



ENHANCING THE SIGNIFICANCE OF POY SANG LONG CEREMONY IN MAE HONG SON
PROVINCE THROUGH AUGMENTED REALITY



A Thesis Submitted in Partial Fulfillment of the Requirements
for Doctor of Philosophy DESIGN ARTS (INTERNATIONAL PROGRAM)

Graduate School, Silpakorn University

Academic Year 2021

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ความเป็นจริงเสริม (AR) เพื่ออนุรักษ์ประเพณีปอยส่างลองในจังหวัดแม่ฮ่องสอน



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Title ENHANCING THE SIGNIFICANCE OF POY SANG LONG CEREMONY IN
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MR. NATTAWAT SOMDEE : ENHANCING THE SIGNIFICANCE OF POY SANG LONG CEREMONY IN MAE HONG SON PROVINCE THROUGH AUGMENTED REALITY
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This research uses a mixed method by collecting both quantitative and qualitative data, divided into two parts i.e., the research base and the practice base. It is the study of insight and practice, concurrently according to the objectives, which are: 1. To study and uphold the arts and culture in the Poy Sang Long tradition of the Tai Yai ethnicity in Mae Hong Son province. 2. To experiment with the technology advancement of Augmented Reality for Poy Sang Long ceremony. 3. To develop and evaluate by using Augmented Reality (AR) for Poy Sang Long Buddhist Ordination, Tai Yai Identity in Mae Hong Son province. There are six steps of Research Methodology, consisting of: literature review, data collection, data analysis, design, measurement, and final design. The research instrument was a satisfaction questionnaire using AR media for Poy Sang Long Tai Yai tradition, Mae Hong Son province. Data from online questionnaires and onsite surveys were collected with specific samples from a sample group, college students, experts, and people in the community in Mae Hong Son province.

The results showed that the use of AR by presenting mixed media consisting of 2D motion presenting legends, 3D animation presenting important ceremonies, video presenting the atmosphere of Poy Sang Long tradition in Mae Hong Son province. Also, the details of the ordination ceremony and model figures are to be used as souvenirs and information about the costumes through the use of AR to present the Poy Sang Long tradition of the Tai Yai ethnicity Mae Hong Son province. All media can be used anywhere which makes it easier to access complex content and creates an exciting learning history for people of all ages. Due to the use of various media presented, developing a learning model for Poy Sang Long tradition by using mixed media platform in Augmented Reality will be beneficial to researchers who can apply the research results to give legends, traditions, and other historical stories very significantly. The results of using AR media Poy Sang Long tradition Mae Hong Son province showed the satisfaction in using AR media in Poy Sang Long Tai Yai tradition, Mae Hong Son province. Sample groups were satisfied with AR in the form of mixed media presenting Poy Sang Long tradition at a high level (average = 4.26 , standard deviation= 0.68).

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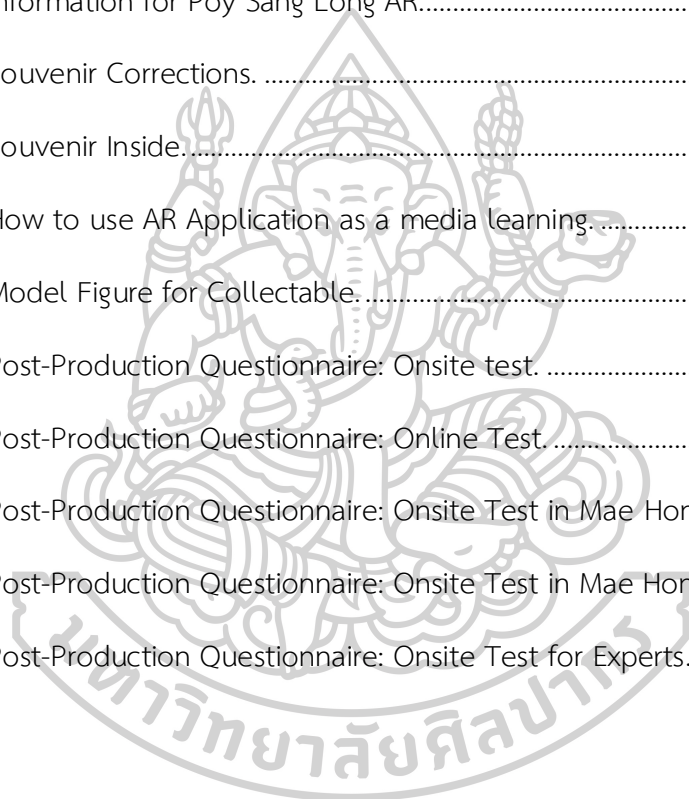
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Chapter 1

Introduction

1.1 Background of the Research

The Tai Yai now live in many countries such as Myanmar. The Tai Yai live in the area of the Shan State. In the North of Thailand, some bordering provinces like Mae Hong Son, Chiang Rai, and Chiang Mai have immigrants to make a living in but few of them can legally immigrate. The Tai Yai lived in the plains, rivers, and valleys. Each valley is often named as a village-level community. The life of the Tai Yai - was tied to the fields, which involved crops such as rice, vegetables, beans, tobacco leaves, watermelons and other biennial crops. Their lives are defined by the seasons that correspond to the lifestyles of work, practice, rituals and religious traditions throughout the year. Although their geography, residence, traditional beliefs, rituals are influenced by Buddhism and belief in spirits; the life of the Tai Yai people does not differ from the other Tai people in the north. Tai Yai is a Buddhist who is extremely devoted to Buddhism (Sanguan, 1969). Due to the fact that time changes the way of life changes, and the number of births is decreasing, people who inherits Poy Sang Long tradition have gradually decreased from the local area.

Ordination is an important tradition of the Tai Yai people. Most of them prefer to ordain a monk since the age of 12. Before the ordination, parents have to take their children to the abbot in order to practice reading, learn how to ordain, and have to memorize the Naga and blessings. When parents see that their child has the knowledge to become ordained, they set up an event, usually in March, April, and May, and scheduled for 3-5 days. The Naga ordination ceremony in Tai Yai language is called "Poy Sang Long". Poy Sang Long is a ceremony to celebrate the ordination of novice in Buddhism of Thai people who are of large Tai. It is often found in Mae Hong Son province and in some districts of Chiang Mai province. "Sang" means a novice. Long or "Alon" means the heir. From the legend that the Tai people have inherited about the origin of the Poy Sang Long tradition, that is, ordination as a novice is for the study of Buddhism and as a substitute for the merit of the parents.

This was based on Buddhist history when Princess Pimpa Yasothara appointed Rahul to ask for the throne from the Buddha, but the Gautama Buddha bestowed noble wealth, that is, Rahul was ordained and counted as the first novice of Buddhism. Another legend was based on the Buddha's history when Prince Siddhattha, who flourished with wealth but gave up his wealth to seek the path of happiness. Both of these legends were traditions that the Shan people hold. The Poy Sang Long tradition is an important tradition of the Tai Yai people. In families with sons look forward to joining this tradition. Due to the belief that the blessings of this ordination will bring parents to heaven, Poy Sang Long is therefore a great and very happy ritual. This may be a strategy for children to become ordained and appreciate Buddhist principles during the holidays. (That Sriratanaban, 2019)

1.2 The Statements of the Problems

This research aims to develop AR technology to support information access and learning Poy Sang Long tradition. To promote publicity for the local people and the general public, the problem with traditional data access is that it is often a single media format, also lacking in the enjoyment of viewing. The audience has access to cultural traditions by mixed media through advances in technology and intelligent information according to the changes in technology today.

Nowadays, Augmented Reality (AR) is the utilization of information technology that can attract society. AR is defined as the technology which combines two-dimensional or three-dimensional virtual objects into the real three-dimensional environment and then projects those virtual objects in real time. AR is the implementation of virtual objects into reality, whether they are 2 dimensional objects, or 3 dimensional objects, rapid improvement of AR has been applied in many aspects of life. (Azuma, 2011) Furthermore, AR technology has recently been used in several fields, for instance medicine, education, and simulated training, (Yu D, Jin JS, Luo S, Lai W, Huang Q., 2010) especially tourism sector by using Augmented Reality can be alternative media for promoting tourism object attractively for tourists. (Adi Ferliyanto Waruwu, 2015)

Augmented Reality technology (AR) has been continuously evolving since 2004. The integration between the reality and the one that is generated by the computer is performed through software processing and transmission of information across devices in text, graphics and frame-by-frame 3 D shapes. Nowadays, it is applied to smart phone technology to provide a virtual form of information that gives the user a different experience. AR information systems help tourists to gain important information and knowledge about tourism objects, as much as giving new experience and entertaining users at the same time. (Fritz, Susperregui, Linaza, 2005)

Formally, an AR system is defined as having the following features (Krevelen and Poelman, 2010) (a) ability to combine real and virtual objects in a real environment, (b) ability to register (align) real and virtual objects with each other, and (c) ability to run interactively, in three dimensions, and in real time. With AR, information about the history and its objects can be overlaid on the real world in order to enhance the Receiver's perception of reality. By using The Vuforia platform. Because Vuforia platform uses superior, stable, and efficient computer vision-based image recognition technique and provides several features, enabling capability of mobile apps and frees developers from technical limitations. (Vuforia.com, 2020)

This research presented the ethnic identity of the Tai Yai people in Mae Hong Son province through the Poy Sang Long tradition ordination ceremony which was regarded as an important tradition of the Tai Yai people and was a tradition that has been practiced for a long time, especially experiences that could not be seen much today or very little due to the lower birth rate of children. Visitors could not be seen without visiting during the festival. The relocation of rural people to the capital communities gradually faded the traditions that had been passed down. The use of Augmented Reality (AR) technology to present stories through real-time display to develop media to present information on the identity of the Tai Yai ethnic group in the form of mixed media, animation, including 2 D motion, 3 D animation, video and model figure applied to educate youth, villagers, tourists and interested parties, easily accessible via smart phone.

1.3 Research Objectives

1.3.1 To study and uphold the arts and culture in the Poy Sang Long tradition of the Tai Yai ethnicity in Mae Hong Son province.

1.3.2 To experiment with the technology advancement of Augmented Reality for Poy Sang Long ceremony.

1.3.3 To develop and evaluate by using Augmented Reality (AR) for Poy Sang Long Buddhist Ordination, Tai Yai Identity in Mae Hong Son province.

1.4 Research Question

1.4.1 How important is Poy Sang Long Tradition of Tai Yai people in Mae Hong Son province, Mae Hong Son to the community?

1.4.2 What makes Augmented Reality create Multimedia Graphic appeal to Poy Sang Long tradition?

1.4.3 How can AR models enable the creation of interesting Augmented Reality and enhance the user's interest?

1.5 Significances of the Research

1.5.1 Research helps promote conservation and inheritance of the Poy Sang Long tradition, valuable for the Tai Yai. This tradition should be preserved and continued.

1.5.2 Creating mixed media AR learning provides better learning methods.

1.5.3 The sample group is interested in AR media and understands their local traditions, resulting in their pride in local culture and traditions. AR Poy Sang Long has a high level of user satisfaction.

