Surmacz, Kuzniar, & Witek, 2021) discusses about many factors conditioning pro-ecological behavior of consumers on the food market, among which the literature on the subject particularly indicates, is high environmental awareness which aims to identify the role of ecological awareness and influence on the food purchasing habits of young consumers in shaping their pro-ecological behavior. This research uses structural equation modeling (SEM) method to analyze the data. This research finds that the ecological behavior of young consumers is strongly determined by their environmental awareness.

Moreover, there is a connection between this research and previous research on ecological awareness. In the first study, it is researched using the theory of film narrative techniques while in the second study using ecocritical theory where both studies use the point of view of the field of education. The third previous study analyzes the ecological awareness from agriculture side. However, in this study, researchers examine the representation of ecological awareness through a linguistic point of view with the concept of multimodal analysis from the theories of Halliday and Matthiessen (2014), Kress and Van Leeuwen (2006), and Baldry and Thibault (2006). This research aims to investigate and reveal how ecological awareness is delivered in verbal and visual semiotic sources.

The Systemic Functional Grammar is used for the linguistic analysis of the movie *Toy Story 4* (2019). According to Halliday and Matthiessen (2014), linguistics is the study of how individuals exchange meanings through language use, and language itself is a systemic resource for conveying meanings in context. Discourse analysis, learning foreign languages, and other sectors have found systemic-functional grammar to be quite beneficial. Halliday lists a few uses for systemic-functional grammar, including evaluating the caliber of texts, figuring out why a text says what it says, and comprehending how language makes sense in relation to its users and purposes. This theory is used to examine the English transcript's linguistic content, which was selected from the movie.

This study also employs Kress & Leeuwen's (2006) Visual Grammar. It is stated that there are fundamental differences between language and visual forms of semiosis. Through the study of visual pictures, Visual Grammar enables the realization of meaning making, enabling comprehension of the images without the need for language support. In addition, to comprehend *Toy Story 4* (2019) in greater detail, the research is examined in light of the interaction between language and non-linguistic factors. In order to show how Bonnie's relationship with her environment develops, this theory is actually applied to the analysis of a few chosen images created from the screenshots.

3. Research Method

The data source of this research is *Toy Story 4* (2019) movie at scene 00:11:26 to 00:14:19 focusing on the character which is little girl named Bonnie. That particular scene is

chosen because it shows how Bonnie as a dark-skinned little girl is aware of her surroundings especially when she can recycle the trash into toy she loves.

The technique suggested by Bezemer & Jewitt (2010) is used in collecting and analyzing the data. There are six phases; the processes are collecting and logging data, viewing data, sampling data, taking data samples, and analyzing data. The first step of collecting data is to obtain the data from the media such as film which in this research is Toy Story 4 (2019) movie. In this collecting step, the researchers use snipping tools feature guided by the purpose of the research which is ecological awareness. Secondly, logging data means the context of the data related to environmental awareness is also considered. Next, in viewing data process, data in form of screenshot of cut scene and verbal script are scrutinized and observed using Halliday's theory. In this step, detail information of Toy Story 4 (2019) movie is investigated to achieve richer and deeper information. Fourthly, the sampling step is to get data sample from the film is related to ecological awareness. In transcribing verbal semiotic sources, this research uses transcripts to collect written verbal data, and this step is similar to treating visual semiotic sources that are transcribed into screenshots and series of images using the theory proposed by Baldry & Thibault (2006).

This research examines in detail the way things are depicted in the shots using Kress & Van Leeuwen (2006) theory, particularly in terms of how the story is presented through visuals. This story representation includes the vector analysis that shows the participant movement and vectors that show the direction. The specific facial features of characters like when their eyes are wide open or when they frown are also observed.

4. Results and Discussion

The analyzed data in this research are 247 shots and this research finds that there are 17 utterances referring to interpersonal metafunction; also, 111 shots that focus on Bonnie which is the character showed up in most part of this scene. From the first time Bonnie arrives at her school (kindergarten) to the class end when she finally meets her parents again. Furthermore, there are 93 shots to discuss the relation interplay between Bonnie and the ecological awareness. Ecological here is not in the form of trees, waters, and animals but it is something related to do while children are in school, like recycling things around them. All scenes are analyzed both in verbal and visual analysis.

