ULTIMART

STORY DESIGN IN FINE DINING PROJECTION MAPPING PROJECT "SI DULANG"

Yohanes Merci Widiastomo

Abstract: *Projection technology is a technology that is familiar to modern society. It has been seen a lot in everyday life, from attending class lectures and watching movies in the theater. Projection technology is also used in creating art, such as projection mapping in various objects. Projection-Mapping is one of the technological achievements that opens complete access for artists to create and tell stories uniquely. Storytelling is something that humans always do over generations. The usage of technology these days is not limited in terms of form. One of the innovative ways to use projection mapping is "le Petit Chef." The combination of fine dining restaurants and the immersive experience when watching animation on a consumer table has positive outcomes for the restaurant industry. Based on the case study of projection mapping named "le Petit Chef", this research will focus on creating a story for projection mapping titled "Si Dulang". This research will also identify the factors the storyteller needs to consider when adopting new technology.*

Keywords: *storytelling; projection mapping; fine dining; animation*

Introduction

Storytelling is an art that is very old but still relevant today. Greene (1996) says that times are constantly changing, culture is also changing, and the existence of storytelling can continuously adapt to the conditions and situations around it. One of the things that play an essential role in storytelling is the human desire always to communicate feelings and experiences through the art of storytelling. According to Sawyer (1967), primitive forms of storytelling are like dancing, rituals or tribal ceremonies, and other things to give expression to something.

Aristotle said that a story must have emotion, fear, and catharsis. It is the foundation of modern storytelling elements that exist today. Miyamoto (2017) added

that Poetic's book explores tragedy in storytelling that develops into a modern storytelling structure. The book has six principal essences of storytelling: plot, character, thought, diction, song, and spectacle. Chatman (1978) further said that apart from the elements of narrative, there are two essential parts: the story itself and the chain of events that occur in a story. Furthermore, Chatman explained that the distribution of contexts in a narrative is closely related to semiotic theories, such as the theory expressed by Saussure previously regarding Signifiers and Signified in semiotics.

Another aspect that influences the development of storytelling is the presence of technology. Projection mapping is a method of conveying images through a projector that can be displayed not only

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on a screen but in the form of walls or other objects that previously were not a medium for displaying moving images. In its application, projection mapping can stimulate the emotions of the audience. It was explained in a study conducted by Ekim (2011). This study was called the Yekpare Project, where the projection mapping method displays the visual effect of light on a building wall.

Apart from its use on building walls, one of the well-known products from the projection mapping method is Le Petit Chef, made by Skullmapping. The uniqueness of Le Petit Chef is the use of projection mapping in the room to provide a new experience for visitors who attend a restaurant. On this occasion, restaurant visitors will be entertained by moving images displayed on the dining table. According to Williams (2021), Le Petit Chef is a projection-mapped dining with branches in several parts of the world. It shows that the community can well accept this adaptation. Lalomia (2022) Le Petit Chef is an exciting uniqueness. Besides combining fine dining and projection mapping concepts, restaurant visitors get a positive impression from the content. Exciting story and visual aspects give visitors a warm experience and learn something.

This background motivated the researcher and team to explore more about the experience felt by visitors and how to make it for Indonesian cuisine. Therefore, cooperate with several parties. The first party was a UMN Film lecturer named Christine Mersiana Lukmanto, who has an interest in doing visual design. The second party is MDN (Multimedia Digital Nusantara), an animation studio that has explored the field of projection mapping. Then the last party is Ms. Adestya Ayu Armeilia – Deputy Head of the Hospitality Department, who has a background in the culinary field. Each party has a role in this research.

The research questions that will be explained in this paper are:

1.   How to design stories for projection mapping in fine dining?

2.   How did technical factors impact the story and creative treatment when producing the prototype of "Si Dulang?

At the end of this research, the authors and team will produce a prototype which MDN will then consider to develop this product to have commercial value.

Methodology

This research approach used by the researcher is qualitative. This approach was chosen because the researcher will focus on the factors that will impact when creating a story for similar projection mapping in the future.

1. Multimedia Development Cycle

In the development phase, the researcher used five stages multimedia development cycle as can be seen in Figure 1. The stages are initialization, Blueprint Design, Assets Preparation, Product Development, and Testing & Validation (Rickman Roedavan, 2022).