1.6 Scope of the Study

To conduct research according to the specified objectives, the scope of this research has been classified into five areas as follows:

1.6.1 Information of Poy Sang Long Tradition of Tai Yai people in Mae Hong Son province

1.6.1.1 Origin and settlement of the Tai Yai people

1.6.1.2 Tai Yai people in Mae Hong Son province

1.6.1.3 Buddhism and Poy Sang Long Rituals in Tai Yai society

1.6.1.4 Poy Sang Long ordination ceremony

1.6.1.5 The legend of Poy Sang Long and its meaning in Tai Yai society

1.6.1.6 Poy Sang Long ceremony to change boy status in Tai Yai society

1.6.2 Augmented Reality:

1.6.2.1 Augmented Reality concept

1.6.2.2 Type of AR

1.6.3 Media in Augmented Reality

1.6.3.1 Types of multimedia in Augmented Reality

1.6.4 Experience and Phenomenology in Media's leaning of AR

1.6.4.1 Meaning of perception

1.6.4.2 Process of perception

1.6.4.3 Skills used for media awareness

1.6.4.4 Human Behavior in Online Media via Smartphone

1.6.4.5 Concepts, theories, and research related to technology acceptance

1.6.5 Related research

1.7 Definition of Term

1.7.1 Tai Yai Ethnic

Tai Yai ethnic in Mae Hong Son province has been established for 150 years since the "Tai Yai people" came to live in the local area of Mae Hong Son province. From the telling evidence, "Jaray" is a person who learns from the elders. According to Tai Yai people from the history of Mae Hong Son and from studying the history of the city, Mae Hong Son has indicated that "Tai Yai people" who come to live in Mae Hong Son are the Tai Yai people who migrated from the land from the northeast of Myanmar, known as "Shan State", Muang Mhong Mai, Muang Nai, Lan Khe, and other towns in the Salween River Valley who came to live in Mae Hong Son province around 1831, which is exactly with the reign of King Rama III of Rattanakosin to the reign of King Rama V.

1.7.2 Poy Sang Long Buddhist Ordination

Celebration of the ordination of novices in Buddhism usually lasts for about three days. If, however, the ordained person is in good standing, there can be a celebration that lasts for 5 or 7 days. This event will be held at the end of March or April, which is the dry season when most villagers are free from farming and it's the children's summer break. The Poi Sang Long tradition is a tradition of Thai people who are of Shan descent. Therefore, we will see this tradition a lot in Mae Hong Son and some parts of the North.

1.7.3 Augmented Reality

Augmented Reality is defined as "an enhanced version of reality created by the use of technology to add digital information on an image of something." AR is used in apps for smartphones and tablets. AR apps use your phone's camera to show you a view of the real world in front of you, then put a layer of information, including text and/or images, on top of that view.

1.7.4 Mixed Media

Example for combination of different media, is the DewataAR app publishes travel information and gives tourists a new experience. To visit tourist attractions, especially temples, this AR development provides information in the

form of mixed media, 3D visualizations, 3D animation, and video. (Adi Ferliyanto Waruwu, 2015).

1.7.5 Perception

Hawkins and Mothersbaugh (2010) have given the meaning that perception means the process begins with experiencing stimuli from the five senses: sight, smell, hear, taste and touch. Thus, this has caused people to become interested in stimuli and ends with interpreting or figuring out what it means, (Solomon, 2007) as defined it is the process by which a person chooses, manages, and interprets what is perceived through the five senses.

1.8 The Overview of the Thesis

The overall thesis is comprised of 5 Chapters. Chapter 1 is focused on the introduction and backgrounds this research. This includes the introduction and backgrounds of the research, the statements of the problems, objectives, keywords, limitations and delimitations and the significance of the research. Chapter 2 is focused on the Literature on the fundamentals of Poy Sang Long Ceremony, Preservation, Tourism Industry, Augmented Reality, and few other headings. Chapter 3 is focused on the Research Methodology that is employed in the process of collecting data or information. The overall research data collection is employed by using Qualitative research approach in the two phases of data collection processes. Chapter 4 emphasizes on the discussions of findings of second phase data collection processes. Last, Chapter 5 provides on the conclusion and recommendation of the research and to fulfil the Research

Chapter 2

Literature Review and Related Studies

In this chapter, the researcher reviews information about Poy Sang Long Buddhist Ordination, Tai Yai Identity in Mae Hong Son province; Augmented Reality, media design principles, media perception, and process of learning and learning approaches in related fields, and Literature. Theoretical bases from this chapter are combined to form a conceptual framework for thesis work. The content of this chapter is organized into three main sections: Poy Sang Long Buddhist ordination, media design principles & experience, and phenomenology in media learning.

2.1 History of the Tai Yai Ethnicity

2.1.1 Meaning of the Tai Yai People

Tai Yai or Shan people are a group of Tai Yai people in Myanmar, southern China, and northern Thailand. Some people say that the word “Shan” is the origin of the word “Siam”. In Myanmar, there is a large state of the Tai Yai people called Shan State. Some groups of Tai Yai people in Myanmar want to liberate independence from the regime of Myanmar, therefore, took up arms and fought with the unrest in Myanmar. People from Shan state migrated to Thailand especially in the later period, entering the Pang Mapha district of Mae Hong Son province and Fang district of Chiang Mai province, but Thai government does not have a clear policy on these populations. That is, the Tai Yai group is not defined as a minority group in Thailand, and people did not accept this group of people as Shan or Tai Yai people. Shan people are currently not considered as refugees from the Shan State who need humanitarian assistance awaiting for repatriation when the country is safe. However, when the state does not provide temporary shelter at the border, this has caused many Shan people to flood into the inner city.

The word Tai Yai is a name that the Tai Yai people have been familiar with for a long time. Along with the word that the Tai Yai people often dubbed

themselves Tai Yai Noi. But apart from the Tai Yai people in Thailand, there is no one who knows the word Tai Yai.

The Tai Yai that call themselves Tai Yai are many and will be classified into groups by adding adjectives such as Tai Yai Dum (black), Tai Yai Dang (red), Tai Yai Kao (White), Southern Tai Yai, Northern Tai Yai, etc.

The Tai Yai people call themselves Tai Yai, but other peoples will call us Siem or Siam, for example, and call our country Siam.

The Tai Yai people, likewise, have different names from other peoples, for example, the Myanmar call it Chan or Shan. As for the Han Chinese, there are different ways to call the Tai Yai people, which is to use words that show national characteristics to name them, for example, they are called white shirts (Bai Yi), golden teeth (Jin Chi), silver teeth (Yin Chi) Black Tooth (Hei Chi) And there are also other names such as Liao, Lao, Mangman, Ye Hundred Tribes, and Yi, etc. China will be called the Tai Yai people change. Converted to historical periods.

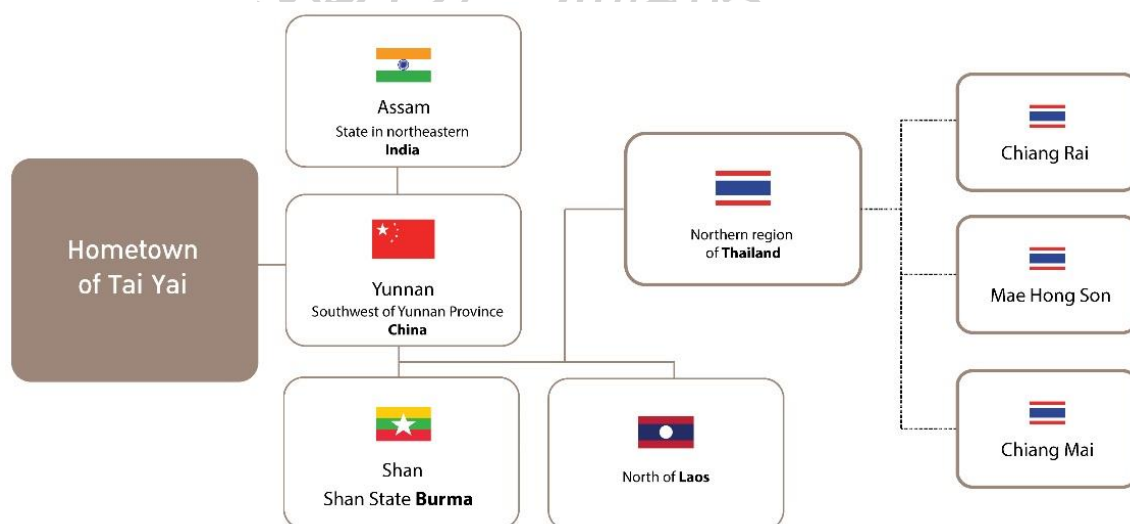


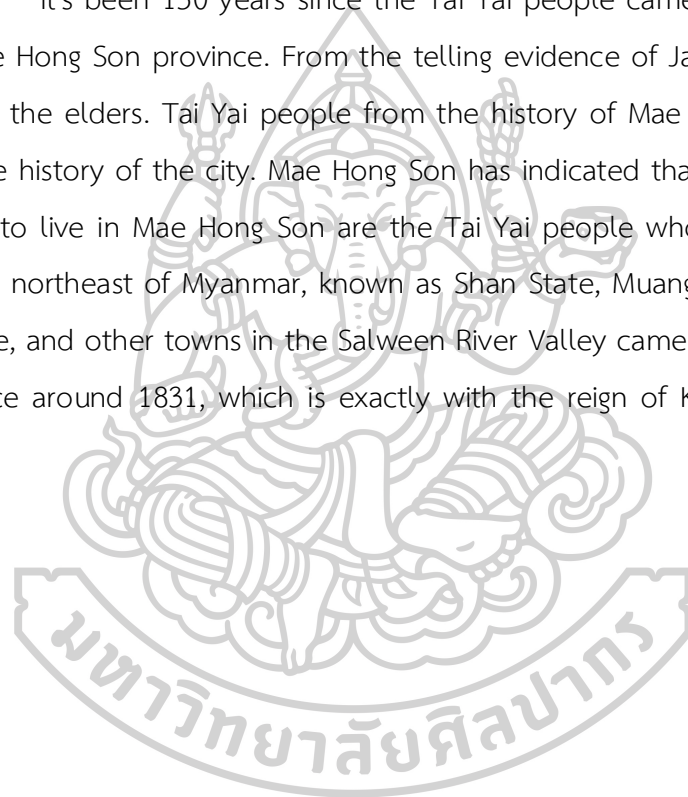
Diagram 1 The Shan or Tai Yai settlements recorded in history.

In the Tai Yai group, it is called out. Can be many smaller groups according to their habitat, such as the Shan people who live in Myanmar. Often referred to as the Tai Yai people in China as the Great Tai or tai chi because they can

speak Chinese and embrace many Chinese cultural influences, from the language, the way of eating with chopsticks. Setting up a house on the floor and customs, etc. While the Tai Yai people in China often refer to themselves as the Northern Shan by assuming that he is north of the Kong River (Branch of the Salween River) and will call the Tai Yai people in Myanmar that is Tai Yai.

