Designing Anthropomorphic Cat Family Characters in 2D Animated Short Film "Hanyut"

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Abstract. Jakarta is often, if not regularly, being hit by a natural disaster in a form of floods. Floods have affected not only human but also domestic animals like cats, chickens, and pigeons, especially in Kampung Pulo. There are not many films out there that show the struggles and sufferings of animals during floods which is why author and team decided to make an animated film about it titled "Hanyut"; how are their conditions; how can they survive the events. In the scope of the film preproduction, author decided to focus on character design which is designing the cat family characters in the 2D animation film "Hanyut". The designs will be limited on character designs for the cat family that consists of the mother cat and her two kittens. Although anthropomorphic, these cat characters cannot talk and walk on 4 feet (quadrupedal), but have similar personalities and emotions as human beings. Moreover, the research design will be limited on the drawing style, basic shapes, body proportions, as well as hair and eye colors that will be used on the characters. Data collection for this qualitative research was done by literature reviews, on-site observations, observations on animation films, and surveys about the characters' appearances to be used during the character designing process. By doing this research, the writer wants to create the cat family corresponding to the story plot and can attract people's sympathy with the characters' characterizations.

Keywords. cats, character design, 2D animated short, floods, Kampung Pulo.

1. Background

Floods have significant effects on animals that have to face them directly. Elena Barnard, the admin of Animal Friends Insurance social media, wrote on Animal Friends Insurance website about the impact of natural disasters on animals. Barnard said that natural disasters like floods have a big impact on the life of wild animals and domesticated animals [1].

Because the short 2D animation film "Hanyut" is about the survival of a cat family through a flood that was based on real life events, the cat designs should be realistic enough to the audiences. But without some tweaks in their personalities, the characters will just become any cats without any unique characteristics. Therefore, in order to design the cat family characters, the writer has to think of using some methods to make the characters not only looked realistic, but also appealing and relatable to the audiences. These methods will be necessary to help the writer in delivering the film's messages to the audiences.

A way to make the characters become more relatable to the audiences is by using anthropomorphic elements to the designs. But to make them still look realistic, the anthropomorphic

elements should only be used for the characters' emotions and psychologies. That means that the cats will still be quadrupedal and unable to talk. As for the characters' feelings, they will be shown through their face and body gestures, and through their cries.

The usage of basic shapes, body proportions, and colors can also make the characters more appealing to the target audiences. They can help the characters to show their own characteristics to differentiate them from each other, and also to differentiate them from another animation films that feature cat characters. They can also help to show the anthropomorphic elements of the characters, like the change of the cat's eye shapes or mouth shapes to change their expressions. Therefore, the writer thinks that anthropomorphic elements, along with the usage of basic shapes, good body proportions, and suitable colors, will be essential to create some realistic and relatable characters in the designing process of making the cat family characters.

2. Research Question

A research question was concluded based on the background above to be answered in the designing process, which is "How to design anthropomorphic cat family characters in 2D animated short film "Hanyut"?"

3. Research Methodology

The data collected for this designing process were qualitative data. They were collected by using literature reviews, surveys, on-site observations, and observations on animation films. Literature studies were used on books, journals, and other online medias, while surveys were done by using google forms.

4. Literature Reviews

4.1 Three-dimensional Characters

Tillman explained that the story behind a character can make the character design more appealing [2]. When a character has an interesting background and a suitable motivation, the character will become more alive and not flat. The impression of alive and real that the character emits can attract audiences, nor their sympathy.

4.1.1 Character's Physiology

Physiology traits of a character includes every trait that can be seen by naked eyes, like gender, age, height, race or species, eye color, body shape, and physical abnormalities. In animation, everything or anything can become a character (Beiman) [3]. Those characters can be humans, animals, plants, organic matters, inorganic matters, and others. All of that can be achieved because animation is not connected to the real world.

4.1.2 Character's Sociology

Character's sociology includes every social aspect of the character's life. Some of these social aspects are economy condition, the environment around where the character live, the character's hometown, the character's family, the character's abilities, the character's belief, the character's occupation, and the character's role in society. In character design, character's background will affect the way the character will think and do in the story.

4.1.3 Character's Psychology

For short, a character's psychology filled with how the character acts when faced with a problem. Character's psychology is affected by their sociology and physiology.

4.2 Character Design

Character design has a tight connection with the story. Tillman said that according to his experiences, he

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never found a character with a very interesting design that the story is no longer important [2]. Beiman also said that a good character can be developed from a story, and a good character can also inspire a story [3]. Hence, every character need stories to become memorable and attached to people.

