Aesthetic Morphology of Animation

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Abstract

Aesthetic morphology does not judge whether a work is good or bad but is a study of form in art that focuses on description, comparison, and stylistic analysis. Aesthetic morphology emphasizes great attention to the discussion of form, content, and style. However, this theory is still general, and there needs to be more research that explicitly discusses how it applies to animated artworks. This research will use the Comprehensive Literature Review (CLR) method. CLR is a methodological approach for critical and in-depth research activities on a particular topic in several stages of the research process. The CLR research process consists of three phases: exploration, interpretation, and dissemination. The result of this research is that the form consists of aspects of animation design, movement and kinetics, and sound and structural design. The content aspect consists of 2 main elements: story and character. Meanwhile, the style aspect is influenced by two main elements, namely the technology used in the production process and the appearance of the animation. The results of this research are expected to be used to explore the characteristics of animation works of certain creators, countries/locations, or periods in the history of the development of the aesthetic form of animation in the world.

Keywords: aesthetic; morphology; animation; methods

INTRODUCTION

As an empirical science, aesthetics comprises two sets of phenomena (Munro, 1970). The first focuses on the phenomenon of works of art, and the second consists of phenomena related to various kinds of human activities related to works of art. The first group of phenomena is related to aesthetic morphology, which is the study of form in art. The second group of phenomena is part of aesthetic psychology, which is closely related to sociology, anthropology, and other humanities.

Thomas Munro offers a study of art objects by focusing on the study of the form of artworks in aesthetic morphology. Aesthetic morphology is the study of form in art that focuses on describing, comparing, and analyzing style and its details, parts, materials, and ideas (Munro, 1943). The goal is to gain a comprehensive knowledge and understanding of an art object based on a scientific and systematic approach. Aesthetic morphology is indirectly concerned with the nature of beauty or evaluation in artworks, the psychology of creation or appreciation. It refers to the form and content of a work of art to be analyzed, compared, described, and classified.

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Aesthetic morphology describes the nature and variety of forms in art and other objects of human creation insofar as they can be understood as stimulating aesthetic understanding. Aesthetic morphology classifies all types of forms in art and identifies and characterizes works to show the level of relationship between similarities, differences, and formal analysis of stylistic features (Haldani, 2013).

Aesthetic morphology emphasizes the discussion of form, content, and style (Michael & Munro, 1971). These three elements are always interrelated and inseparable in any human artistic activity. This means that in addition to focusing on the artwork, this theory also pays attention to the "psychological" and "social" side of the human being (context) who uses and produces the artwork. In other words, the main issues examined include physical and psychological elements by considering the psychological and cultural influences behind them.

Researchers must consider the form and content together when analyzing the visual style of one or more objects. Form refers to how the basic components are structured and arranged. Content refers to the essential spirit, meaning, message, ideas, and psychological aspects of the people who produce and use it. Form and content refer to the style or characteristic that distinguishes one artwork from another.

The discussion of tendencies places greater emphasis on the analysis of style. This analysis determines the pattern or similarity of analysis between artworks. A style is not independent; it combines, modifies, adapts, adopts, or influences one or more reference forms or styles. Therefore, Aesthetic Morphology attempts to facilitate the description of the form, style, and expression of an artwork rather than subjectively judging a work as good or bad.

Aesthetic morphology can be used for the identification of forms and styles in various art objects, such as photography, sculpture, dance, architecture, film, and animation. In animation, aesthetic morphology can be used to identify forms and styles used by animators, study animation characteristics in a particular country, and study animation styles that are popular or developed in a specific era. Thus, aesthetic morphology is similar to the study of animation's aesthetic history.

The animation style in a particular country can be formed from the length of animation development in that country (Wikayanto et al., 2019). The style is obtained from the collective accumulation of all animation works in the country, which are influenced by the same social and cultural conditions. Therefore, character animation style in a country is determined by its creators' habits. Every artwork an artist creates reflects the culture around him, which is influenced by life experience, environmental conditions, religion, ethnicity, and nationality (Ahmad, 2008).

Research on form and style in animation has grown in recent decades due to increased awareness of aesthetic characteristics in animation, animation identity in a country, or popular animation styles in particular periods (Batkin, 2017; Brito, Yahaira Moreno ; Cho, 2017; S. H. Donald, 2008; Herhuth, 2017; Holohan, 2016; Lee, 2011; Lenburg, 2012; S. Mac Donald, 2016; Mohd Khalis et al., 2020; Neupert, 2012; Pikkov, 2016; Rutherford, 2003; Swale, 2015; Wells, 2003). This research was conducted because globalization has caused the lines between cultures and countries to become increasingly indistinct. Identity in animation is fundamental because animation can be used as a representation of a particular culture or country. Studying the form and style of animation is critical because it can be used as material to identify the characteristics of animation in a particular country, such as Japanese animation (anime), which has an aesthetic form that differs from the aesthetic form of animation in the United States and Europe. Anime is an animation style with visual characteristics strongly influenced by manga visualization and has long been inspired by Japanese tradition and culture (Cavallaro, 2013). This example of the development of anime highlights the significant impact of

cultural diversity on the narrative, artistic, and cinematic aspects of animated works. If Japanese animation has its uniqueness due to its locality, it can be assumed that other animations in other regions of the world have equally interesting characteristics. Based on this issue, aesthetic morphology provides a complete set of methods for describing, comparing, and analyzing styles in animation.

There are still few studies that are specifically concerned with the operational model for the use of this aesthetic morphology method in animation. According to Thomas Munro's book Form and Style in the Arts, each artwork holds a unique aesthetic structure. Although the theory of aesthetic morphology is still general, further research is needed to deepen its application to specific art objects, such as animation. Identifying unique characteristics in an animation can be a differentiating factor between animation and another. Not all of these characteristics can be found in the visual elements alone but in other fundamental elements of animation formation, such as movement, sound, or narrative style. Therefore, this research explores how to apply the aesthetic morphology method of animation media. The research results are expected to be used to explore the characteristics of animation works on certain creators, places, or eras in developing the aesthetic form of animation worldwide.