2.1.2 Tai Yai people in Mae Hong Son Province

It's been 150 years since the Tai Yai people came to live in the local area of Mae Hong Son province. From the telling evidence of Jaray is a person who learns from the elders. Tai Yai people from the history of Mae Hong Son and from studying the history of the city. Mae Hong Son has indicated that the Tai Yai people who come to live in Mae Hong Son are the Tai Yai people who migrated from the land. In the northeast of Myanmar, known as Shan State, Muang Mhong Mai, Muang Nai, Lan Khe, and other towns in the Salween River Valley came to live in Mae Hong Son Province around 1831, which is exactly with the reign of King Rama III to King Rama V



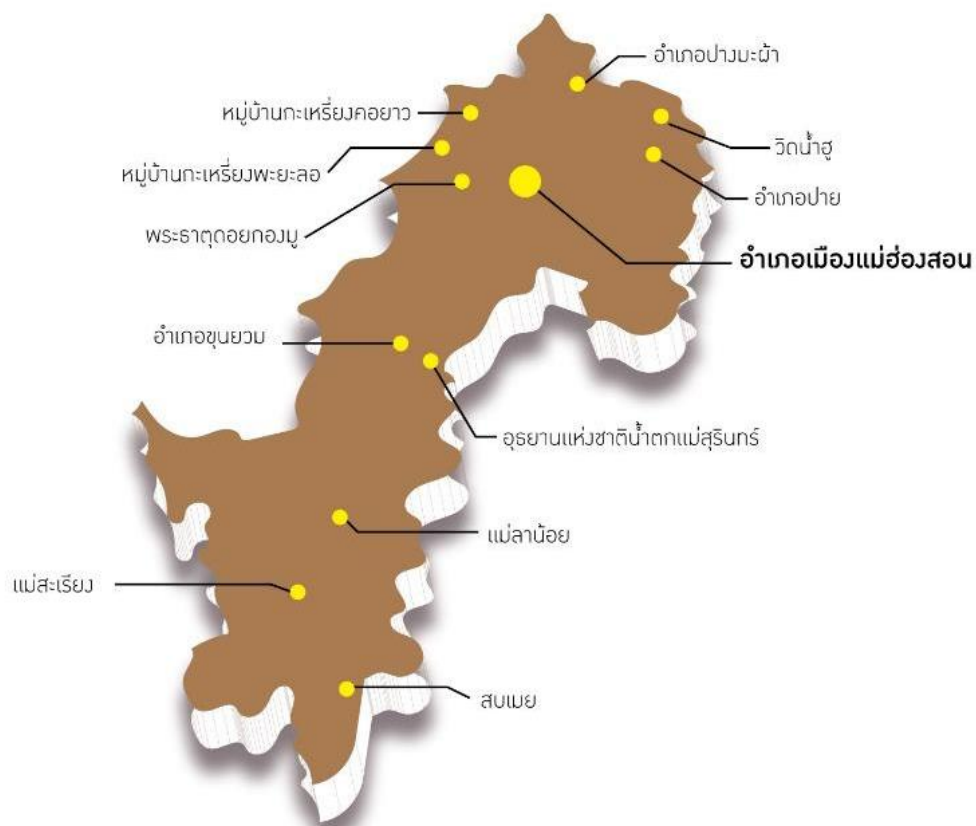


Figure 1 Mae Hong Son Province Map

Mae Hong Son province has approximately 104 Tai Yai communities. Within these communities, there are many valuable things. History, language, culture, tradition, way of life, beliefs, folk games, food, tourist attractions, music, folk games local wisdom Resources for learning, houses, temples, etc.

However, the tendency of these valuable things to be lost or changed according to social trends, for example, the Tai Yai youths have less use of the Tai Yai language. Lack of knowledge and understanding of the history and way of the Tai Yai, there is a decrease in the traditional Tai Yai dress. Some of the youths did not dare to show themselves as Tai Yai. Many traditional ceremonies have begun to change from the former to be more convenient and faster. Greatness and hidden political interests at the local level

For a long time, more than a hundred years ago The Tai Yai people in Mae Hong Son province are still alive. by taking the cultural tradition as well as the

belief and way of life of Tai Yai all along and at the same time still have a fraternal tie with the Tai Yai people living in the Shan State of Myanmar, have a trade contact. Come and visit each other all the time, although sometimes there will be political unrest, there is always contact.

Originally, the Tai Yai people lived in Shan State in Myanmar and some migrated to live in Mae Hong Son province. From the symposium at Ban Pang Mu titled Tai Yai People and Tai Yai Culture, Jarai was a group of learners who were invited from various villages both in Mae Hong Son province from the Shan border town of Myanmar and from Tai Yai in Shan State. They all gave confirmation that the Tai Yai people were far away but are Thai people, just like Thai people who live in the central region of Thailand. The other group goes down the Khong or Salween River, settles on both sides of the river in the northeast of Myanmar, in the Shan State area, creating a new culture of their own that is similar or similar to Myanmar arts and culture. And it's different from other cultures. In the north, where there is art and culture Lanna traditions (Tai Yai Studies Center, Mae Hong Son Community College, 2011)

2.1.3 Buddhism and Poy Sang Long Rituals in Tai Yai Society

Tai Yai society uses Buddhism as a symbolic tool for social control both in the form of control through belief through formal control through the use of social ideals through leadership through morality, etc. Poy Sang Long is a ritual that is primarily related to the social control system, that is, the Tai Yai society institutes a title for a person who has made merit in Buddhism or has a duty that is beneficial to Buddhism. It is a position where one is respected and has the right to engage in certain activities.

Buddhism has influenced the way of life of the Tai Yai people. reflected through the introduction of Buddhist beliefs and traditional beliefs Created as a ritual for the twelve months of Tai Yai or Lentai causing Buddhist ceremonies to be held every month of the year The Poy Sang Long ritual or novice ordination ceremony in Buddhism is one of the rituals that are important and meaningful to the method of entering the Poy Sang Long ceremony. They will start collecting money

because there will be enough money when it's time to organize the event, Some mothers will start to grow their hair long without cutting and maintain it to be shiny so that they can cut their hair to make a chong or bun that is used to decorate Sanglong's head. Which is believed to have merit as strong as cutting the strands of hair to offer as a Buddhist offering and it is most auspicious for a son to have his birth mother's hair adorned over his head. In one sense, the belief reflects the opportunity for females, who would normally not be as close to Buddhism as males, to use the body's essential components as a representation of being closer to religion.

On the side of the clergy, although the Tai Yai Sangha is divided into two major sects, Poy Sang Long is a novice ordination ritual practiced in both sects. This may be a result of Bayinnaung's policy of propagating Buddhism, which treated him like a Dharmaraja. If any city where Buddhism is firmly established although different sects from Myanmar did not disturb the traditional customs to affect where Buddhism is not firmly established, He has brought a Myanmar sect of Buddhism to spread. This policy should be a good result that the two sects can coexist compromisingly. And in a dependent manner, this led to the exchange of knowledge later, which included the Poy Sang Long ritual.

2.1.4 Poy Sang Long Ordination Ceremony

Poy Sang Long or the ordination ceremony is a celebration of the ordination of novices in Buddhism. Usually, the event will be held for about three days. But if the ordination person is in good standing, there can be a celebration that lasts for 5 or 7 days. This event will be held at the end of March or April, which is the dry season when most villagers are free from farming, and it's the children's summer break.

The Poy Sang Long tradition is a tradition of Tai Yai people. Therefore, we will see this tradition in Mae Hong Son province. And in some parts of the North, including Chiang Mai. In the ordination as a novice, it was to study the Buddha Dharma and to replace the parents. Like Rahula, the son of Prince Siddhartha (Buddha) and Queen Yasothara (Pimpha) was ordained as the first novices in

Buddhism to follow in the footsteps of the Father, Rahula is a person who wants to study the Dharma and Discipline. Therefore, has been praised by the Master that superior to the monks.

One day before Poy Sang Long All boys who participate in this tradition must change their hair and bathe as thoroughly as possible and be anointed with perfume to make them smell good Dressed in lavish clothing and accessories, most of them don't wear real jewelry. Most of them are diamonds, gems, and gold that are only realistically made. This was due to fear of losing valuables during the Sang Long procession. But there are some people who have the status for their children to wear the real thing.

In addition, there is also eye makeup with bright colors to try look more beautiful than normal people the details of the Poy Sang Long ritual can be divided into 3 parts: preparation for the ceremony, the ceremonial period after the ceremony, and the thank-you ceremony. The details are as follows.

During the ceremonial period, the event is usually held for 3-7 days. The important ceremonies will be held for 3 days, with the first day being the reception day (Rab Sang). It is a ritual that changes the status from a boy to a Sang Long and then brings forgiveness to the sacred and respected elders.

The second day is Wan Lae – Kao Lu's kitchen or reception day. On this day there will be a procession of Thai food from the host Sang Long's house to prepare it at the temple and in the evening, there will be a Hong Kwan ceremony (Tai Yai blessing ceremony).

The third day is Wan Lu or Kham Sang. Today there will be a novice ordination ceremony and offering Thai food offerings which is a change of status from Sang Long to being a Sang or novice

After the event and thank you ceremony or Aung Poy ceremony refers to the ceremony to express gratitude to those who came to help the event and offer food to the new novices as well. As mentioned, at every step of the ritual there will be relatives and people in the community. Come to help from the stage of preparation until the job is done. The host will be responsible for preparing food to feed the people involved in the event. Including having an entertainment ceremony

throughout the duration of the event as well Mong Sheng drums, Tom-Tom drums (Klong Yao), Mo Kham (Tai Yai poetry folk drama), and Jad Tai (Tai Yai musical folk drama), which are the colors of celebrations or Poy in Thai society.

Based on the belief in Buddhism of the Tai Yai people and belief in merit accumulation. make each part of the ritual There will be groups of people of all ages participating in the learning process and transferring the knowledge contained in the Poy Sang Long ritual from one generation to another. It is a social learning process that makes understanding the meaning of each step of the ritual from practice. It is part of the Poy Sang Long ritual that has long been important to the Shan people. In addition, this process leads to learning to place one's own status in Shan society.