4.1 Interpersonal Metafunction in Bonnie's Scene

There are 3 types of mood in the selected scene based on chart 1, namely declarative mood, interrogative mood, and imperative mood. Declarative mood is the mood that appears most often in the scene with a total of 88%, while interrogative and imperative mood appear slightly with a percentage of 6% each. Declarative mood is a word that contains a message to express what the speaker is thinking and feeling (Matthiessen & Halliday, 2014). Declarative mood is often used in scenes because it is related to the place where the incident occurs, namely in the classroom, which causes teachers to provide information more often to their students. Moreover, this scene shows that it is the students' first day of kindergarten so they listen more to their teacher than asking questions or asking their friends to do something. That is why the interrogative mood and imperative mood only appear to a small extent. As we also know, kindergarten children usually do not talk much on their first day of school, but their teacher is the one who guides them.

This declarative mood appears more at the beginning of the scene when the teacher welcomes the students until the class starts. This declarative mood also appears at the end of the scene when the teacher praises Bonnie's creativity when she finishes making her creation, namely Forky. For example: in the sentence *'so we can start craft time'*. This sentence begins with the word *'so we'* where *'we'* is the subject. This indicates that the teacher in Bonnie's class informs her students that class has started and at the same time asks the students to create a work using the items provided on their desks. The interrogative mood sentence that appears in this scene is in the form of the sentence *'do you want to see?'* who asks Bonnie if she wants to see a locker or a place to put her bag. This interrogative mood is included in the interrogative in the form of a yes/no question because in a question that can be answered with *'yes'* or *'no'*, the word or group of words that shows if the statement is positive or negative is called the Theme. In this type of question, the Theme is usually the verb (Halliday & Matthiensen 2014). Meanwhile, the imperative sentence is in the form of the sentence *'Let's all find the seat at table'* where this sentence indicates that the teacher orders the students to immediately sit on their respective benches.

However, in both the declarative, imperative and interrogative moods, none of the sentences in these moods represent ecological awareness in a nutshell. Even the word *'craft'* mentioned by the teacher in the declarative mood is not included in ecological awareness because *'craft'* here means making a work from new and readily available materials rather than using used goods and there is no indication of recycling waste.

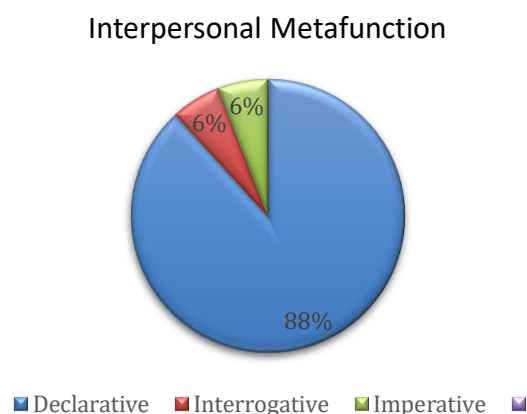


Chart 1. The interpersonal metafunction on selected scenes of Toy Story 4 (2019)

4.2 Interactive Meaning in Bonnie's Scene

4.2.1 Relation of child and environment

Visual grammar is used to analyze shots of the cut scenes in the forms of representational meaning and interactional meaning to discover how the ecological awareness presented in Toy Story 4 (2019) movie. According to Kress & Leeuwen (2006), the interactive meaning of visual images is determined through the representation of the connection between the viewer and the image, integrated by aspects such as contact, social distance, attitude, subjectivity and facial effect.

Looking at table 1, in the whole shots, *offer* is the most appeared contact which means there is no interaction between Bonnie and the viewer in the movie. Therefore, this movie prioritizes in providing the information for the audiences about what happens to

Bonnie in her first day of school. The information consists of where the place is taken, what Bonnie is doing, and while in this case, Bonnie is a dark-skinned girl who attends the kindergarten with the majority of white children so then it also wants to reveal how her surroundings react to her presence and vice versa.