4.3 Basic Shapes

Sloan said that the usage of shapes in making a character were used because humans have a natural ability to recognize lines and patterns. With their ability to recognize those patterns, people can easily recognize characters that was created by using shapes.

According to Tillman, every shape has their own characteristics that people think by relating them to their forms [2]. For example, a square can represent stability, trust, order, uniformity, safeness, and masculinity; a triangle is identic with conflict, aggression, energy, ingenuity, and pressure; while a circle can show unity, perfection, protection, joy, elegance, childish, and entertaining.

4.4 Drawing Styles

According to Sloan, drawing style is a collection of basic concepts with many different variations, that make them hard to categorize. But human eyes can differentiate each of the drawing styles by just looking at them [4]. Besides, Tillman said that drawing style can determine which target audiences the creator aimed [2]. This is generally connected with human brain's ability to process information. The younger the target audience is, the less information their brain can process.

4.5 Cat's Physiology

In Animal Anatomy for Artists: The Elements of Form, it was said that domestic cats have the characteristic of having a round skull, short snout, and long whiskers. Their fangs are big with small incisors. Their eyes are large and facing front for binocular view, with vertically narrowed pupils [5].
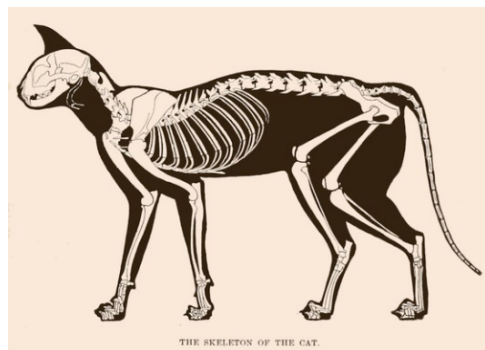
Figure 1. Skeleton of a cat (Source: Mammalian Anatomy, 1898)

4.6 Cat's Hair Color

Atlas of Feline Anatomy for Veterinarians Second Edition book said that the color of cat's hair are the results of genetic inheritances and of genetic interactions between some different chromosomes. For example, the Spotted gene ("S") is responsible for bringing out white colored hair on cats; the Tabby gene ("T", B1 chromosome) brings out stripe patterns on cats when working together with the Agouti gene; and the eumelanin-inactivating X-linked orange gene ("O") in female heterozygous cats (Oo) will resulted in a female cat with two colored hair, Orange and black [6].

5. Visual References and Observations

There are some references that the writer needs in order to create a suitable design for the cat family

characters. The writer took some elements from these references and merge them together to make a suitable art style for the film. These references are from other animation films or observations for each of the characters.

5.1 Drawing Style

The drawing style references used from the animation film *The Aristocats* are the coloring method, body proportions, and the line thickness. The coloring method in *The Aristocats* didn't use any shadow, with semi-realistic body proportions, and medium thick lines. The drawing style references used from *Pokémon* franchise are their unique body parts, like their whiskers and tails; and the drawing style references used from *Boruto: Naruto Next Generations* TV series are their semi-realistic body proportion and their realistic color choice.

5.2 Si Telon's References

Si Telon's body proportion reference was taken from *Duchess*, the mother cat in *The Aristocats* animation film , with her height being about 3,2 heads tall and her length being about 2,5 heads long.

Figure 2. Duchess' body proportions. (Source: The Aristocats (Disney, 1970))

Si Telon's body shapes reference was also taken from Duchess'. Duchess' body has curves with sharp edges, and is dominated with round shapes, which giving off a feminine impression.

Si Telon's hair and eye color references from another fictional creations were taken from Mike of Chi's Sweet Home and Shamisen of The Melancholy of Haruhi Suzumiya that have calico patterns with greenish eyes.

Figure 3. Shamisen (Source: The Melancholy of Haruhi Suzumiya (2006))

Hair and eye color references from on-site observations for Si Telon were taken from stray cats that live in Kampung Pulo and a stray cat that lives near the writer's house.

Figure 4. A cat with calico patterns from Kampung Pulo.(Source: On-site Observation)

5.3 Si Loreng's References

Si Loreng's body proportion references were taken from *Marie*, the female kitten from *The Aristocats* animation film, and *Mikazuki* from *Boruto: Naruto Next Generations* TV Series. Marie's height is about 2 heads tall, and her length is about 1,5 heads long; while Mikazuki's height and length are about 2,5 heads tall and long. Marie's body is dominated by the round shapes, and has curves even though they are not as curvy as Duchess'. These shapes make Marie looks cuter, and also give her a bit of a feminine image.
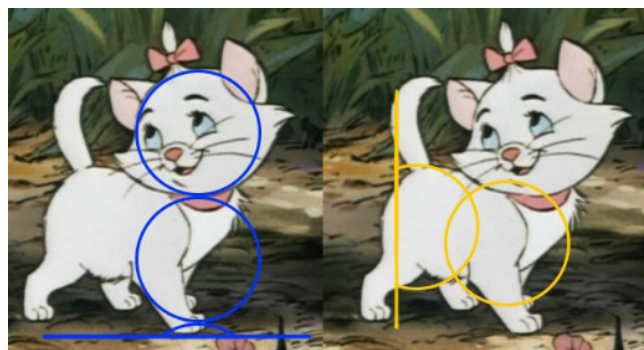