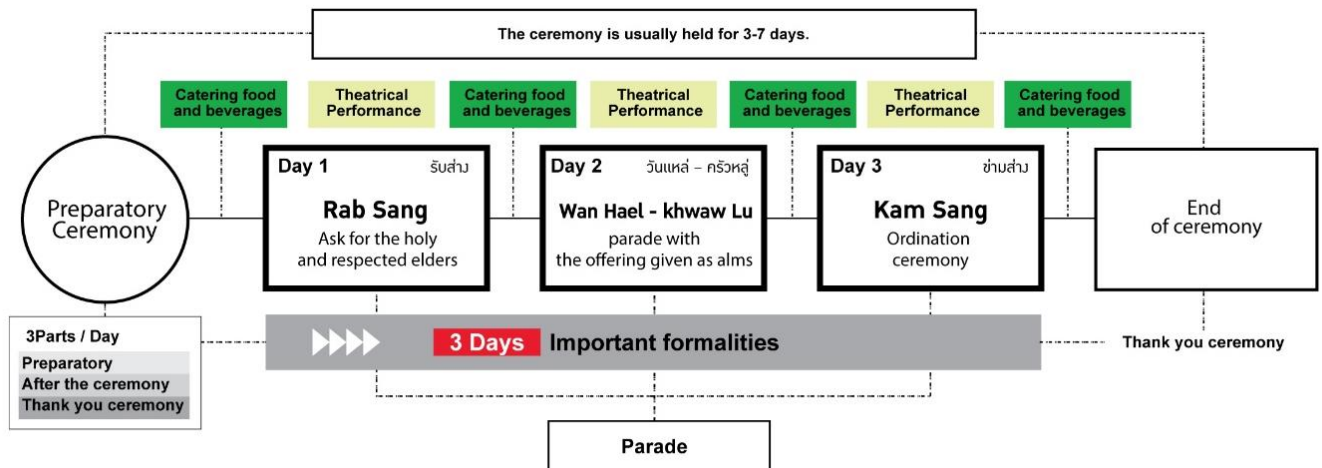
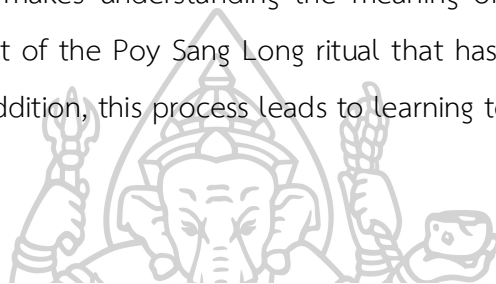


Diagram 2 Poy Sang Long ordination ceremony structure.

2.1.5 The legend of Poy Sang Long and its Meaning in Tai Yai

Society

The legends associated with Poy Sang Long rituals can be classified into 4 expressions as follows:

Expression 1 It is a legend related to the history of the Buddha according to the events that Lord Buddha returned to favor his father and relatives at Kapilavastu. Queen Yasothara told Prince Rahul to grant the royal property from his father. The Buddha said that any wealth in the world can perish. There are only noble treasures. Only the Buddha Dharma is sustainable. The Buddha, therefore, ordered Phra Sariput to ordain Prince Rahul as the first novice in Buddhism. From the aforementioned legends, there are at least two definitions of Poy Sang Long in the Tai Yai society, namely: Firstly, Buddhists recognize that the Buddha's Dharma is a noble property. In addition to the assets that will ever perish, parents should bestow their wealth by bringing children into ordination in Buddhism to study the Dharma and knowledge in various fields, it is an intellectual property that can be applied to the child both secularly and spiritually for future life. Secondly, the Buddha's ordination to Prince Rahula, who is a youth Conveys the children's learning in the right way from a young age would have a good result because a child is like a white cloth that has not yet been soiled leading to beliefs about bringing children who are still purely ordained to study in Buddhism that it will benefit more than an ordination or ordination to a person who marries or has experience in worldly matters This belief is embedded in the perception of the Tai Yai people, although the fable describes the virtue of ordination as a novice as 8 kap (eternity) ordination, 16 kap (eternity) ordination to monks, in practice such an explanation is not as powerful as this belief. And the popularity of being ordained as a monk at the age of 20 is influenced by beliefs from the central region that have expanded into the latter.

Expression 2 in the Buddhist era King Bimphisarn who was an important force in establishing Buddhism to be stable His Highness had a son, King AchatSathru. When he grew up, he fell in love with Devadatta, who was a bastard,

who acted as a patriarch to win the throne even after he repented but the killing of such fathers resulted in the unenlightened gods being unable to attain enlightenment. His Highness had a royal son named Ajit Kuman, later wishing to become ordained in Buddhism. Such rejoicing resulted in King AchatSathru organizing a 7-day and seven-night celebration and then bringing his sons to ordination in the Buddha's house.

Later, Achit Kuman performed the merits, resulting in receiving a golden robe that Queen Prachabodi Gotta woven for the Buddha, but received only one piece. and received the prophecy of the Buddha that in the future tense would come to be Phra Sri Ariya Mettrai When the religion of the Tathagata is destroyed after 5,000 vassa. This myth has a great influence on Poy Sang Long's ceremonial meaning which simulates the image of the celebration of the royal ceremony before the prince's parade with Thai alms and all his attendants From the Royal Palace to the Chetawan Cathedral. And reflects the belief in philanthropy for a better world, as well as being born to Phra Sri Ariya Mettrai who is an ideal society. What is reflected in the Poy Sang Long ritual is Tapae Sa Tree or Kalapaphruek Tree which is a heavenly tree believed to appear in the era of Phra Sri Ariya Mettrai, reflects the worldview of the Tai Yai people who believe the present life condition is the result of the actions in the past life. Therefore, if you want to have a good life in the next life this nation must accelerate charity, as the Tai Yai proverb says that it was born for Him Kan Kin, Him Kan Lu, which clearly reflects this worldview.

Expression 3 At one point in Varanasi, wealthy men held their children's ordination ceremony and a grand celebration. There was a widow in that town who had an ugly son but had faith to ordain in Buddhism. Due to monetary poverty, when she heard the news that the wealthy man would hold an ordination ceremony, the son and his mother hugged each other, crying because of regret in fate. Knowing this, Indra came down to bring the ugly boy into the pool and washed it with holy water, giving him a beautiful and elegant figure. When Brahma came to know him, he created the Bodhisattva-style costume and was accepted as the host for the novice ordination. From the aforementioned legend, it is the origin of the word Sang Long because Brahma in the Tai Yai dialect is called Khun Sang who

traveled to achieve the status of Bodhisattva. In Tai Yai language, it is called Chao Along. The boy was called Sang Long and later became Sang Long (That Sriratanaban, 2019: 97).

Expression 4 The final version, the Poy Sang Long Ritual, attempts to convey the Buddha's transformation from a wealthy caste of kings and slaves come to the monks who seek liberation. This ritual thus simulates the Buddha's transition to that state, which will be discussed in the next section. It is also linked to the existence of the Bodhisattva of the Buddha who has performed full majesty and then resides in the Dusit Heaven before coming down to be fertilized in the womb of Queen Sirimahamaya. The Poy Sang Long Ritual, therefore, conveys the meaning of the renunciation and the heresy that binds them to swim in a cycle of birth and death which comes from the history of the Buddha when the Lord Buddha came out of ordination the same legend appears in other Tai groups. Buddhists as well, such as the Tai Lue and Thai Yuan, which have the Poy Sang Long ritual, which is similar to the Poy Sang Long ritual.

In conclusion, myth attempts to establish a connection between practice patterns to achieve liberation. By following the path of the Lord Buddha and his disciples as an example. Emphasize the importance that leads to liberation or being born in the next life to have a better life.

2.1.6 Poy Sang Long Rituals for Changing the Status of Boys in Tai Yai Society

Before being brought into the Poy Sang Long Ceremony Boys around the age of 7 years old will be deposited as temple boys or Tapee Jong to learn the duties and life within the temple. This is to train children to become familiar with places and people including practicing basic reading and writing and reciting religious chants as well the child's status during this time will be ai in common language or jai in polite language, which is the primary social status that a child is born with. Once the child has lived at the temple for a reasonable time, the parents will consult to

arrange the Poy Sang Long ceremony to change the status from a temple boy to a novice.

Sang Long during the Poy Sang Long Ritual The boys attending the ceremony will have the status of Sang Long or Little Prince or Bud Bodhisattva. The change of status is carried out by holy water bathing, which is a replica of the funeral bathing ceremony according to the ancient royal inaugural ceremony and in line with the legend that says. Indra led the boy who wanted to be ordained to bathe in the blue water. After the ritual Sanglong has to dress in Sanglong or Kollong, which is the outfit of a Bodhisattva or Prince in the Shan concept, and then observe the five precepts in order to support the status quo.

During the time when the boy held the status of Sang Long, it was treated as a special case. The ideal prince's unique robes, adorned with precious ornaments, will be served exquisitely on the day of important ceremonies for example, on the day of a blessing ceremony for Sang Long, 32 kinds of food will be eaten, which is later reduced to 12, and have a family (Tapae) to take care of, serve and take them to different places. There is a belief that you should not let your bright feet try to step on the earth. Therefore, traveling to different places, Therefore, there must be a vehicle such as a bearer, an elephant, a horse, etc., including a person spreading a golden umbrella, a water pot, a Phan Mak Plu during this time, a boy in such a state will be enforced by the ritual framework to be peaceful This is to practice positivity and patience before entering the ordination sex. The time period that is Sang Long will be between 3 - 7 days as determined by the host.

Chao Sang The key moment at the heart of the Poy Sang Long ritual is the entry into the novice ordination ceremony. In this ceremony, the adorned robes are taken out and given to the servants. It is a simulation of the event when Prince Siddhartha took off his costume on the bank of the Anoma River, he handed over his servants and brought them back to his father, and went out to be ordained.

This step conveys the renunciation of the world to seek truth in life after changing from the attire to wearing a robe and entering the ordination ceremony according to the Buddhist law the status will change from Sanglong to Chao Sang or "Novice" to be in the rules of the ten precepts.

Importantly, this period was classified as a period of traditional education that is education in the traditional Tai Yai people. It is a process of transferring knowledge according to local customs that have been practiced for hundreds of thousands of years.

Identity in literature, linguistics, wisdom, and Tai Yai art and culture can exist with a traditional education system which is a study to promote Buddhism. There is a temple as an educational institution with monks as teachers is to study the dharma. In addition, astrology, traditional medicine, craftsmanship, etc. are studied. Each temple has different specializations depending on the monks in the temple or community context. Therefore, the period of ordination as a novice is a period of intensive study because when he leaves, he will be able to apply the knowledge he has studied or have an interest in careers such as being a fortune teller, being a painter, etc.

The period of ordination as a novice will take about 3 - 5 years, which is the time when the children have studied and are in the framework of the precepts. After that, the ordination ceremony came out. However, in the Tai Yai society, the ordination was not popular again after reaching the age of 20 or 21 years. There were few ordained people who continued to study until the ordination. Most of them are those who have a true moral character. There are several factors that the Tai Yai prefers to be a novice ordination rather than a monk ordination. Beliefs from legends who believe that children are a pure age leading innocent people who are ordained in Buddhism are the strongest merits. During the age of 20 years onwards, which is the time when they have married or have learned to experience worldly life, they do not like to return to ordination again but if they wish to have merit, they will host the ordination ceremony instead, which is believed to have strong merit. Secondly, the way of production of the Tai Group in the traditional era was a subsistence farming system that relied on a large amount of labor. Bringing children in the period that are about to enter adolescence to be ordained to study at the temple in addition to education and polishing in various aspects and also to reduce the burden of raising and leaving the Buddhist monkhood in late adolescence, when the body is fully grown, suitable for helping labor in agriculture.

Third, from the production system that requires labor having children is one of the most important labors in the past. Marriage starts from around the age of 15-16 years, which is the time when entering reproductive age. On the other hand, if one is in the ordination without a truly stable mind, it can be a serious sin.