METHOD

This study uses the Comprehensive Literature Review (CLR) methodology. CLR is a methodological approach to critically and deeply inform research activities on a particular topic into several stages of the research process that optimally involves using mixed research techniques such as culture, ethics, and multimodal texts and settings (Onwuegbuzie & Frels, 2016). CLR involves examining, analyzing, incorporating, and communicating published and unpublished data in a methodical, comprehensive, collaborative, and iterative approach.

The CLR research process consists of three phases: exploration, interpretation, and dissemination. The exploration phase starts, first, exploring the topic to be discussed, namely the theory of aesthetic morphology (form, content, and style) with animation formed from a combination of audio, visual, motion, and narrative. Second, starting the data search by looking for data related to the topic to be discussed in primary sources such as international journals and textbooks related to the research topic. Third, storing and organizing information, the primary data search process results will be grouped according to the topic under study to facilitate the exploration process later. Fourth, selecting and evaluating information choices is when researchers analyze the results of primary data searches and set aside data unrelated to the research topic. Fifth, expanding the data search to one or more elements of MODES (Media, Observation(s), Documents, Expert(s), Secondary Data) related to aesthetic morphology and animation.

The second phase is interpretation, which is interpreting the information in the previous five stages. This interpretation occurs through the path of analysis and synthesis, which makes it the culminating phase of the process of analysis, evaluation, and interpretation of the selected sources of information, which are then synthesized into what is called meta-inference, which are conclusions from each selected source of information that are combined into a coherent narrative.

The final phase is disseminating the CLR results to the appropriate audience. This process can be in the form of presentations, multimedia, or written form in popular or scientific media such as journals and proceedings. This phase aims to make the research report available and accessible to others so that it can contribute to the knowledge network.

RESULT AND DISCUSSION

The Role of Aesthetic History
History is defined as events that hap-

pened in the past. The past does not have to be understood solely in terms of time; it can also be seen through past human works in the form of historical artifacts. In more detail, animation history can be divided into three categories: First, animation history serves as a historical source, encompassing the collection of historical sources related to animation, including artifacts of animation works, animation technology, and interviews with individuals involved in animation. Second, animation history forms an integral part of history research. Third, animation history involves reconstructing past events into a historical narrative on animation development. In this case, visual art history is expected to fulfill three historical functions: forming identity, identifying trends, and teaching values (Dienaputra, 2012)the work of art history iseasier to find in the form of scientific work at university, either essay of undergraduate (skripsi.

Animation can also be classified as a film genre (Beckman, 2021). and an evolving film studies discipline. Film theory, history, and criticism have been considered the main branches of film studies, with animation being a part of them. However, film theory and criticism heavily influence the study of film history. The fundamental distinction between film historians is their ability to observe the evolution or changes that occur in the film itself over time (temporal dimension). Three main factors will always influence the study of film history: (1) The history of film as an academic discipline, (2) Film as an audiovisual art and cultural form, and (3) The technological and economic forces that affect film development. Consequently, the historiography of animation will always remain linked to these other dimensions (Linsenmaier, 2008).

Robert Allen divides research activities in the field of film history into four interrelated dimensions in his book. These are the history of aesthetic films, the history of film technology, the economic history of film, and the history of social film (Allen & Gomery, 1985). In this case, the aesthe-

tic morphology of animation is an integral part of the discussion on the aesthetics of film. The aesthetic history of animation will be related to the history of animation as an aesthetic artwork. The breadth or narrowness of the historical meaning of this film depends on the understanding of what is meant by "art" and "aesthetics"(Faulstich, 1989)in most cases only implicitly. In contrast to such implicit statements, I will try here to make these theoretical and methodological positions explicit and demonstrate them with examples. First of all, I should like to refresh our memory about the basic theoretical premises of what I call "film aesthetics" (a concept which was presented in 1982 at great length.

According to some film historians, the aesthetic aspect of film history involves identifying, describing, and interpreting film works. Other film historians prefer to define the aesthetic history of film in broad terms, including all aspects that can lead to enjoyment in watching a film, as well as how the audience interprets the film. Thus, the history of film aesthetics includes not only the study of directing, filmmaking styles, and the use of background sound in films but also why one production method continues to develop/be used by film creators over time while others are abandoned. Therefore, to understand the historical development of aesthetics in a country, it is necessary to consider the diachronic history and other aspects that directly or indirectly influence it. If it is related to aesthetic morphology, it can be concluded that research on aesthetic appeal in animated works will be related to other branches of disciplines, even though it has a research focus on aesthetics and art science. This aesthetic appeal is derived from form, content, and emotional expression, which led to the creator analysis model of formalism, symbolism, and expressionism.

The study of style is one of art history's most important critical concepts. Style is deemed essential since it reflects the inner essence of a creator, social group, or period. Suppose one can comprehend a style as it appears. In that case, they will

obtain direct entry to the total value system of culture in prior eras and the key to interpreting cultural advancement. Because style is believed to reflect the values of a society, it can be considered a significant resource in aesthetic history. Style refers to three elements in art: motifs, form relationships, and the quality of expression in a work's form and content. Style is valid only when considering a group of artifacts rather than a single artifact. To identify an object's style, it is essential to indirectly recognize the existence of other objects that share common features. A style's distinctiveness is most evident when compared to other styles. So, to investigate the aesthetic morphology of animation, researchers should gather data on animation artifacts, conduct field observations, collect relevant documents, interview relevant stakeholders, and obtain secondary data related to the research (Media, Observation(s), Documents, Expert(s), Secondary Data - MODES).

Form in Animation

Form in aesthetic morphology refers to elements with aesthetic value that serve a specific purpose. It is important to note that the aesthetic value of an object does not depend on whether it is natural or artificial because all objects have aesthetic value. Every object possesses artistic aspects, including line, shape, and color, whether natural or artificial (Munro, 1956:161).