Figure 1. Stages of Multimedia Development Cycle (Source: Roedovan, 2022)

a. Initialization

The first step is to discuss the menu with Adestya. Bali became the theme of food and storytelling (Kruger, 2014). At this stage, Adestya has selected the fine dining menu. The planned output for making this prototype is a hybrid form, which will combine 2D animation forms and 3D animation forms. Blueprint Design

Based on the analysis of data that has been collected and direct observations made, the author and the team made a plan for making a prototype with the title Si Dulang. Si Dulang is an original character created based on the data obtained and combined with a concept designed by the research team. The author and the team will bring up one of the Balinese stories as a compliment from a cultural perspective apart from the visual aspect attached to the attraction. It is because the theme chosen for now is Balinese dishes.

The genre that will rise in this narration is the genre of adventure. This genre was chosen because it is relatively easy to understand and represents Indonesia's archipelago in the long term.

The visual design for "Si Dulang" was assisted by Christine, who focused on the character and environment design (Lukmanto, 2022). It can be seen in Figure 2, the design of Dulang's character wearing clothes that support his adventurous activities and full of curiosity.

Christine also designed the antagonist and supporting characters: Barong, Rangda, and Pecalang. These characters represent Hindu culture as a majority religion in Bali. Barong represents goodness, visualized as a lion-like creature, and Rangda represents evil (Pringle, 2004). As an illustration, it can be seen in Figure 3 listed below.
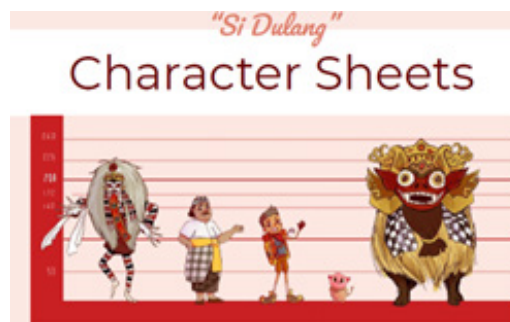

Figure 3. Si Dulang Character Sheet
(Source: Personal research documentation)

Christine also creates environment designs based on the Bali environment. In the early stages, the researchers break down which area of the environment will be used in animation as can be seen in Figure 4. The purpose of doing this is for the basis of technical analysis at the later production stage.

Figure 2. Si Dulang Concept
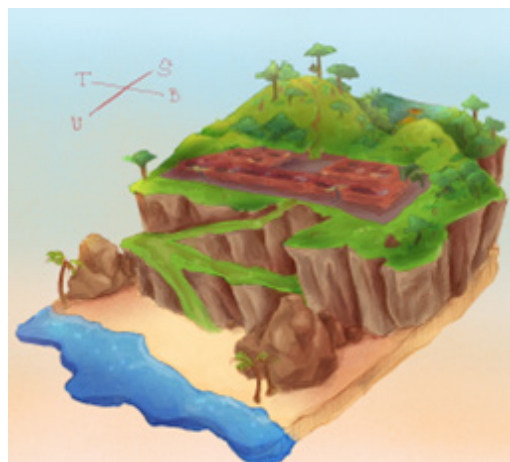(Source: Personal research documentation)

Figure 4. Si Dulang Environment
(Source: Personal research documentation)

b. Asset Preparation

After the initiation phase, the researcher and the team created 3D Modeling for characters and environments. This stage involves the help of Christine and several artists recruited to do 3D production. The production team will later be tasked with creating 2D and 3D assets, animating, and post-production. 2D and 3D Assets created using After Effects and Blender. In general, the asset preparation can be seen in the following chart or Figure 5.
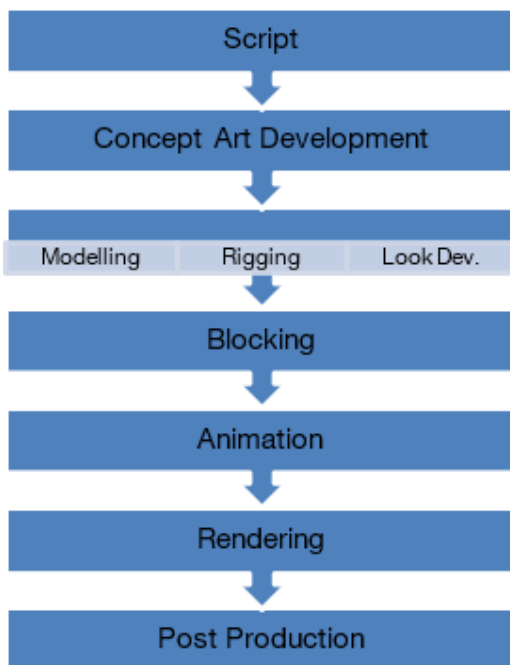