Furthermore, seen from the camera angle, Bonnie is dominantly highlighted through close shots and medium shots. Close shots represent intimacy or personality that is able to make the audience feel and understand emotional feelings. Through this close shot, the filmmaker clearly shows that Bonnie feels sad when she enters the class, she does not recognize anyone there. However, in the end the audience can see the emotional changes that occur in Bonnie when the class ends after she succeeds in recycling the objects that Woody puts on her desk. Meanwhile, the medium shot represents Bonnie seen socially, where the audience can see Bonnie always trying to interact with other characters in the film, for example one of her friends with blonde hair and also her teacher.

In the chosen scene, people are looking at Bonnie from two points of view frontal and oblique. However, its dominance is through a frontal perspective (involvement). The front camera angle can reveal the filmmaker's intention of whether they want the viewer to form a connection with the person in the movie (Bonnie) or not. It is evident from the frontal perspective that it holds significant importance in our world and has a close connection to us as viewers. Judging from the dominant power angle, Bonnie appears to be using an eye level angle. In this scene, it is depicted that Bonnie is a girl who has dark skin, while the majority of children in the kindergarten have white skin. This means that the character Bonnie wants to be seen as equal in her environment and there is no difference in strength between herself and other characters even though she has a different skin color. Apart from equality, in several scenes Bonnie is also seen from a lower camera angle where the person represented has control over the people who interact with her.

In the three types of facial effects, namely positive, neutral and negative, Bonnie's character in these selected scenes more often shows negative expressions. This negative expression, in the form of a scared facial expression for example, is shown when Bonnie first comes to school because it is her first day in her new environment. Furthermore, Bonnie also shows a sad expression when she fails to interact with one of her friends. Bonnie tries to talk to a blonde boy by saying hello, but instead of getting a greeting back, the boy ignores her and just takes the craft tools that are on Bonnie's table. Bonnie, who is initially excited, turns sad. She also shows a confused and shocked expression when she finds many objects lying on her table. Below is an interactive table of meanings found in Bonnie as the central character in the cut scene.

Interactive meanings	% of corpus (111)	
Contact	Demand	0%
Social Distance	Offer	100%
	Intimate/personal	39%
	Social	39%
	Impersonal	22%
Attitude: subjectivity	Involvement	90%
	Detachment	10%
	Viewer power	0%
	Equality	85.6%

	Representation Power	14.4%
Facial Effect	Positive	36.1%
	Neutral	4.5%
	Negative	59.4%

Table 1. Interactive Meanings of Toy Story 4 (2019)

3.1.2 Representation of Ecological Awareness

From the table 2 below, it can be seen that the realization of ecological awareness shown by the character Bonnie occurs in macrophase 4 to macrophase 5. Furthermore, in these two macrophases there is no dialogue between the characters. Even though there is no verbal delivery, the audience can still observe and understand what is happening in the macro phase through visual elements. Macrophase 4 tends to tell the story of the beginning of this ecological awareness. In her class, the teacher asks the students to be creative in making a pencil holder from the items provided, but Bonnie's tools are taken by her friends so she does not have anything on her desk. Woody is sorry to see Bonnie then he is trying to help her by picking up some goods that could still be used from the trash bin. Then he puts these objects on Bonnie's table without her knowledge as shown in figure 1.



Figure 1. The things on Bonnie's table

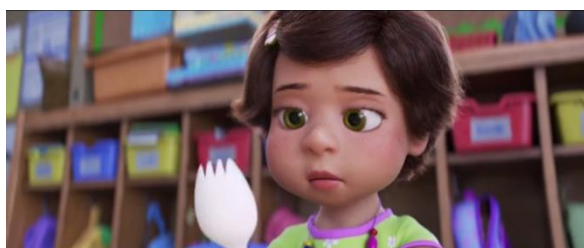


Figure 2. Bonnie's expression when she found ot the things

Figure 1 and figure 2 are taken using close shots which represent the intimate, personal relationship between the audience and the characters. In figure 1, a camera angle is used that pans from above, making it seem as if the audience is looking with Bonnie's eyes so they can clearly see what objects Woody places on Bonnie's table. Meanwhile in figure 2, the camera angle is taken at a slightly downward position so that the audience not only sees Bonnie's expression but also knows where Bonnie is directing her gaze. In figure 2, Bonnie is holding up a plastic fork with her eyes looking at the fork, indicating that she is thinking about what work of art to make from this object and what she is going to do with the goods.