The visible physical structure of an artwork is called form. Everyone has an opinion about how to evaluate an object. This results in numerous evaluations based on the person's preferences. The task of aesthetic morphology is to objectively clarify the various viewpoints on the form based on the object's elements, details, materials, and other components. Aesthetic morphology emphasizes the relationship between form and its forming elements. The elements that make up an object are interrelated and mutually supportive. Therefore, these constituent elements cannot be separated when analyzing objects using an aesthetic morphology approach. The ma-

terial used to create the object determines how it appears (Munro, 1956:183-185).

The form is the fundamental element that forms an animated work that can be seen (visually) or heard (auditory) by the five human senses if drawn to animation. The aesthetic of animation can be seen in form and style. The form consists of the formal elements and content of animation, while style is formed by production, looks, and realism technology.
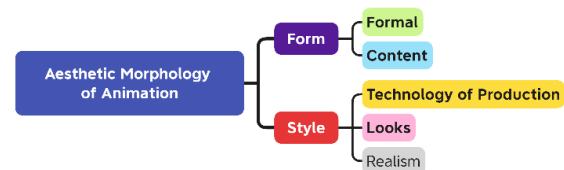

Figure 1. Form and style in animation aesthetics.

The Formal Elements of Animation

The formal elements in animation that are the aspects examined in analyzing form in the aesthetic morphology of animation are divided into three categories:

Animation design: an animation element that contains a composition of visual material visible (sight), such as character shapes, backgrounds, colors, cinematography, and visual editing.

Movement and kinetics: This element consists of the motion and action of the character (action and performance) and the perception of motion caused by camera movement (perceived motion).

Sound and structural design: animation elements the human ear can hear, such as dialogue, sound effects, and music.
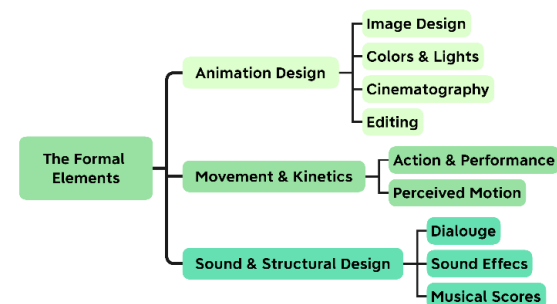

Figure 2. The formal elements of animation aesthetics.

Animation Design

Animation design is a fundamental component of animation that includes the composition of visible (sight) visual materials such as character shapes, backgrounds, light and color, cinematography, and visual editing. These visual animation components can be classified into character images and environmental images of the animation world (Cavallaro, 2010). Tony White affirms that animation in animation can be traced to three domains: character, property, and environment (White, 2009). The animated film's visual style and color palette also impact the audience's emotions and overall mood. For this reason, the animation design must effectively illustrate and visualize all events in the animation, such as scene transitions, time, location, and character actions (Glebas, 2017).

Image Design

There are two components to image design: world setting and character design. The setting is essential to the storytelling process and can influence how characters behave or act as an additional narrative element. The context of characters, backgrounds, and properties is unified in the same world/universe (Wright, 2005). The Aladdin and Kung Fu Panda films provide examples of effective character and setting design. The Aladdin animation takes place in the Arabian Peninsula, resulting in character visualization, building shape, surrounding nature, and property adorned with typical Arab and Islamic ornaments. Similarly, Kung Fu Panda features Chinese ornaments that characterize all visual elements in the film. These visual elements may refer to specific cultures or locations depending on the theme and story.

The ambiance or setting of an animated scene is an important factor in establishing the desired mood or scenario that complements the animated characters (Bin dan Ghani 2015). The environment also plays an important role in the storytelling process. The environment may be static and less dynamic than the characters, who constantly move and directly communica-te with the audience through movements, gestures, facial expressions, and words. A well-crafted environment design can captivate the audience, immersing them in the scene of the movie. Ultimately, this attention to detail creates an effective impression on the audience. Creators often research specific locations related to the setting of the animated story to accurately describe the environment's visualization and create an immersive atmosphere. Unsurprisingly, classic Disney animated films are renowned for their breathtaking backgrounds and capacity to establish the mood and subject matter using their visual style to absorb the viewers in the animated plot (White, 2006).

Character design is a critical element of the animation storytelling process. The lack of characters in animation makes it difficult for the audience to understand the story. Character design is visually constituted by two factors: physical features and costumes. The physical form of an animated character can include the character's body shape, skin tone, hair color, gender, body weight, and age. Meanwhile, a costume consists of make-up, character accessories, and colors representing a specific identity and serving as the character's background. In animation character design, identity is shaped by the character's cultural background and life experiences. For instance, the character design in the movie Kung-fu Panda, set in China, draws inspiration from the surrounding culture. Panda Po, the lead character, is an indigenous animal from China who wears traditional Chinese shoes and pants. A well-crafted costume can aid the audience in identifying the key protagonist, supporting actors, or antagonists by visually representing their personality and demeanor. A unique identity can differentiate character design (Kerlow, 2009). There are three character designs: Cartoon Characters, human or animal caricatures with exaggerated body parts. Realistic Characters aim to imitate the realistic shape of their real-life counterparts. Finally, Stylized Characters strikingly blend cartoon and realistic sty-

les.

Lights & Color

Light and color play a pivotal role in animation. They may serve as tools for dramatizing animation scenes and also as aesthetic enhancers in a story (Katatikarn & Tanzillo, 2016). In the early years of animation development, animation was performed in black and white. However, the introduction of color technology in film revolutionized the visual aesthetics of animation. Snow White and the Seven Dwarfs was the first full-length animated feature in color ever made. The use of color in this animation was a key factor in Disney Studios' global success. Animators can utilize light and color to create distinct qualities in their animation works. Both can be employed in character design and environment to build a fully realized animated realm.

Lighting has a psychological effect that sometimes runs deeper than other image design elements. It need not be overtly prominent in a scene but controls the audience's emotions. Generally, audiences respond to and feel the effects of lighting without consciously realizing it. Lighting directs the viewer's gaze toward darkness, contrast, color, and other significant details that must be emphasized. Without light, it would be impossible for audiences to perceive all objects in an animated world.