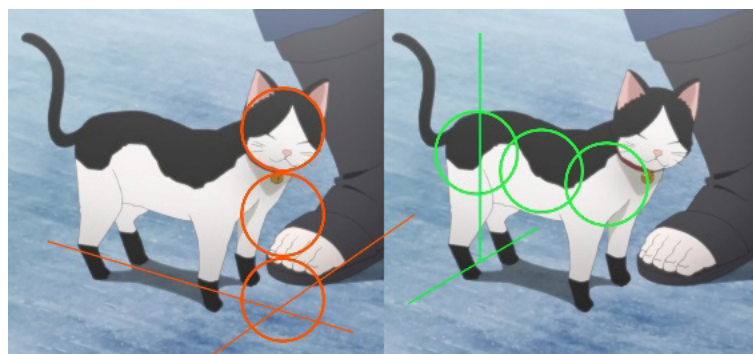**Figure 5.** Marie's body proportions. (Source: Aristocats (Disney,1970))

Figure 6. Mikazuki's body proportions. (Source: *Boruto: Naruto Next Generations* TV Series (2017))

Si Loreng's hair colors references from another fictional creations were taken from *Garfield*, and a cat from *Beelzebub* TV series. Those cats have the orange tabby patterns on their bodies.

Figure 7. Garfield. (Source: Garfield (1976))

From our on-site observations, Si Loreng's hair and eye colors were taken from some stray cats in Kampung Pulo and the writer's cats.
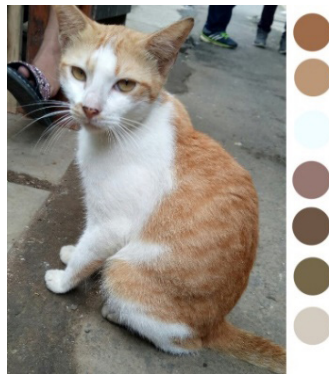
Figure 8. A cat with orange tabby patterns in Kampung Pulo. (Source: On-site Observation)

According to felineliving.net, the eye color of kittens will be pale blue when they were born, and the color will start to change to their adult color when the kitten enters the age of 6 weeks until finally the color permanently stays when the kitten is 3 months old [7].

Figure 9. The changing eye color on the writer's cat. (Source: On-site Observation)

5.4 Si Kumal's References
Si Kumal's body proportion references were taken from *Berlioz*, one of the male kittens *The Aristocats* animation film and *Mikazuki* from *Boruto: Naruto Next Generations*. Berlioz's height is around 2 heads tall, and his length is around 1,5 heads long; while Mikazuki's height and length was about 2,5 heads tall and long.

Figure 10. Berlioz's body proportions. (Source: The Aristocats (Disney,1970))

Si Kumal's body shapes reference was also taken from Berlioz's. His body is roundish, and his face has a trapezium shape. This body shapes make him looks cuter and a little bit more masculine.

Si Kumal's hair and eye colors references from another fictional creations were taken from Mikazuki of *Boruto: Naruto Next Generations* and *Sylvester* from the *Looney Tones* franchise. These cats have black and white hair. Mikazuki also has the pale blue eye color like what other kittens have.

Si Kumal's hair and eye colors from our on-site observations were taken from a stray cat in Kampung Pulo and some other cats from social medias.

Figure 11. A cat with white and black patterns in Kampung Pulo. (Source: On-site Observation)

6. Process and Results
6.1 Final Drawing Style
The drawing style used was based on The Aristocats (1970)'s and Boruto: Naruto Next Generations's semi-realistic drawing styles, which is in line with Tillman's drawing style theory about creating drawing styles according to the target audience we want to reach out [2]. Because the target audience of "Hanyut" are people around 15-21 years old, the drawing style that we should use have to be more realistic with more complex colors. Besides, the decision was made according to the responses of our surveys about which drawing styles are more appealing to our target audiences.