Figure 5. Asset Preparation Phase
(Source: Personal research documentation)

c. Product Development

The product development process started when the researcher and team entered the animation phase. In this phase, the production team needs to carefully animate with the researcher's direction because of the technical aspect that must be considered for creating this projection mapping. This phase ended with the 2D and 3D render completed.

d. Testing & Validation

After having the product, the research team will conduct prototype dissemination by conducting trials at limited places and invitations. Given the relatively limited time, the research team will conduct trials with only one course out of the plan.

2. Story Structure Framework

In terms of storytelling, the writer will use a three-act structure. It is because structural elements in narrative storytelling are crucial elements that make it easier for the audience to understand the story. He explained simply that the story can be divided into three parts, namely, Setup (act 1), Confrontation (Act – 2), and Resolution (Act – 3), as can be seen in Figure 6 (Field, 2005).

Figure 5. 3 Act Structure
(Source: Field, 2005)

Result

1. Story of Si Dulang

At the beginning of this research, data about projection mapping is collected from the literature or books. After that, the team collected data from online sources for data regarding the projection mapping carried out by Le Petit Chef. The author analyzes data from references and reviews found in online media to obtain primary data for this study.

The Balinese dishes based on Adestya's course were designed into four stages. The course stage design for the

shown in Table 1 as follows:

Table 1. Scene of Si Dulang
(Source: Personal Research Documentation)

Course & Dishes	Story Concept
Course 1: **Rujak Kuah Pindang**	Dulang first met Barong in a forest in Bali. Si Dulang helped the barong recover his strength by making Rujak Kuah Pindang with the available ingredients.
Course 2: **Be Pasih Basa Genep**	After meeting Barong to recover his strength. Barong and Dulang go directly to the village to save the village. With all his remaining strength, Barong manages to drive Rangda away. This scene will end with Si Dulang making soup for Barong and Pecalang.
Course 3: **Ayam Betutu**	Dulang prepared himself and the villagers to fight Rangda. Tray make food full of energy to increase the strength of the villager. This episode ends with the return of Rangda.
Course 4: **Fruit & Pies**	Barong faced Rangda again and finally managed to beat Rangda forever.

The logline of this story is:

Si Dulang, an adventurous cook, meets and helps Barong, a sacred being for the Balinese people, fight Rangda, who is terrorizing the village.

In this research, The author provides a pattern that is easily digested by the audience. The author applies a 3-Act-Structure that consists of Setup - Confrontation - Resolution.

a. The setup will contain the problems that Si Dulang will solve. This act will introduce Si Dulang as the main character in this story. Here the writer will try to briefly give the audience about the character's motivation, character goals, and a little background of Dulang. The duration of this section is 30 seconds to avoid audience boredom. The treatment that will be used in the making Act – 1 is motion graphics and 2D animation.

b. Confrontation contains the actions of Si Dulang and Barong to solve the problem. This section will begin with the appearance of the Dulang at the beginning of this section. The main problem is that Si Dulang feels sorry for Barong, that beat up by Rangda. Finally, he wants to help Barong to recover. The duration of the second part is quite long, about 2 minutes. The threat that will be used in Act - 2 is 3D animation.

c. This section will show Dulang making the dishes that the audience will be consumed at the table. At the end of each section, the audience will be served real food in front of them. Si Dulang decides to help Barong by cooking Rujak Kuah. This section begins with an introduction to the main ingredient in this dish, namely mango, and finishes by going through the stages of cooking it. At this stage, a 3D animation treatment will be carried out with the addition of 2D animation to explain one of the critical ingredients of the Rujak Kuah Pindang dish.

This research aims to obtain full-length for Course – 1, namely Rujak Kuah Pindang. The overall duration of this projection mapping course is approximately 5 minutes.

2. The Making of Si Dulang

a. Technical Assessment of Projection Mapping

Technical assessment is a stage that must be carried out before carrying out production. In this phase, the researcher

consults with parties from MDN to obtain a schematic of the projection mapping that will be done. The output of this stage is a schematic of the system to be made, as well as several measurements that will later become crucial aspects of animation production.