In animation, all artists work together to tell the same story. A lighting artist in animation has three primary objectives: (1) directing the viewer's attention to the scene's focal point, which is particularly important for short shots when the audience has limited time to focus on the main point of the scene; (2) adding visual interest to each scene by defining the shape of all visible objects; and (3) contributing to the storytelling by setting the tone. Color is a primary tool in animation for effectively creating mood. Figure 3 illustrates that conveying a scene's atmosphere can be achieved through verbal dialogue and using a basic color palette of warm and cool lighting.

Colour is a component of light (Ward, 2003). Specific waves within the light spectrum create colors. Color comprises three attributes: hue, saturation, and brightness. Hue identifies the colors, such as yellow like Spongebob, blue like Doraemon, or black like Mickey Mouse. Saturation describes the intensity or strength of a color. For instance, SpongeBob's yellow character design is brighter than Homer's character in The Simpsons animation. The brightness of a color indicates how light or dark it is and can be measured using grayscale.

Cinematography

Cinematography is the act or process of deciding on the factors that give meaning to a film or animation. Shooting angles, action and direction, lens type, camera movement, and lighting are all aspects of cinematography. In other words, cinematographers combine several different but complementary tasks to add structure and nuance to the visual style of animation. In this case, the role of technology and creator/author in planning cinematography in animated works becomes critical. Cinematography can be divided into three categories when analyzing aesthetic morphology in animation: camera action, spatial dimension, and framing.
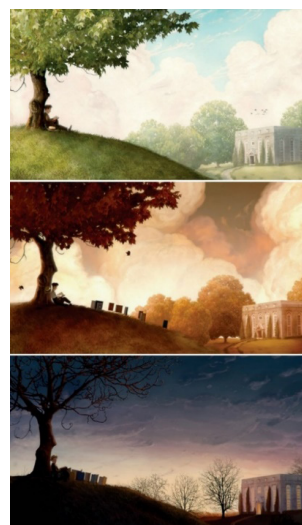

Figure 3. Different lights and colors can lead to different impressions in a scene/shot (Katatikarn & Tanzillo, 2016).

Camera Action

The mobility of animation is one of its most exciting aspects (Cui, 2019). Animators have complete control over the camera movements they use to shoot scenes. They can utilize various camera positioning techniques, such as pan, tilt, zoom, track, dolly, follow, and pedestal shots. The camera's movements are also displayed through various shooting angles, including high, low, over-the-shoulder, bird's eye, and dutch angles.

Image visualization in cinematography is determined by the context of each shot and the overall visual approach or how the animation creator intends to convey the story objectively. The creator can use a deductive or inductive approach while visualizing the content during the shooting process. The deductive approach progresses from general to specific visualization and conforms to film visual narration conventions. This is the traditional cinematic approach to visual narrating. Simultaneously, the inductive method commences with particular scenes and moves towards general ones. It has a more notable visual impact than the deductive approach and is perfect for smaller video screens. Animators can choose their preferred camera approach using the camera features in any animation software.

Space Dimention

In animation, composition refers to arranging visual elements within the camera's frame. Scene composition, which involves arranging visual elements to convey a message to the audience, is necessary for designing and animating images or directing motion (Zettl et al., 2011). In order to achieve this, it is important to understand compositional and spatial devices. The arrangement of elements within the picture frame is crucial in communicating the creator's intended meaning to the viewer. An effective composition guides the viewer's eye to the aspects the maker wants them to see while communicating the visual sense and articulating the space within the frame. An effective composition

guides the viewer's eye to the aspects the maker wants them to see while communicating the visual sense and articulating the space within the frame. The visual sense is essential in conveying the work's meaning and guiding the viewer's interpretation.

A video or movie screen offers a distinct living space that intensifies events while providing an aesthetic field. The screen's structural factors, such as aspect ratio, image size, and object aesthetics, determine screen space. Unlike painting and photography, which allow for any shape or orientation, video and movie screens are standardly rectangular and horizontal, ranging in aspect ratio from 4:3 to 16:9. Different aspect sizes yield varying aesthetic effects, as exemplified by a vertically oriented smartphone screen versus a horizontally oriented movie theater screen (Zettl, 2016).

Size aesthetics concerns the objective perception of object size when presented on a screen. People and their surroundings are perceived as standard size, regardless of whether they appear in long shots or close-ups on a large movie or small video screen or whether we are relatively close or far from the screen. Abbreviations for technical terms should be explained upon their first instance. When showcased on a screen, object size is indicated by the object's relationship to the screen, contextual scale, and viewer knowledge of the object.

In animation, a three-dimensional world must be projected onto a two-dimensional screen surface (Zettl, 2016). Although the z-axis is an illusion, it is the most aesthetically pleasing dimension. The aesthetics of the three-dimensional plane are characterized by three concepts: z-axis, graphic depth factor, and lens depth characteristics. While the x-axis and y-axis of the screen have specific spatial limits, the z-axis is almost without limit. As a result, the view and camera movement have more freedom along the z-axis compared to the horizontal and vertical axes. The z-axis extends from the screen towards the horizon.

Editing

Editing is selecting and sequencing shot material from an animation production. It affects the communication process, storytelling, and style. In this case, editing will refer to how the director organizes the material in the context of time and makes it into a visual narrative.

Time

Examining the various theories and applications of time and motion in the context of new media, such as video, film and animation, is one of the essential steps in this discussion of various aesthetic fields (Rabiger & Hurbis-Cherrier, 2013). After all, moving images are the basis of animation and film. In addition to the spatial plane, animation and film require articulating and manipulating the space/time plane.

Objective (clock) time, subjective (psychological) time, and biological time are three types of time. In animation or film-making, both objective and subjective time are crucial. Objective time is the quantitative measurement of what the clock says. Abbreviations for technical terms will be explained when first used. Subjective time refers to the perceived and processed duration. Objective time is represented by a horizontal vector that shows quantity. Objective time is a measure of clock time independent of our level of involvement in an event.

In contrast, subjective time measures our level of engagement in an event and our lack of awareness of clock time. When viewers are engrossed in an animated story, they tend to be less aware of the elapsed clock time, which they later interpret as having a shorter duration. In contrast, when they are not actively engaged in an event, they become aware of clock time, which they perceive as making the event longer. Biological time is another form of subjective time that can be measured less accurately. It functions like an alarm clock, signaling the appropriate time to perform certain activities.