The drawing style of Pokémon franchise was also used to create unique shapes of whiskers and tails for the cat characters in "Hanyut" animation film.
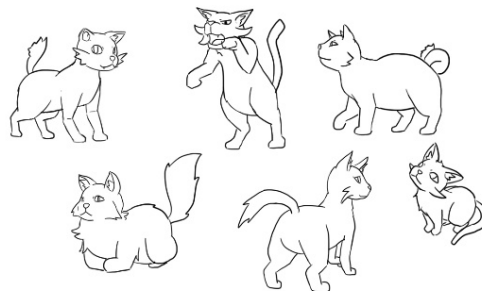

Figure 12. The drawing style of "*Hanyut*" animation film.

6.2 Final Design of Si Telon

Si Telon is a female stray cat with calico pattern hair that lives in Kampung Pulo. She is 1,5 years old, and she gave birth to five kittens recently. Unfortunately, out of all five kittens, there are only two left that are still survived. The happy and energetic Si Telon is now stressed out and is willing to do anything to keep her remaining kittens alive.

Figure 13. Si Telon's final character design.

Si Telon's height is 3 heads tall, and her length is 2,5 heads long. Her body shapes are rounds with some sharp edges to show her motherly, feminine, nice, and quick natures. She also has a heart-shaped pattern on her right shoulder to show her loving heart. She is a calico cat, so she has orange, black, and white-colored hair. This pattern is the most identic pattern for female cats. Her greenish eyes show harmony and fertility, and also quite a common color for a cat's eyes.

Si Telon also has a human-like expressions, because she can move the muscles around her eyes quite freely. Besides the eye muscles movements, her expressions are also shown by her ears, eye pupils, and whiskers movements, and her body gestures.

6.3 Final Design of Si Loreng

Si Loreng is a female stray kitten with orange tabby patterns that lives in Kampung Pulo. She is 6 weeks old, and she likes to play and interact with her environment. Si Loreng's height is 2,5 heads tall, and her length is 1,75 heads long.

Her body shapes consist of a lot of circles and a lot of sharp edges to show her active, rebel, and cute side. Her hair patterns are orange tabby, which help her to look more jolly and naughtier. Her eye color is pale blue, because she is only 6 weeks old, meaning that her eye color has not started to change yet.

Si Loreng has humanoid expressions because her eye muscles are able to move more freely than cats in the real world. She also shows her expressions with her ears, eye pupils, and whiskers movements, and her body gestures.

Figure 9. Si Loreng's final character design.

6.4 Final Design of Si Kumal

Si Kumal is a male stray kitten with white and black hair patterns that live in Kampung Pulo. He is 6 weeks old, and he is a quiet, peace-loving kitten. Si Kumal's height is 2,5 heads tall, and his length is 1,75 heads long. His body shapes consist of circles, with a bit of triangles and squares. These shapes were used to show his cute, masculine, in order, and pressured self. His hair patterns are white with some black spots as a contrast to Si Loreng's orange tabby patterns. The patterns are also used to show his innocent nature.

Figure 15. Si Kumal's final character design.

His eyes color are also pale blue, because he is only 6 weeks old, and his eyes are just about to start to change color.Si Kumal can make some human-like expressions because he has the ability to move his eye muscles better than real life cats. Besides, his ears, eye pupils, and whiskers movements, and also his body gestures, are able to help him to show his expressions.

7. Conclusions

To design anthropomorphic cat family characters in the 2D short film "Hanyut", the writer has to consider the usage of drawing style, body proportions, body shapes, and colors used in the designing process. These categories were chosen according to the researches done about the topics, to fit into what the film aimed.

From this designing process, drawing style of a film should be adjusted with the designated target audiences. In the film "Hanyut", semi-realistic drawing style with a quite complex color choices was used to match with our target audiences which consist of people around 15-21 years old.

The cat's body proportions used for this designing process are close to the real cat body proportions. The mother cat's body proportion was 3 heads in height and 2,5 heads in length, while the kittens body proportions were 2,5 heads in height and 1,75 heads in length. These proportions were decided based on the writer's live observations, and from The Aristocats film and Boruto: Naruto Next Generations TV series.

In "Hanyut", the body shapes for the cats were adjusted according to Tillman's theory about basic shapes to show each cats' characteristics. Besides, the body shapes were also chosen based on the result of live observations and chosen references, that are from The Aristocats film and the Pokémon franchise.

The hair and eyes color used for the cats in "Hanyut" were the same with real life stray cats' hair and eye colors, with some other references from another fictional characters. The hair and eye colors were also chosen to help people in identifying the cats and their natures, like how the calico patterns that are identic to female cats were used for Si Telon; how the orange tabby patterns that often linked to naughty nature of a cat were used for Si Loreng; and how the dominant white color that shows innocence was used for Si Kumal.

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