The scene continues to the next macrophase in phase one to phase three. In phase one focusing on what Bonnie does after she discovers the items. Besides throwing back the items into the trash, she thinks about recycling them. Therefore, the shots focus in showing the process of recycling the items into thing she thinks about. In phase two, it is showed that

Bonnie recycles the items into a doll made by fork, wood sticks as it legs, wire as it hands, with dorky eyes. From this shot, viewers are also able to see the facial expression change before she makes and after she finally makes the recycled doll. It represents that Bonnie as a little child has a creativity in recycling trash.



Figure 3. The process of recycling



Figure 4. Bonnie is recycling enthusiastically

In figure 3 and figure 4, both images are taken using a closer camera angle or close shot. This is done because the filmmakers want the audience to know and see in detail the process carried out by Bonnie when she makes her craft. Furthermore, the expression shown on Bonnie's face is a positive facial expression because Bonnie is very enthusiastic when working as shown in figure 4 that the audience can feel interested in finding out what Bonnie is actually creating. Apart from that, there is a change in the expression on Bonnie's face, where previously she shows a negative expression, namely sad to persistent (positive facial expression) as shown in figure 4.



Figure 5. The expression of Bonnie after recycling



Figure 6. Recycling outcome, Forky

In figure 5 and figure 6 both use close shots where figure 6 highlights her expression after completing her work. Instead of making a pencil place from a plastic cup as instructed by the teacher, Bonnie makes a simple doll that is a recycling of used goods or garbage given by Woody before. She then gives the name of the doll, Forky (in Figure 6). This proves that environmental awareness is not only in the form of knowledge about the environment itself but also attitudes. Values and skills also needed to solve problems related to the environment (Murniawaty, Susilowati, & N, 2018). In Bonnie's case, the environment in question is the classroom environment. Furthermore, a person has knowledge about their environment which is obtained from seeing, understanding, information from other parties, phenomena, challenges and problems in their environment. When she finds used goods or trash on his desk, Bonnie instead of throwing back the object into the trash tries to recycle the rubbish again. We can also see the emotional changes before and after Bonnie realizes the environment where previously Bonnie looks very sad then turns into smiling and happy figure when finally making Forky. Her fondness for dolls makes her try to make it by herself with what is available in front of her eyes.

Shots	Phases	Description of phases	Macrophase
1-24	Phase 1	The first character arrives on the first day of school.	Macrophase 1
25-31	Phase 2	The first character lets her mother and follows the teacher.	
32-42	Phase 1	The character starts to enter the class.	
43-61	Phase 2	The first character observes the class.	Macrophase 2
62-70	Phase 1	The first character is in the classroom.	
71-90	Phase 2	The first character tries to interact with others.	Macrophase 3
91-101	Phase 3	The second character keeps an eye on the fifth character.	
102-134	Phase 1	The second character is trying to help the first character.	
135-140	Phase 2	The first character notices the things.	Macrophase 4
141-162	Phase 3	The second character is helping the first character.	
163-174	Phase 4	The first character discovers the supplies on her table.	
175-203	Phase 1	The first character starts making the creation.	Macrophase 5
202-215	Phase 2	The first character makes her creation.	
216-228	Phase 3	The first character and the second character are proud of what they have done.	
229-233	Phase 1	The class ended	Macrophase 6
234-237	Phase 2	The first character meets the third and sixth character.	

Table 2. Macrophases found in Toy Story 4 (2019) at scene 00:11:26 to 00:14:19

5. Conclusion

This paper explores how Toy Story 4 (2019) uses systemic functional grammar and visual grammar to convey ecological awareness through verbal and visual semiotics. The film's interpersonal meaning is analyzed across three moods: declarative, interrogative, and imperative, with declarative being the most frequent, though none directly address ecological themes. Ecological awareness in Toy Story 4 is predominantly conveyed visually rather than verbally, with the audience comprehending the message despite the absence of explicit dialogue about natural elements like rocks or trees. Instead, the film focuses on actions and responses related to environmental awareness within a classroom setting. Camera angles and social distance play crucial roles: close shots provide intimate views of Bonnie's interactions with her environment and the process of creating Forky, while medium and long shots reveal environmental reactions to Bonnie's actions.

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