Time is one-way and cannot be changed. The video editor cannot create a causal effect before its cause. Although past and future events can be designated "addresses" in the time continuum, the same cannot be done with the present. The density and intensity of events in an animated story and the intensity of experiences can be manipulated by video editors to govern subjective time. Consequently, the present is perceived as a component of subjective time instead of objective time. Time perception is influenced by subjective factors rather than solely by objective measurements. One's awareness of individual moments and actions can impact their perception of the present. In heightened states of awareness, time may be perceived more clearly.

The Form of Movement & Kinetics

Movement & kinetics in this motion element consists of character motion and action (action and performance) and the perception of motion caused by camera movement (perceived motion).

Action & Performance

Each character has unique personality traits when in action. Character movement, gestures, actions, and reactions make up these qualities. The motion element, comprised of three components - gestures or body language, facial expressions, and voice tone - sets animation apart from other forms of media, such as comic books and traditional films (Steve Roberts, 2007). We often see the adaptation of comic book stories into animation. Although the storyline remains consistent, the animation provides a more immersive experience than the comic book due to the ability to witness the movements of each character. This is particularly important because the unique body gestures of each character are not conveyable through comic books.

Whereas traditional movies rely on actors to perform both the acting and voice of the characters, animation separates these roles into two parties: the animator creates the movement. At the same time, the dubber provides the character's voice (Furniss, 2014). When filming, the actor

directly explores the character's characterization by acting in front of the camera. The animator must envision and convey the character's traits through movement using 2D images or 3D models during animation. In contrast, animation dubbers are pivotal in characterizing the character's sound. Thus, the actions in animation are collaboratively executed by two entities (Webster, 2012).

Animation media has distinct advantages in creating exaggerated impressions of body language, voice tone, or facial expressions to distinguish character movement in animation and movies. These elements are intertwined to showcase a visible manifestation of a character's emotional side (Steve Roberts, 2007). We often observe animation movements that do not exist in reality, like eyeballs popping out during an intense or frightening scene or legs spinning before running in a scene where a dog chases someone.

Additionally, these movements are influenced by the characterizations of the characters. Due to the various backgrounds of the characters, each character appearing in the animation may have unique movements. For instance, a character hailing from India will typically move their head while conversing, as is the norm in India. Additionally, they may speak English or Indonesian with a noticeable Indian accent. In contrast, a character with Javanese heritage may employ more subdued gestures in their body language and maintain a distinct Javanese accent regardless of whether they speak English or Indonesian.

Meanwhile, the character movement element's role concerning other animation elements is to advance the plot (narrative element) through the character's body language and facial expressions. In contrast, the Lipsync sound synchronized to the character's motion corresponds to the dialogue (audio element) that contributes to the animation's storyline with each character's traits (Mitchell, 2016).

As a result, a character's movement in animation will not be separated from the character's background. These mo-vements, actions, and emotions originate from the character's cultural background, giving rise to distinct characteristics and identities from other characters. Therefore, a connection can be established between the character's local culture, and the acting movements displayed on the screen by the animator.

Perceived Motion

Humans typically perceive motion when an object changes its position in a stable environment. For example, individuals notice a car approaching or receding and a child running after it as it passes through the swings and slides of a playground. In such instances, people comprehend that the car and child move steadily in a stable environment. This applies even when individuals watch scenes in movies or animations despite understanding that the motion in the scene is a mere illusion conjured by a screen. Perceived motion refers to the aspect of animation that the human brain perceives and comprehends (Pikkov, 2010; Webster, 2005)especially within recurrent neural network (RNN. It arises from the camera lens movement that records a scene, which is prompted by the movement of specific characters or objects.

The Form of Sound & Structural Design

Sound is an animated audio element that features dialogue, sound effects, and music. Animated films visually represent an idea, and audio must complement the visual elements in terms of their coherence, synchrony, and mutual enhancement. Frequently, new objects appear in animations but do not exist in reality. Therefore, a sound designer must create a new sound effect that appears realistic and easily understood by the audience. According to Beauchamp's book "Designing Sound For Animation," sound design in animation involves three vital audio elements, namely dialogue, sound effects (SFX), and music (Beauchamp, 2005). A separate division in the animation pipeline oversees everything related to the sound components utilized in animation. Every sound compo-

nent has a designated function. Finally, all the sound components will be combined to generate a novel environmental experience that makes sense to the audience while viewing an animated production.

Dialouge in Animation

In the early years of animation, animators conveyed stories using character movements and gestures inspired by the pantomime and theater scenes favored by performance artists at the time. Since Disney introduced sound into animated characters, dialogue has become a prominent means of storytelling that plays a significant role in creating the on-screen reality. Often, the audience values the dialogue more than the music and special effects. Dialogue can take various forms, including on-screen dialogue that may be lip-synced or not synchronized with the character's mouth, as in scenes where the character's back is shot, but the audience still understands the character's voice..

Presenting animation with a compelling and intriguing plot involves using fundamental dialogue (Beauchamp, 2005). Dialogue has six functions: it reveals character, provides the necessary information, moves the plot along, shows what one character thinks about another, reveals conflict and builds tension, and shows how a character feels.

As previously stated, the dialogue conveys the storyline in the animation's storytelling process. Casting choices for voice actors are often tailored to the character's background and development. In animation, the character is created by the animator rather than played by an actor. A skilled voice actor can breathe life into the character on screen. As such, choosing a voice actor capable of bringing an animated character to life is crucial. For example, in animation, objective factors such as a character's origin can influence their accent or dialect, distinguishing them from other characters. If a character is from Tokyo, the creator should avoid employing a dubber from Bangkok, for instance, as the dubber may require assistance speaking with a smooth, nuanced Japanese accent. Typically, Bangkok residents use a loud and rapid tone when speaking, which does not align with the pace and tone that the animation requires. Character development in animation is not exclusively limited to humans. In animation, characters can be car objects (Cars, Tayo) or animals, such as snails (Turbo). The animation creator may employ the element of personification to these characters, necessitating a dubbing actor who can imbue inanimate objects or non-human creatures with a sense of meaning to the audience through both sight and sound.