Sang When a novice Lasikkha (leave the Buddhist novice) comes out, it will have a new status with the word "Sang" in front of the name and it is considered to be called a name as disrespectful. Based on Buddhist thinking that gives importance to men in two broad categories: ripe people and raw people The classification of the two groups was related to the belief in ordination in Buddhism. Because it is believed that an unorthodox man learns the parable-like an immature fruit (raw). If eaten, the taste is undesirable and an ordained man is classified as a ripe person because he has undergone training taught at a certain level it is a guarantee that there is a moral and ethical basis. and glorified the status of ripe people to be able to engage in specific occupations other than agriculture, which is classified as a high-class occupation that requires teachers such as fortune-tellers, various Salas (Craftsman), including being able to participate in addition, the marriage of the female parents will not encourage their daughters to marry a man who is not ordained because it is considered raw and maybe illiterate and do not know social customs in various fields This may cause problems in the future married life.

The way of life of the Tai Yai people, Mae Hong Son based on the belief in Buddhism of the Tai Yai people and belief in merit accumulation. make each year There will be groups of people of all ages participating in the learning process and transferring the knowledge contained in the Poy Sang Long ritual from one generation to another. Ordination is regarded as an important tradition of the Tai Yai people. Most of them prefer to be ordained as novices from the age of 12. Before ordination, parents must bring their children to the abbot. to practice reading learn how to ordain and must memorize the prayer as well as various blessings, when the parents saw that the child had sufficient knowledge to be ordained will prepare the ceremony This is usually done in March, April, May, with the event usually scheduled for 3-5 days. It is called Poy Sang Long. Poy Sang Long is a ceremony to celebrate

the ordination of novices in Buddhism for Thai people of Tai Yai descent. Found in Mae Hong Son province and in some districts of Chiang Mai province.

Sang means Novice Long or Along means heir. From the legend that the Tai Yai people have passed down to the origin of Poy Sang Long tradition, that is, the ordination as a novice is to study the Buddha Dharma and to replace the father and mother. Based on the history of the Buddha that has discovered 4 stories, from this legend, it is the tradition that the Tai Yai people adhere to. Poy Sang Long tradition is an important tradition of the Tai Yai people. Families with sons look forward to joining this tradition. With the belief that Poy Sang Long ordination will bring parents to heaven, therefore Poy Sang Long ordination is considered a great ritual and has great merit. This may be one of the best ways for children to be ordained to drink the dharma in Buddhism during the semester break

2.2 Augmented Reality

Is an evolution of technology that began with the research and development of technology for military and flight simulators in the United States. During the year 1960-1969 Virtual reality technology has continued to evolve and has been applied to various fields such as engineering science, medicine, entertainment, etc., and there is the categorization of virtual reality systems based on how they interact with users. (Phrom-un, 2007) as follows

- 1) DesktopVR, or Window on WorldSystems (WoW), is a virtual reality system that uses a computer monitor to render.
- 2) Video mapping is the process of taking video as a user input device and using computer graphics to present the display in a two or three-dimensional model where the user sees and transforms himself from the screen.
- 3) Immersive System is a personal user Augmented Reality system where users deploy a head-mounted monitor (HMD), such as a helmet or mask, for visual and auditory simulations.
- 4) Telepresence is a virtual system in which a remote sensing device that may be installed on a robot connects to the user.

5) Augmented / Mixed Reality Systems is a combination of Telepresence, Virtual Reality, and Visual Technology to create virtual things for users.

Augmented Reality (AR) is a type of Augmented Reality technology that combines Augmented Reality with visual technology to create Augmented Reality for users and is an innovation or technology that has been around since 2004. It is a field of computer science research. Adding a virtual image of a computer-generated 3D model to an image captured frame-by-frame by a webcam or mobile phone camera using computer graphics techniques. Virtual reality technology is now being applied to businesses. Whether in the industry, medical, marketing, entertainment, communication, virtual reality technology is combined with visual technology through software and connected devices and displayed on the computer screen or on the mobile phone screen. This allows users to apply Virtual Reality technology to online tasks that enable instant user-product interaction or a virtual interface of a 3D model with a 360-degree view, where users do not need to go to a physical location.

2.2.1 Augmented Reality Concept

Augmented Reality concept is the development of technology that combines the real and virtual worlds through software and connected devices such as a computer webcam or other related devices. The virtual image will be displayed on the computer screen. Mobile phone screen on a projector or other display device. The virtual images that appear will interact with the user immediately in the form of 3D static images, animations, or possibly audio-visual media. It depends on the design of the media that will come out in any form. The internal process of virtual technology consists of three steps:

- Image Analysis is the process of searching for markers from images obtained from a camera and then searching from a database to analyze marker patterns and display.
- Calculation of the Marker's 3 D Pose Estimation relative to the camera.

- The process of creating a two-dimensional image from a three-dimensional (3D rendering) model involves adding information to the image using the calculated 3D position value until a virtual image is obtained. As shown in Diagram

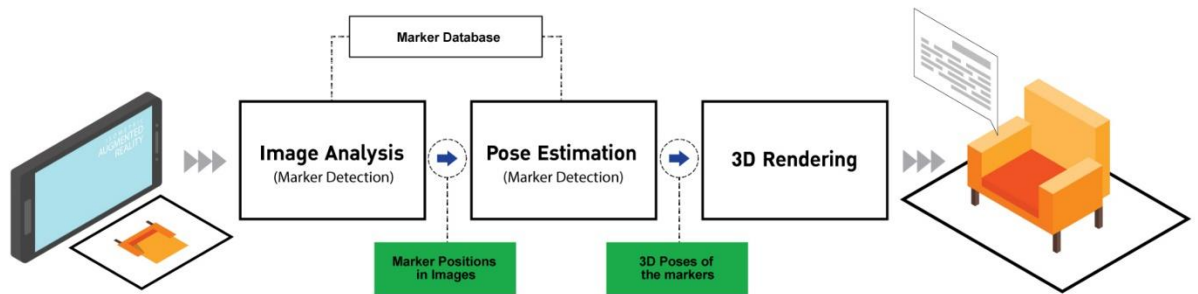


Diagram 3 The working structure of virtual technology.

Virtual reality technology can be categorized according to image analysis (Image Analysis) into 2 types, namely, image analysis based on Marker as a working principle (marker-based AR) and image analysis using various characteristics that are in the picture to analyze (marker-less based AR). Principles of virtual technology consist of

1. Marker (also known as Markup)
2. Video cameras, webcams, cell phone cameras, or other sensors
3. The display can be a computer monitor or mobile phone screen or other
4. Software or processing to create a three-dimensional image or object

The fundamentals of AR include the integration of the principles of Motion Detection, Beat Detection, Voice Recognize, and Image Processing. In addition to detecting movement through Motion Detect, some responses of the system through the media. User audio must be detected and processed using beat detection principles. To create a rhythm to create alternatives to the system, such as voice commands, Interactive Media. However, voice commands are classified as AR. in terms of image processing it is an extension of AR because it focuses on the work of

Artificial Intelligence (AI) to communicate emotions to users through colors and images.

2.2.2 Augmented Reality can have a Positive Impact.

Augmented Reality allows digital information to be superimposed and integrated into our physical environment. Now that many of us are at home during the global pandemic, AR is a tool that can help us transform our immediate environment into learning, work, and entertainment spaces.

Visualization

AR is a powerful visualization tool. It allows you to bring an object or idea into an imaginary reality or perhaps inaccessible or difficult to understand and it also helps to see the unseen, as well.

Annotation

AR Format Annotated will guide you through completing the task. Navigate in a new environment or even provide real-time explanations of what is happening around you.

Storytelling AR

Storytelling AR enables new forms of storytelling and creative expression through experiences both in our homes and in public places introducing new perspectives and perspectives it will change the way we tell, share and even remember stories.

2.2.3 The Importance of AR and Education

In this era where information can be obtained immediately by a simple search on the internet the method of teaching and screening facts is no longer popular. Instead of dividing learning into theory and practice. Currently, education is transmitted holistically. This includes various formats of a wide range of multimedia content to maintain shorter attention spans of Gen Z learners. By using Augmented Reality in the classroom, great learning and teaching experiences can be offered by replacing the traditional classroom with an interactive and engaging environment. The global market for AR in this study is estimated at \$760.4 million in

2020, expected to reach \$41.8 billion by 2027, growing at a CAGR of 77.2% between 2020 and 2027. The report was published by Researchandmarkets.com (2020)

Augmented Reality technologies in education provide visualization of learning materials and enable teachers to present interactive learning through a variety of multimedia lessons. While helping students visualize visual information in a real-world environment presented through digital devices such as projectors and interactive whiteboards.

2.2.4 Type of AR

AR is a technology that enhances the real world with Augmented Reality. Virtual objects are covered and tracked along with inputs received by the camera in view of the real world. Which can classify the use of AR into two types: with marker and AR without a marker.

When comparing AR with markers and without markers, Jack C. P. Cheng., Keyu Chen, Weiwei Chen (2017). Comparison of Markered AR vs. Markerless AR: A Case Study of Building Interior Systems in Lean & Computing in the Construction Congress, it will be found that the accuracy of a marker-based AR is higher than a non-marker-based AR because the existing AR SDK will support markers better. The use of more accurate localization technologies such as RFID, Wi-Fi, or UWB technologies will enhance the stability of the marker-based AR which is relatively low. This was greatly influenced by the quality of the mark and of the AR SDK, while the complexity of the virtual model has little impact on it; and Marked AR usually supports both desktop and mobile computers devices, while unmarked AR is usually supported only by mobile devices. The comparison results can provide a decision basis for future developers when deciding what type of AR to choose.

Marker-based AR

This type of AR is also known as recognition-based AR or image recognition. Relies on identifying marks A user-defined image to perform a marker-based AR task requires a marker to enable AR. A marker is a clear form that can be

easily recognized and processed by the camera. Regardless of the surrounding environment, it could be a paper or physical object in the real world.

Marker AR works by scanning markers that trigger an enhanced experience. (Whether object, text, video, or animation) to appear on the device. Usually, the software is required in the form of an app. This allows users to scan markers from their devices using the camera feed.



Figure 2 Marker-based AR. (Heimgartner, J. 2016)

Location-based AR

Due to the availability of smartphone features that provide location-based AR detection associates the supplement to a specific location. It works by reading data from the device's camera, GPS, digital compass. And accelerometer predicts where the user is focusing as a trigger. It then shows when the user's device information matches the location. Dynamically map locations to points of interest to provide relevant information or information. Virtual data and objects are mapped in specific locations.

Unmarked AR reliability in location data collected from device camera, GPS, digital compass, and the accelerometer makes it more adaptable than the AR marked up. This is because images or objects are not required to deploy.



Figure 3 Location-based AR. (Akhtar, A. 2016, Sawers, P. 2018)

Projection-based AR

Projection AR sometimes referred to as Spatial AR, transmits digital data within a stationary context. It focuses on representing virtual objects within or on the user's physical space. It is one of the simplest forms of AR where light is projected onto a surface. The interaction takes place by physically touching the projected surface.