The projector that provides video shows will be placed over the table without being obstructed by any object. It must be done to prevent unwanted shadows on the dining table. The following schematic as can be seen in Figure 7, will be made during the prototype trial period.
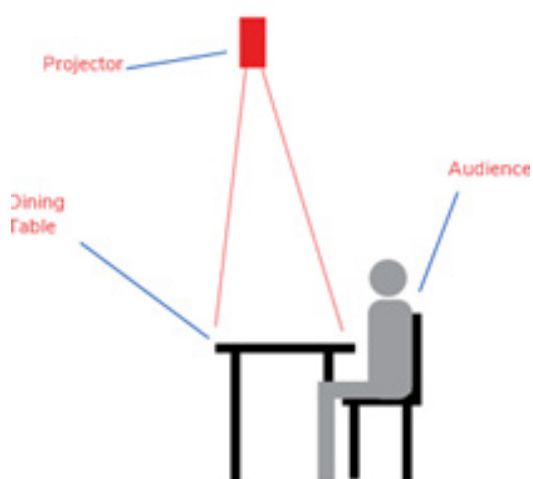
Figure 7. Table Setup
(Source: Personal research documentation)

The table size to be used is 80 cm x 80 cm. It is crucial to define the aspect ratio that will be used later. Based on that data, the researcher will use the aspect ratio of 1:1. The second thing is to determine the type of plate used. After discussing with Adestya, the researcher will use a standard plate with a diameter of 23 cm.

The third and most important thing is to determine the camera's angle. From the measurement results by estimating the average table height to the sitting height of Indonesians, which is 165 cm, the tilt angle set for the camera is around 23-24 degrees.

b. Screenplay dan Storyboard

Based on the visual design provided by Christine and the logline we discussed in the early stage, the researcher wrote the screenplay immediately. The researcher must consider the technical aspects consulted before writing the screenplay. The screenplay made for Act – 1 consists of 5 pages with an assumption that the Animation duration is approximately 5 minutes.

Broadly speaking, the screenplay for "Si Dulang" is not much different from animated film scripts. However, what needs to be considered is how to hint to the storyboard artist and animator which part is 2D and which is 3D. Because there are overlapping sections when 3D has a role as background and 2D animation is the main story at that part. The environment set will not change until the end of Act - 1. Shown here in Figure 8 is an example of Act – 1 screenplay.

Figure 8. Si Dulang Screenplay
(Source: Personal research documentation)

The next stage is to make a storyboard for production guidance. In this phase, the researcher separate based on production method. For 2D animation, Storyboard will be strongly required because it will be needed for animators when they create animation as can be seen in Figure 9. Because it will be projected onto the

plate, the storyboard artist used a mask to create it. The masking can be any size as long as the shape is circular.
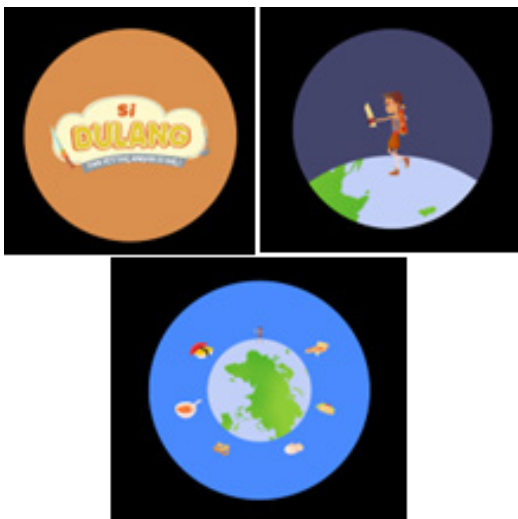

Figure 9. Colored Storyboard for 2D animation
(Source: Personal research documentation)

However, in 3D animation, the researcher decided not to use a normal storyboard. The first reason is to save time so that it can enter the production process. Another reason is that it will be more accessible when using a draft camera from 3D software directly. To create a clear action of the Dulang character, the researcher wrote notes directly in screenshot images captured from 3D view. Figure 10, listed below is an example of how researchers draw notes in screenshot images. The researcher used to direct the action of the character.