Sound Effects

Any sound variation that conveys a character's or object's atmosphere, setting, time, place, or action is called sound effects (SFX). Alternatively, SFX are original or artificial sounds that portray imagination and interpretation of the situation displayed. SFX enhances the natural feel of movies or animations. SFX can be created simultaneously during filming. On the other hand, sound effects (SFX) are created independently of animation's visual and motion creation processes. SFX in animation are often based on the original sound of a specific object or event, but they can also imitate other off-screen objects. As stated by Beauchamp (2005), sound creators can only occasionally record sounds in the real world due to numerous distractions and a lack of control over natural sounds (Beauchamp, 2005). As a result, sound effects must be produced in a studio using various objects. Foley is the process of creating sound effects, which consist of a literal component (what is heard) and a moving component (what is felt). In this case, each sound element has denotative and connotative meanings that the audience perceives.

SFX is categorized into hard effects, soft effects, Foley, and ambiance. Hard effects refer to narrative sounds corresponding to the objects or actions on the screen. Ambiance denotes the background sound that defines the setting in the animation,

while Foley records sounds that occur in screen scenes. SFX serves several purposes, including (Kerner, 1989): Define the setting or location. For example, the sounds of chickens, ducks, and goats can be used to establish the setting of a conversation in a farmer's village while also conveying the time in the setting. For example, birds and insects can indicate the time of day. They are to create the desired effect on the program part of a scene, such as tension, calmness, or pleasantness. For example, the sound of the breeze and waves at the beach can portray two teenagers romantically seducing each other. The meaning of a scene or event is conveyed through its appearance or conclusion.

Creators can use ambiance to construct animation's reality based on their logic rather than being confined by real-world laws. This principle of exaggeration only applies to animation movements and sound effects. The sound design must remain objective and coherent even if not produced in the audience's environment. In the animated movie A Bug's Life, the sound of raindrops falling to the ground is depicted with amplified rockets or explosions, enabling the audience to partake in the insect character's perception of the rain. The text adheres to academic writing principles and language requirements, and no changes are necessary. In the animated movie A Bug's Life, the sound of raindrops falling to the ground is depicted with amplified rockets or explosions, enabling the audience to partake in the insect character's perception of the rain. Even so, when the audience hears the original sound from a source (Reality), it often needs to be more convincing and entertaining. Music, sound effects, and background noise are powerful auditory elements for creating a fictional narrative. When used effectively, plausibility will cause the audience to willingly suspend their disbelief in unbelievable laws or events to maintain and believe in the laws that govern the imaginary world.

Musical Scores

Music has a significant impact on shaping the experience of watching a movie (Mollaghan, 2015). The tense and frightening effect is lost if a war or horror movie is muted. The creator can use different music to abruptly change the impression of the setting and atmosphere in a scene. For example, they use fast-tempo music in panic and horror scenes, while a slower tempo can provide a calm atmosphere.

Music in film or animation can evoke a genuine emotional response from the audience, which can be leveraged to reinforce the narrative. Music serves several purposes, according to Robin Hoffman (Hoffmann, 2011):

Music can influence the emotions of the audience when viewing animated works. Furthermore, music can set the mood and atmosphere of a scene by representing its social, cultural, geographical, or historical setting. Creators can use music to evoke sadness or happiness in the audience.

Additionally, music can aid in the development of a character's personality. For instance, when a hero character appears, he is always accompanied by heroic music.

Music can represent an atmosphere in a scene in a specific cultural/geographical/period. This is possible when the creator utilizes fitting and available music for a specific era or culture.

Music acts as a means to transition from one scene to another, creating coherence and meaning for the audience. Moreover, it can help connect all emotional elements, facilitating better film comprehension.

Music can also manipulate a specific scene. In a martial arts scene, the creator can employ music that goes against the scene itself. Suppose a silat/fighting scene usually features tense music. However, the creator may include dangdut music to transform the tense atmosphere into a parody, portraying the fighting characters as dancing.

Narrative Content

Meanwhile, narrative and character

elements play important roles in the aesthetic morphology of animation. The character element focuses on their behavior and habits within the animation (Figure Behavior), while the narrative element helps us understand the story structure and plot of the animation. In animation, narrative elements communicate the animator's intended message and illustrate the story's development in the film through logically structured sequences that may be linear or non-linear. The narrative component of a film or animation consists of two primary parts: the story and the characters (Mou, 2015).
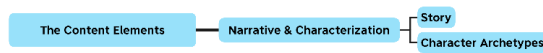

Figure 4. The content elements of animation aesthetics.

The material that will be processed in the animated film's story is referred to as the narrative element in film or animation (Wright, 2005). This element closely relates to the movie's theme and encompasses characters, conflicts, problems, set locations, and time. These elements interact with one another to form narrative elements linked by the law of causality. This law of causality, in conjunction with space and time, is pivotal to creating a film. For instance, a scene depicting a car accident (effect) will be introduced by a scene featuring a speeding or drowsy driver (cause).

Story

Animation creators are similar to other artists in their approach to creating artwork. Ideas can arise from their surroundings or after viewing another artist's animation. Inspiration can occur consciously or unconsciously. Psychologists like Sigmund Freud and Ernst Kris have suggested that artists may get ideas for their artwork from daily life experiences (Freud, 1962; Kris, 1953). Since childhood, these experiences have motivated them to produce artworks based on their thoughts and life experiences. These influences manifest unconsciously in their artworks because they have blended with their daily activities. For instance, the local culture in Indonesia can impact the storytelling style of local animation creators through their everyday interactions with their surroundings. This results in an unconscious influence on their language, behavior, and thinking. Their animated stories can diverge from folklore or arise from problems around them, instilling anxiety in animators' minds. This anxiety is then combined with imagination and realized into animated works.