In AR projection, users are not limited to any device. This is because virtual objects are directly integrated into their environment. Users and target objects can also move around the environment within a given zone. Where both the projector is stationary and the camera supported for tracking, projection-based AR methods may be used to create the illusion of depth, position, and direction of objects.

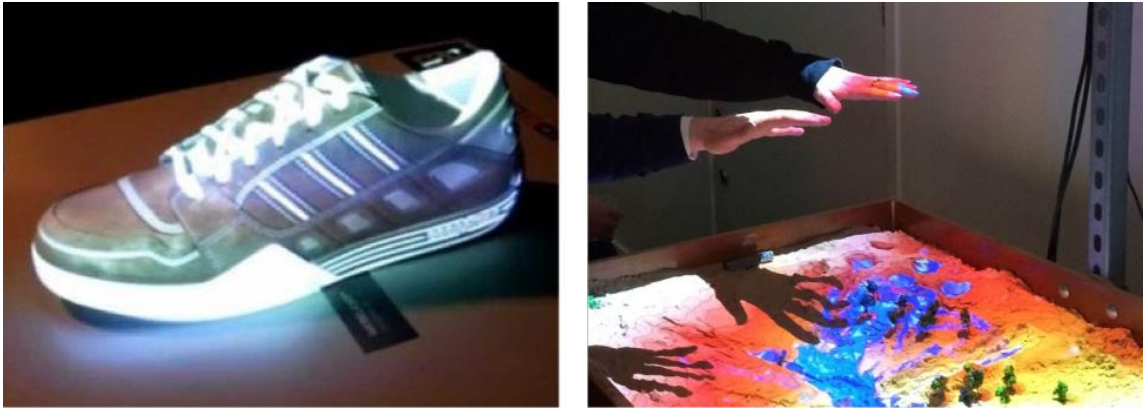


Figure 4 Projection-based AR.

(El Filali, Y. and Salah-ddine, K 2019., projection-mapping.org, nd.)

Superimposition-based AR

Superimposition AR involves partially or entirely changing the original view of an object with an enhanced view of the same object. In this type of AR, object recognition plays a key role. The app cannot replace the original object with the optional object. If AR cannot identify the original object, this type of AR is popularized by social platforms such as Facebook, and Instagram.



Figure 5 Superimposition-based AR. (ptc.com, 2021)

User-Defined Marker-less AR

These experiences are characterized by non-mainstream applications created by developers to solve everyday problems or with customers. The content is usually customized. With user-defined interaction points, it involves using AR libraries and existing technologies to achieve different visualizations and interactions.



Figure 6 User-Defined Marker-less AR. (Lau, G. 2021, The Livegenic Team, 2019)

However, if comparing the types of AR, it is noticed that each format has limitations on its use. The developers must take into account the necessity of the user appropriately which can be seen from the comparison table

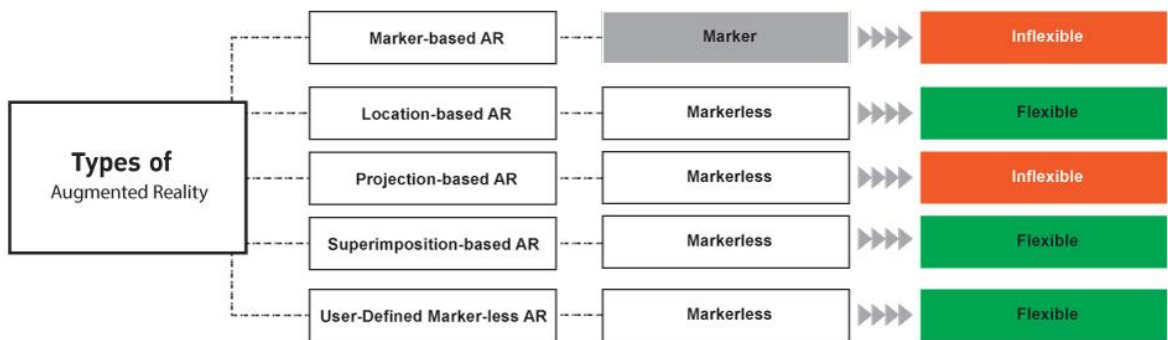


Diagram 4 AR-type comparison structure.

The structure will mention the convenience of use and compare the flexibility of use this flexibility is based on the factors of the need for markers involved in the display.

1. Marker-based AR high-precision format but not flexible to use. Marker is needed. Form
2. Location-based AR is location-based capture that associates an augmentation with a specific location and works by reading data from your device's camera, GPS, digital compass. Markers are not required to display results, thus rendering them faster.
3. Projection-based AR virtual objects are integrated directly into their surroundings. The user can also move around the target object. This method is suitable for permanent installations and does not want to move often
4. Superimposition-based AR has the advantage of detecting physical dissimilarities and rendering augmented effects quickly on objects.
5. User-Defined Marker-less AR the user defines a point and makes the auxiliary object appear. Which auxiliary objects will be remembered at the user-specified location, which is very flexible in use.

2.3 Media in Augmented Reality

Media is a communication channel or tool used to store and deliver information. In the case of learning, the media is an intermediary between the source of the content and the recipient. (Romiszowski, 1992)

AR: Augmented Reality Technology It is a technology that combines reality and virtual worlds created together through software and connected devices, which is considered to create another piece of information that forms the virtual world. Such as Graphics, video, 3D shapes, text, and text overlap with real-world images that appear on the camera the semantic analogy of media in AR means collecting data and designing and developing it to bring the hidden data to the device's destination where AR is placed so that the viewer understands the content through Augmented Reality models.

Obtaining additional information from a marker-type AR application of places such as attractions is to use the device together with the application. Place the camera in the coordinates set by the application. To receive content from multimedia in various formats that can add unlimited content and can communicate with users in a variety of ways, such as educating, creating new experiences in the field of teaching and entertainment in the field of tourism whether it is a 3D model that combines with the real world by gaining knowledge and having fun at the same time

There are many tourist attractions and cultural areas in Thailand, adapting the use of location-based AR to increase attractiveness and encourage tourists to be more interested in travel, such as museums, monuments, learning resources. Use AR to provide more information about the photos on display. It shows the important facts of the image in the background to help the audience better understand the event. However, the medium should result in the most diverse and accurate learning.

2.3.1 Types of media in Augmented Reality

Multimedia has the ability to put together a presentation of a variety of media by using a computer as the primary device and using a multimedia presentation software program. (Kidanan Malithong. 2005: 194-196; Linda. 1995: 4-6) when talking about multimedia in Augmented Reality, it is about information. Content formats that display results in various forms such as text, graphic, full-motion video, animation, sound, etc.

If we separate the main categories that are important in the multimedia graphics of Augmented Reality, it can be broken down into four main categories: Graphic, Animation & motion, Video and Mixed media

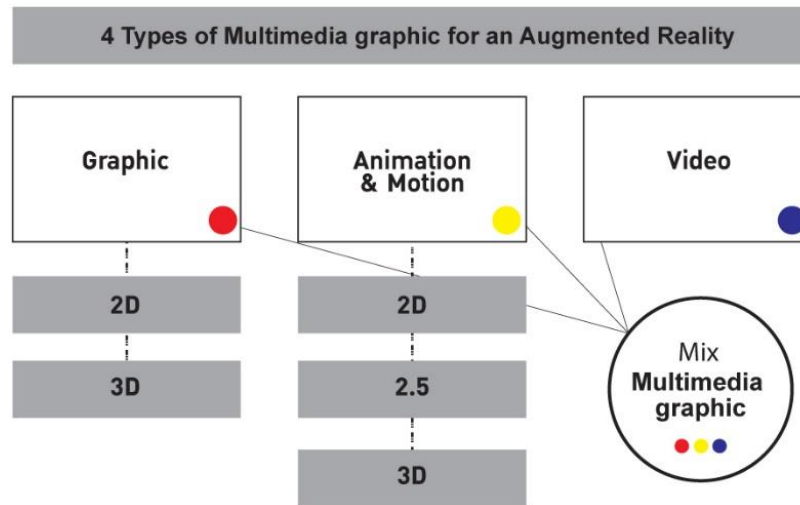


Diagram 5 Types of media for an Augmented Reality.

Graphic

The graphic in this section will talk about accessing AR data that is displayed in still images, which can be classified into 2 formats, 2D and 3D Graphic.

2D Graphic



Figure 7 AR and the central nervous system learning and interaction with other parts of the human body. (Shrivastava, S. 2017)

AR and the central nervous system learn and interact with other parts of the human body by presenting the information in letters the application uses a human body model as a marker for AR to display data. From the analysis of this knowledge set, advantages and observations can be pointed out as follows:

The advantage is information that emphasizes skills and reinforces the learning of medical terminology and high accuracy Due to the use of a mockup that is closer to the real human body, it can be seen more clearly than using a picture.

Remarks the display of only text data or a large amount of information as a static image would not have a positive effect on the ingenious perception

You have finished reading the message. And the teacher explained all the little information about the neural network and how the signal travels and how the reaction takes place. Unfortunately, you want to see it to see the reflections, take place right before your very eyes! Unfortunately, textbook authors aren't always literary geniuses who can write theory the way it's in your head. So, you use 2 D images and schematic diagrams and mix and match a lot of content to differentiate ideas appropriately.

3D Graphics is a graphics program that uses 3D visualization programs to create images with realistic colors and shadows that can be presented to look dimensionally suitable for design and architecture such as automobile manufacturing and 3D animated movies

AUGmentecture It is a platform that can display 3D images from architectural plans by uploading Building plans and 3D building models to the server will convert the data back to the user Able to display simulated images of buildings in 3 formats from a smartphone

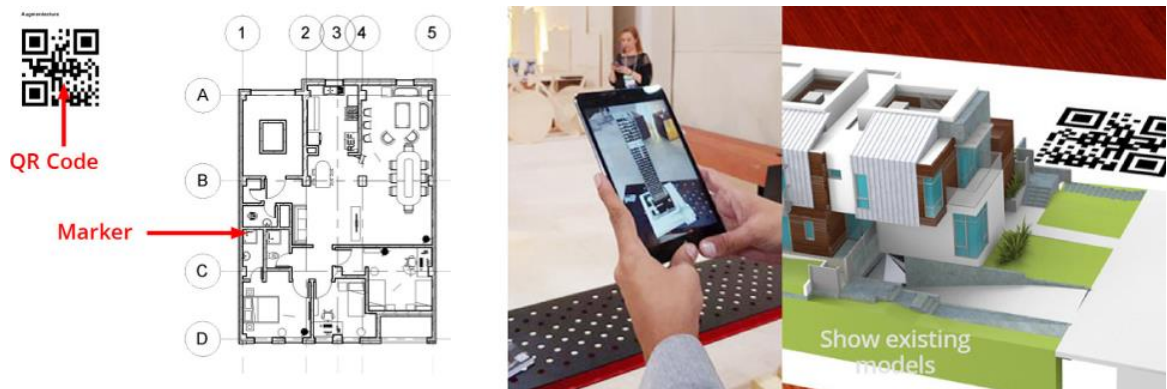


Figure 8 AR 3D rendering from architectural plans. (Panosian, H. 2018)

The advantage is the information that is a 3D model from describing the image in a plan. It shows the details when the rendering comes out as a complete building visible all around

The observations show the data as a non-motion 3D image. May not enhance the perception of information with pleasure

Animation and Motion

Both motion graphics and animation are created as a means of moving images that help to make communication more interesting whether for entertainment increase efficiency in data communication

Animation is the process by which each frame of a movie is produced differently, frame by frame. and then put them together by continuous projection no matter how Using computer graphics to take pictures of drawings or photographs of the simulated moment that slowly move when the image is projected at a speed of 16 frames per second or more, we can see that the image is in continuous motion due to Afterimages in computer, the most widely used collection of animated images on the Internet.