Figure 10. Notes in Screenshot Image
(Source: Personal research documentation)

c. Rendering

The rendering process for Act takes 1 month. This phase needs to be done very carefully. Researchers need to make sure the camera position is perfectly aligned in 3D software each time before rendering. The challenge will come when combining 2D and 3D animation. For the 3D animation, the production team used Autodesk Maya and 2D animation created with Adobe Illustrator and After Effects.

Figure 11. Final Render of Si Dulang in Act 2
(Source: Personal research documentation)

d. Prototype

The researcher finished this phase with the help of MDN staff. To complete this stage, the first thing to do is choose the right projector. This kind of projection mapping cannot use an ordinary projector due to lack of resolution. This problem creates a pixilated image on the table. A laser projector is considered the best option of projector for "Si Dulang" projection mapping.

Second, researchers need to do a calibration process to match the projector position and the table as can be seen in Figure 12. This phase finished using a particular software called MadMapper.

The function of this software is to adjust the angle from the original final render to match the angle of the table perfectly.
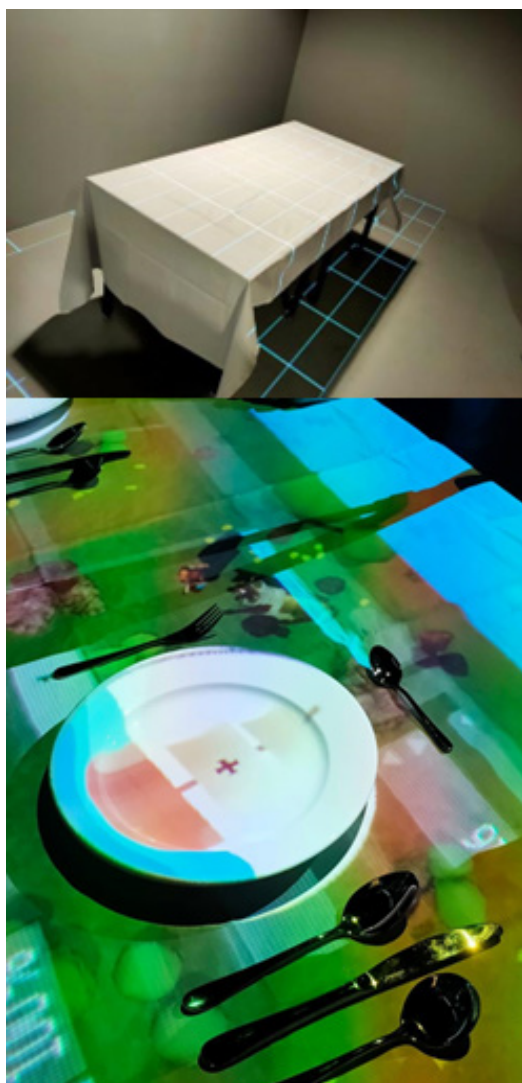

Figure 12. Calibation Process
(Source: Personal research documentation)

Discussion

In the process, the author makes several notes related to this research.

1.   The basic principle of story structure in film and animation can be applied to producing projection mapping for fine dining. However, the creative teams, especially scriptwriters, must consider some aspects, such as duration and technical setup for the projector, to maximize the experience.

2.   Extensive research is needed to perfect Si Dulang's character. It is because Si Dulang initially took the concept of backwoods cooking - where the cook uses natural materials and tools for cooking. Due to the limited window to explore this concept, the researcher feels the backwoods concept is not fully explored.

3.   Technical aspects should be considered when creating similar works at the beginning of planning. Although it is not an aspect discussed in this report, this topic will cause problems if it is not well planned from the beginning. Examples of technical aspects that are taken into account are the table's shape, the table's height, the distance between the table and the projector, the type of tablecloth, and the shape of the plate to be used.

Figure 13. Projection Mapping of Si Dulang
(Source: Personal research documentation)

Conclusion

This prototype takes five months for the production process. The prototype was presented in January by presenting to MDN, related lecturers, and external parties from the hospitality industry for one day. Dulang and Barong successfully work perfectly.

The challenge in designing the story of Si Dulang is that the story needs to be well delivered and attract the audience to enjoy the fine dining experience. To achieve the goal, the creator must understand the animation film production process and know the technical aspect of projection mapping.

On the creative side, storytellers need to consider several things. First, story designers need to understand the character perfectly. Second, story designers need to understand the food that is served to the audience. These two aspects are interconnected. The researcher hoped that in the future, research would be able to be more explorative in creating a story for projection mapping.

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