As Jean Ann Wright notes, story ideas can derive from anywhere. According to Wright (2005), creators can develop animation ideas by reflecting on their life experiences since they are already familiar with them. Solitude, introspection, and contemplation of one's past or childhood can lead to the generation of fresh ideas. (Wright, 2005).

Wright suggests that after deciding on the theme and story, creators should contemplate the type of characters that will feature in the animation story. In this case, an animation character is an object that will be used as one of the critical points in the animation story's storytelling process (Mou et al., 2013). Therefore, the character must possess a unique and captivating persona that effectively conveys the creator's intended narrative to the audience. Creators can derive inspiration from the personalities of those in their circles when crafting animated characters. Given a diverse cast of characters, each persona will have numerous characterizations. These characterizations may give rise to conflicts of interest between characters, which a creator can use as material for weaving together a compelling narrative.

The creator always considers the story's setting when developing the theme, characters, and plot. Each animation is set in a specific time and location (Wright, 2005). Thus, everything depicted in the animation inevitably influences the current world or situation. If a creator were to make an animation with a story and theme set in Bandung, everything in the anima-

tion would undeniably reflect the identity of the city of Bandung. For instance, the primary character speaks Sundanese, and there are Sundanese clothing and weaponry, as well as building backgrounds and natural objects like the Satay building or Tangkubanparahu mountain. Thus, animators must appreciate that the location setting will greatly influence the visual, audio, and motion components since each tribe or nation has distinct and different bodily gestures. Because of its substantial impact on other aspects (audio, visual, and motion), it is not surprising that this narrative element is often considered the basis of a film or animation piece (Marx, 2010). The narrative element and these other aspects are interrelated and influenced by one another since they all contribute to the story the creator intends to convey.

Character Archetypes

In the discussion of image design, it is important to acknowledge that a character's visual form alone cannot fully bring it to life. A character also requires a distinct "soul" that differentiates it from others. Thus, a well-designed character must possess a personality and habits that align with its designated role. To achieve this, animation creators must establish a unique archetype for each character, considering at least three key factors:

In an animated story, what is the character's role as an antagonist, protagonist, or helper?

What are the character's background and life experience that underpins his/her personality (patient, timid, cunning, loving)?.

How does the background story in the animation affect the character design?. This is exemplified by Rapunzel's long hair or Pinocchio's long nose, which does not appear out of anywhere, but has a story behind it.

Psychology, physiology, and sociology are the three dimensions crucial in comprehending an animated character. Defining these dimensions is key to understanding an animated character. The

psychological aspect is fundamental to a character's personality, encompassing traits, habits, strengths, weaknesses, hobbies, intelligence, temperament, and other aspects. Physiology refers to the character's body shape, which involves costumes, accessories, skin tone, clothing color, and other visual elements. This physiological dimension is impacted by the character's traits, habits, and emotions and pertains to their character psychology. In animated storytelling, the sociological dimension is linked to the character's story elements and life history, including their background, social status, residence, family, religion, culture, and relationships with other characters. This sociological dimension is closely tied to the story's setting.

Style in Animation

The art style is a quantitative comparison within the compound descriptive genre of art, requiring numerous clearly defined specifications. An animation style comprises traits or characteristics frequently recurring in different works or across various places and periods. Typically, a set of characteristics must appear repeatedly in many animations, as deemed necessary by historians and critics, to be considered a distinct style. It is important to consider style as a significant organizational principle rather than a superficial artwork aspect. Styles in art are identified as recurring complexities, with few considered central or primary historical styles.
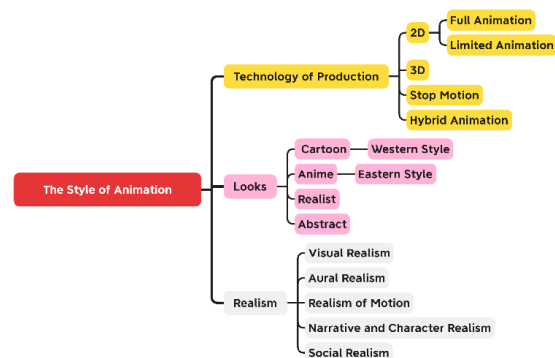

Figure 5. The Style elements of animation aesthetics.

A single animation work can also define a style if it is the only known work by a particular animator. Historical styles refer to features of art that are believed to have existed during a specific historical period or are uniquely associated with a particular artist or group of artists. Some styles are abstract or repetitive and can be applied to works from various periods and locations.

The style is analyzed through its form and content elements in examining the animation work being studied. Thomas Munro provides numerous examples of creating a distinct name for an artistic style to set it apart from earlier. These names may be based on a period (e.g., Renaissance style, Post-Colonial style), location (e.g., European/Scandinavian style, Northern Italian style), person - including race/tribe, country, or religious group (e.g., Islamic style, Japanese style, Hayao Miyazaki style), or even derived from another animation style as evidenced by production techniques or aesthetic in certain literature.

Technology of Production

Style can typically be identified by distinct production techniques utilized in animation, including 2D techniques such as frame-by-frame, limited animation, cut-out animation, 3D, stop motion, Rotoscope, motion capture, motion graphics, or hybrid animation that blends live-action with animation on film.

Over time, technological advancements have played a significant role in how animation incorporates and evolves its visual, audio, character performance, and storytelling elements. This influence has given animation creators many choices for expressing their desired animation concept. Modern animators have more production options than those in the early 1900s. Not only has equipment for animation production been developed, but software that enables anyone to learn and create animation works has also been created.

Since the late 20th century, animation techniques have been extensively used in production, advertising, movies, cre-dits, and visual effects, making them an indispensable element of film and television. The rapid advancement of technology has led to the diversification and widespread implementation of computer-generated animation techniques in all production industries. Depending on the timeframe, scenario, and content, computer animation techniques can save time and money while enabling producers to utilize them in either two dimensions (2D) or three dimensions (3D). Computer modeling techniques can easily create and animate fictional characters or objects, as well as people, events, and locations that are difficult, costly, or infeasible to capture on film. These specialized animation techniques are now being widely employed across various industries. The rise in demand and expanding application areas have emphasized aesthetics and design, adding a fresh perspective to the application process.