Motion Graphic Born from a combination of 2 words, Motion (Motion) which means movement and the word graphics (Graphic) means images, which images here can be many things, not just photographs, but whether they are images cartoon Squares, triangles, lines, everything is graphic. When these two words come

together to form motion graphics, it is simply translated as "motion graphics." Motion graphics sure enough. Motion graphics will bring graphics to move and move to make it interesting, which will help create fun for graphics. Which is a still image and tells a good story more livelily.

2D Animation is a 2D animation that can see both height and width, which will be fairly realistic. And to create it is not very complicated.

Artivive is an AR tool that helps artists create a new dimension of art by connecting classic art to digital art. The digital layer opens the door to a whole new world of possibilities. Artists can take visitors on a journey through time explain what's underneath Improve your artwork with animation or show you how to create art Artivive is created by more than 100,000 users and has exhibitions in 92 countries. For museums, exhibitions, galleries, and other art institutions, Artivive offers new and creative ways for viewers to interact with exhibitions. Visitors are only required to use their own smartphone or tablet to experience the Augmented Reality. Be sure to check out our case studies for YouTube collaboration from around the world.

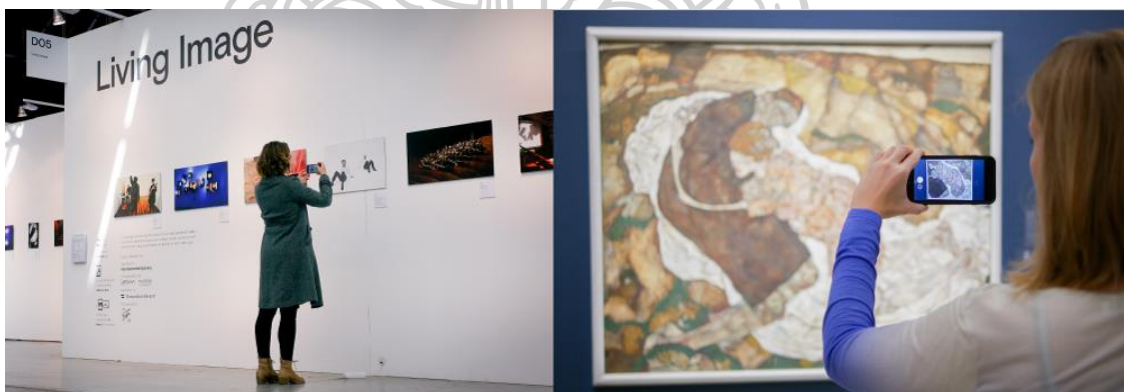


Figure 9 AR and art viewing experience. (artivive.presskithero.com, nd.)

Advantages In regard to 2 D animation, it opens up an art viewing experience that is not limited to just still images but to enhance the meaning of the artistic beauty that allows the movement of the pieces to increase imagination and surprise the viewers of the work. This will be a continuation of the technique 2.5 D or Parallax movement.

Observations displaying information focused on the presentation of 2D animations would not be able to provide information in shallow depths unlike the 3D movement

3D Animation It is a 3 D animation that can see both height, width, and depth.

AVAR is developing a sophisticated proprietary technology platform that allows for the most extraordinary Augmented Reality experience. By pushing the boundaries of technology to the limit, the vision is one of the developments is to leverage the magic of Augmented Reality to connect viewers around the world from experiences to the biggest environmental and ecological issues facing our planet. That is facing its functionality is fun and interactive. Our objective is to inform, impact, and influence people around the world to turn them into change agents for the betterment of the world by presenting a picture of Animals and stories animated in 3D animation.

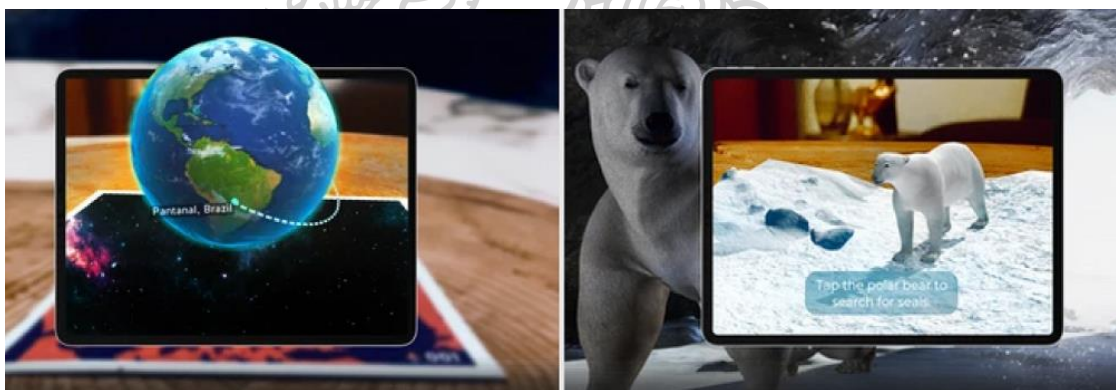


Figure 10 AR and future learning styles. (avaramedia.com, 2021)

Advantages: In the issue of 3 D animation, it helps to enhance imagination. And the response of the reaction is good because it shows the results that can be seen all around look more realistic

Note that 3 D data display still has quality limitations. Because the more realistic the picture, the slower the rendering.

Video (Cutlip and Center, 1978) has given the meaning that Publicity is an endeavor that is planned to influence public opinion that recognizes the institution's business operations and is a two-way communication



Figure 11 Romanovs100 AR Photo Album, a collection of visual information and video storytelling. In the media series "The Lost Russia".

(RT Creative Lab Moscow, 2019.)

The Romanovs100 AR Photo Album is a huge collection of visual information and media narrative to separate the big picture. Thousands of images of Romanov are transformed into platform-specific social media narratives on Facebook, YouTube, Twitter, Instagram, with accounts in each network representing their unique style and content. Turns content into interactive AR books that turn the learning experience into an emotional journey into history. Some of the information is displayed as Videos.

The advantages make it possible to see the video information that accurately tells the story at that time

Please note that video presentations are limited in duration. If it takes too long, it will make the user tired from holding the smartphone for a long time.

Mixed Media is a combination of different multimedia.

The DewataAR app publishes travel information and gives tourists a new experience. To visit tourist attractions, especially temples, this AR development

provides information in the form of mixed media, featuring 3 D visualizations, 3 D animation, and video. (Adi Ferliyanto Waruwu, 2015)



Figure 12 Augmented Reality Mobile Application of Balinese Hindu Temples: DewataAR. (Adi Ferliyanto Waruwu, 2015)

The advantages of the media are diverse. Makes the viewing continuous, not boring, creating interest to the audience as well.

Note: Media development requires quality planning and media size if the file size is large, it will cause a delay in downloading or processing.

2.4 Experience and Phenomenology in Media's Learning of AR

Today, AR media play a huge role in learning, teaching, and providing information on visual science. Because it is a medium that allows communication between teachers and students. Including creating knowledge for people who are interested in general to operate effectively Makes you understand the content of the lesson exactly what you want. The use of media is designed to study the characteristics and properties of each media to choose media to match the learning objectives Able to provide a learning experience for media viewers to enable effective learning management. Nowadays, the development of programs to create lessons or work in multimedia for education more progress making distance learning the use of AR technology both in teaching in the form of organizing knowledge sets

in a data model that presents the complexity and explaining information in a concrete way can do. Therefore, it is extremely important that users, designers, and educators Relevant need to know the details of AR media for learning. To be one of the guidelines that will help to be able to apply to learn in various fields more effectively

In this section, it is necessary to present the definition of Media Awareness Theory for AR Media Education for Cultural Learning. Key features of AR, advantages of multimedia, limitations, considerations, benefits, and role of multimedia in today's education. To be able to design, communicate and deliver the best communications to recipients.

2.4.1 Meaning of Perception

Hawkins and Mothersbaugh (2010) have given the meaning that perception means the process begins with experiencing stimuli from the five senses: sight, smell, hear, taste and touch. thus, causing people to become interested in stimuli and ends with interpreting or figuring out what it means, and Solomon (2007) defined it It is the process by which a person chooses, manages, and interprets what is perceived through the five senses.

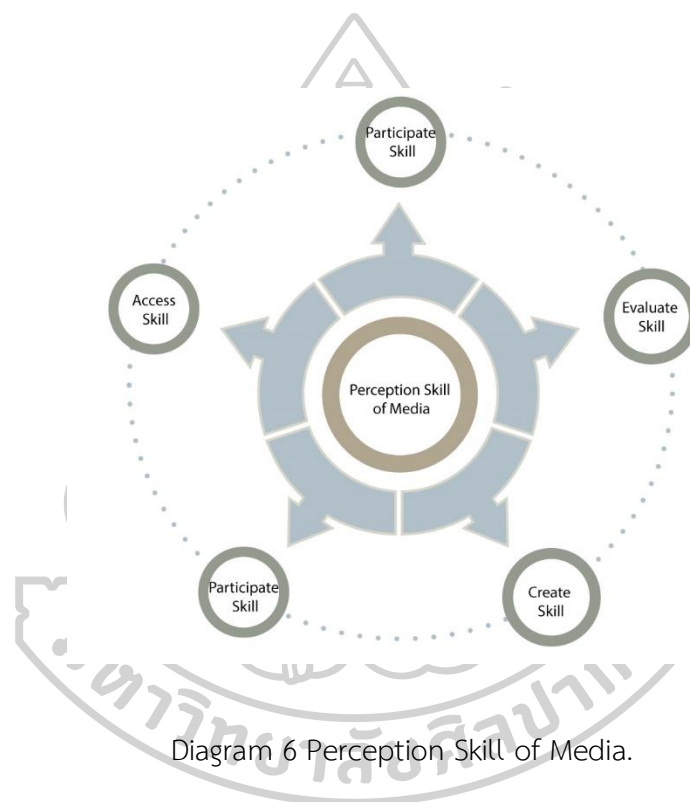
2.4.2 The Process of Perception

Overview of the Perceptual Process perception by feeling Perception begins with the stimulus that hits it. Through the nerves such as eyes, ears, nose, tongue, body, and mind, the process of perception (Process) is a process that overlaps between understanding, thinking, feeling (Sensing), memory (Memory), learning (Learning), decision making (Decision Making)

Sensing -----> Memory -----> Learning -----> Decision Making

2.4.3 Skills used for Media Awareness

Media awareness provides essential skills for everyday use and works in the 21st Century: people want to know more than the main content. Therefore, it is necessary to know how to use your own knowledge and skills. Both critical thinking data analysis, communication, participation, and problem-solving therefore, the skills used for media literacy are identified as follows. (Jolls and Thoman 2008)



1) Access Skills A skill in which a person can collect useful and appropriate information for himself or herself. As well as being able to understand the meaning of the information obtained effectively

2) Analyze Skill: A skill by which a person can analyze content. Information, design, content structure, and chronology as well as being able to understand the content in different contexts as presented by the media

3) Evaluate Skill A skill in which a person can relate information to an individual's experience and make an assessment of the correctness of the content quality and relevance of content

4) Creative Skills A skill in which a person can create ideas through text, sound, or images effectively for a desired purpose as well as being able to use technology to create content

5) Participate Skills are skills in which a person can engage or interact with others as well as being able to enable individuals to collaborate with others

When the Perception Skill of Media theory is brought together with the appropriateness of media in AR, consideration must be given to the first point: the perception and interpretation of sensory stimuli to blend the real world with Augmented Reality is a complex structure each sensory action provides different types of information, and age ranges affect interpretation and comprehension. Although the interaction between the various forms can have a significant impact on how we perceive our world with complementary media. Analyzing these interactions is a matter of classifying the entire process. Since the search audience analysis to the design and adapting it to the context of the content that will be used in the media.