Looks

New animation styles have emerged with the advancement of animation production technology. There are at least four familiar looks in animation, namely the cartoon-style animation looks seen in Western animation, animation with heavy manga visual influence at the anime looks in the East, the realist look that tries to display the original form of visuals in the real world, and the abstract looks that tend to be accessible according to the creator's expression. Nowadays, many animation creators, such as those behind "The Amazing World of Gumball," incorporate a mix of visuals in their works. The Gumball animation series blends different techniques, such as live-action footage, 2D animation, 3D animation, Claymation, stop-motion animation, and traditional hand-drawn animation.

Paul Wells divides animation into three styles: orthodox, experimental, and development (Wells, 2013a). Animation in its traditional form alludes to the typical form of animation centered on visuals and narrative pioneered by Disney. This indicates that this form of animation was

initially intended for mass reception and is industrial. Its conventions are founded on those that have been commercially successful. Experimental animation is the antithesis of traditional animation, defined by abstract elements instead of figurative ones, non-continuity, and a creative interpretation of meaning. It is important to note that experimental animation prioritizes the creator's expression over traditional linear narrative styles. Instead, it highlights abstract visual elements that may not have an inherent purpose or meaning. Unlike orthodox animation, experimental animation is an individual endeavor showcasing the creator's style. Meanwhile, development animation is a type of animation that melds the structure and essence of orthodox and experimental animation. In some respects, animation development is more conventional, while in others, it is more explorative.

Realism in Animation

As stated previously, this theory of aesthetic morphology considers the context of the art object being studied and its physical attributes. In animation, this refers to the degree to which the creator's work is connected to and reflective of reality. In this case, Ulo Pikkov argues that animation strives for realism, bringing the representation of reality as close to the original as possible to create an illusion of fantasy (Pikkov, 2010). Realism in animation involves modifying conventional fictional codes to persuade us of the reality and materiality of what we see in the animation, despite our awareness that it is not real but simply an image created by the animation artist (fantasy). In Disney animation studio films, Paul Wells elucidates the concept of realism in animation, as evidenced by the viewers' acceptance of a mouse character (Mickey Mouse) speaking and performing human-like activities (Wells, 2013b). Although the world of Disney animation is fantastical, its components strongly resemble real-world objects. The illusion of realism in this animation style is often referred to as hyper-realism. Wells introdu-

ced four factors that should be considered to determine the level of realism in animation: design concepts, characters, sound, and movement. Meanwhile, Stephen Rowley took the more complex route of assessing the level of realism in animation using five different parameters (Rowley, 2005):

Visual Realism: the degree to which the audience can understand the world settings and animated characters, as opposed to the world and characters from the actual physical world.

Aural Realism: the degree to which the audience perceives the sounds in the animated world/environment and characters as the sounds in the actual physical world.

Realism of Motion: the extent to which the characters in the animation move in a way that the audience understands to resemble how humans move in the real world.

Narrative and Character Realism: the extent to which the story/events and characterizations of the fictional characters in the animation are constructed to make the audience believe that they are watching a story and characterizations that feel real.

Social Realism: the extent to which the animated film is constructed to make the audience believe that the fictional world in which the events occur is as complex and diverse as the real world.

When evaluating the level of realism in animation, it is crucial to examine how the audience perceives the reality portrayed in animated works rather than how closely physical parameters match the real world (Rowley, 2005). Despite this, both Wells and Rowley stress the significance of scrutinizing the creator's connection with the animation or, more generally, questioning the creator's genre. Patterns or structures used to describe individual works of art and their construction are referred to as genres. In this case, the animation creator's chosen genre is closely related to realistic animation. Discussing the animation genre is equivalent to discussing the form and style of animation selected by the creator, including formal aspects and content
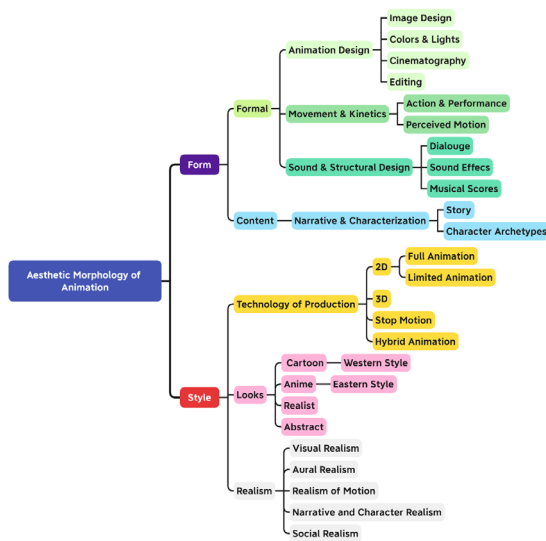
Figure 6. A complete chart of the aesthetic morphology of animation.

CONCLUSIONS

This research demonstrates a strong connection between the history of animation aesthetics and the study of aesthetic morphology in animation. Therefore, the analysis of the aesthetic morphology of an animation requires a considerable amount of data. Figure 6 shows a comprehensive chart of animation's aesthetic morphology.

When researchers study the aesthetic morphology of animation, they need to consider many factors. Researchers must consider not only the visual aspects but also the motion, narrative, and sound aspects in a balanced manner. Animation comprises four intertwined elements; therefore, disregarding any one element can skew research on the characteristics of animation.

Additionally, the study's findings indicate that researchers should analyze the animation artifacts and the context in which the art object is situated. This refers to the degree to which an animation work created by the artist connects and mirrors the real world.

An animation style may be identified by referencing a specific period, location, person, or cultural reference. The term denotes the quantitative accumulation of similarities among various animation works. Due to common interests, cultural similarities, geography, ethnicity, race, and nationality, many animation creators can disseminate or adopt various animation styles. The naming convention aims to differentiate one piece of animation from another.

Comprehensive analysis of style falls under the umbrella of morphological description or analysis. It characterizes the object not only in the abstract traits and types, such as red, blue, tragic, comic, and so forth, but also in the recognized styles - combinations of characteristics that have tended to recur throughout art history. Thus, naming must be based on particular goals and uses.

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