Having a symbol or cue that is different from the environment or physical that we observe. And clarity will try to get users to match those cues. The cues can replace each other or conflict with each other. It depends on the whole system design process. It is important to note that cognitively inaccurate embellishments are often the result of conflicting or inefficient transmissions.

When discussing issues related to visual perception ignoring interactions with other areas, the perceptual problem is related to this problem in AR: observing and interpreting data from created image Perceptual problems may arise not only from the combination of real and virtual information but also from the representation of the real world. We will connect awareness issues for maximum efficiency. Therefore, materials and equipment must be selected in accordance with the purpose of use.

2.4.4 Human Behavior in Online Media via Smartphone

The behavior of using mobile phones of Thai people (www.marketingoops.com, 2013) in collaboration with Decision Fuel, a survey of 20,000 respondents from 20 key countries around the world, with 817 Thai respondents. Mobile phones through applications and mobile websites the group of Thai test-takers was 50% female, 50% male. 19% belong to the age group 15-19, 20% belong to the age group between 20-24, 37% belong to the age group 25-34, 16% were in the age group between 35-44 and 7% were aged 45 and over.

From the survey, it was found that Thai nationality respondents used to consume media through mobile phones the most. Followed by the use of computers, television, radio, and lastly through print media and when it comes to consuming media via mobile phones Thai people use it about 6.6 hours a day.

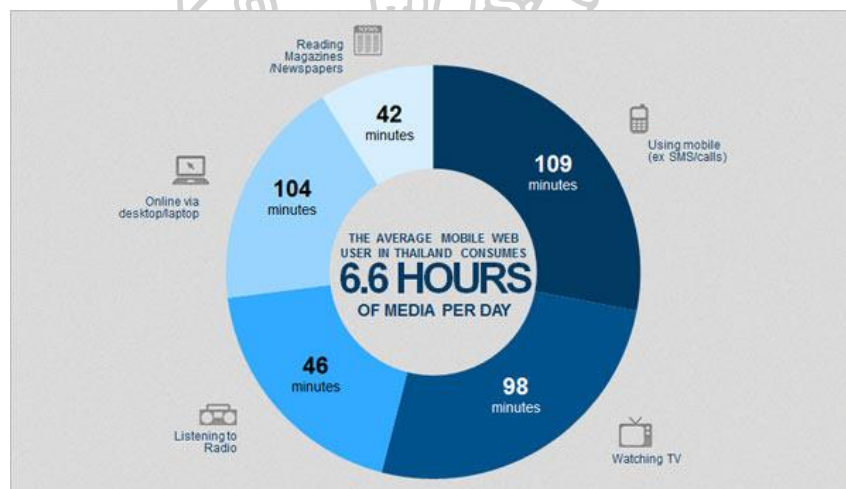


Figure 13 The behavior of using mobile phones of Thai people.
(www.marketingoops.com, 2013)

Mobile phones in Thailand are growing and becoming the primary device of internet usage among Thai people, not losing to other countries.

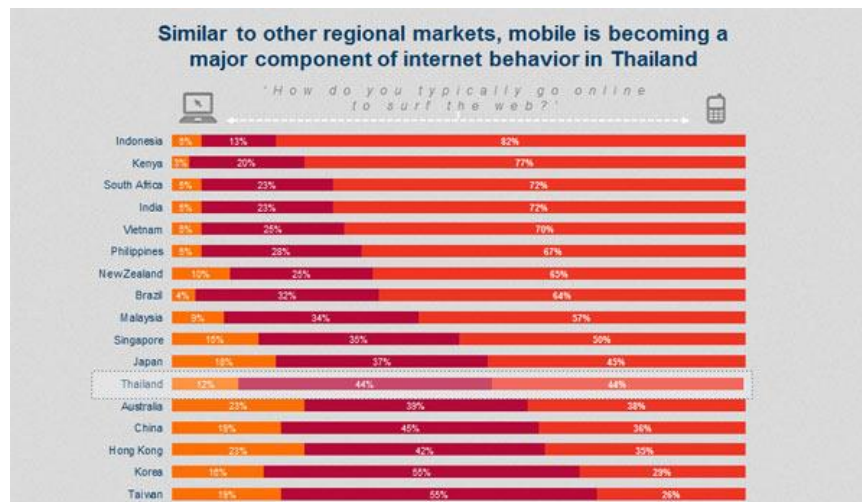


Figure 14 The behavior of using mobile phones of Thai people when compared to other countries. (www.marketingoops.com, 2013)

Why do Thai people use mobile phones to connect to the Internet?

63% said it was easy to use.

33% said they could use it privately or have high privacy

28% said it was a device that was close to them. You can use it Whenever you want.

13% said economically

10% said they used it because they were bored about nothing to do

2.4.5 Concepts, Theories, and Research Related to Technology

Acceptance.

The meaning and definition of technology acceptance (Ooi & Tan, 2016) have given the meaning. Technology Acceptance means understanding the technology and acknowledging the benefits of using it in daily life. Natarajan et al. (Natarajan, et al., 2018) discussed the adoption of the technology. It explains the beliefs and behaviors of users who can use technology to their advantage. Patel and Patel (Patel and Patel 2018) talk about technology adoption. It is the user's willingness to will bring new technology into activities that are intentionally

determined by the behavior of the users of the technology. Grob (Grob 2018) explains that technology adoption means decision-making process Technology will be used through a good assessment process until it has the confidence to accept the technology. In addition, Taylor (Taylor 2016) said that technology adoption means user behavior Respond to that technology, although technology is simple, if it is not useful, it may be not accepting that technology. Furthermore, Hansen et al. (Hansen, et al., 2018) explained that technology adoption means Understanding Technology and Deciding to Adopt Technology Attitude is the predictor of consumer intention behavior. (Lin & Kim, 2016)

Therefore, it can be concluded that Technology adoption means understanding technology through the process of evaluating individuals until they are convinced that they will continue to use the technology.

Davis' Technology Acceptance Model (TAM) (Davis, 1989) was intended to predict technology acceptance in work. Davis (Davis, 1989) described how a person would accept a technology. This is caused by two main factors: Perceived Usefulness and Perceived Ease of Use

As users see how easy technology is, they feel that technology is useful. Only more, with perceived usefulness and perceived ease of use correlated with Behavioral Intention to Use Attitude toward Using

which elements of the acceptance model Technology consist of five factors: 1) Influence of external variables 2) Perceived benefits in using technology 3) Perceived that the technology is easy to use 3) Attitude to use technology 4) the intention to use the technology and 5) acceptance and implementation (Actual System Use) is shown in Figure 1

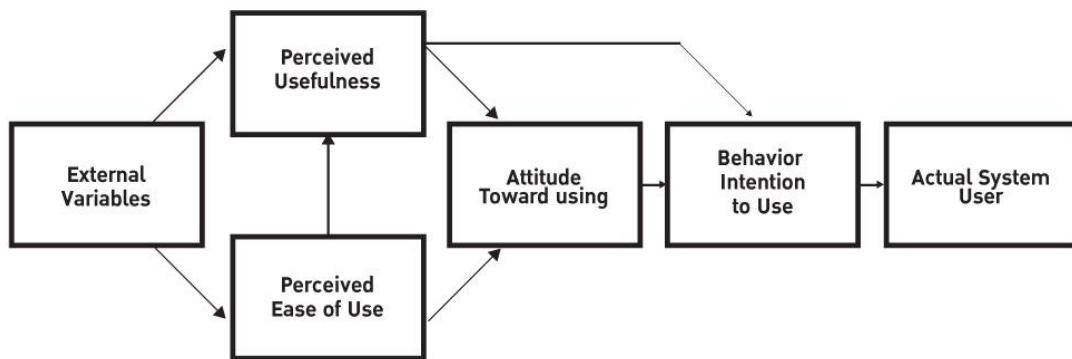


Diagram 7 Technology Acceptance Model: TAM. (Davis, F. D. 1989)

From Figure 1, external variables such as demographic data (Demographic) and experience (Previous Experience), etc., influence the perception of benefits (Perceived Usefulness) received from information technology and perceived as a system that is easy to use (Perceived Ease of Use). Which the perceived benefit is the belief that the benefits of technology Information will be able to increase work efficiency. It helps to reduce the work process as well as helping to save time, resulting in users agreeing to adopt the technology (Venkatesh & Davis, 2000). The concept and theory of attitude toward using technology in the Attitude toward Using Technology model Thurstone & Chave (1966) defined attitude as it is a person's overall feelings and thoughts. This can be both positive and negative, such as likes, dislikes, opinions, fears, beliefs about a particular subject. by the attitude is expressed Through an opinion (Opinion), therefore, it can be considered that the opinion of a person is a symbol of attitude is consistent with Shaw & Costanzo (1982) argues that attitude is a positive and negative assessment of ideas and responses to stimuli. And also, in accordance with Kotler (Kotler, 2003) said the attitude that it is an assessment of personal satisfaction or dissatisfaction or the feeling that a person has the idea of something Attitude is the summation of the assessment of a thing such as a person, object, idea, etc. It also indicates whether it is good or bad, satisfactory or unsatisfactory like or dislike is it helpful or unhelpful where learning experiences can change attitudes. And behavior (Chen, et al., 2018). But a person's attitude is something that is difficult to change in effect. This results in

a person's behavior towards something relatively stable (Darika Thanasut, 2014), and a study by Davis (Davis, 1989) describes attitudes towards the use of information technology systems as feelings the positive or negative of a person towards behavior the concept of technology adoption model measures attitude towards Acceptance of new technologies from users, namely when new technology comes into life, if that technology Can create a positive attitude towards users, it will cause acceptance of that technology. Therefore, it can be concluded that Attitudes towards using technology are the sum total of feelings or thoughts. Which people express through their opinions, such as likes or dislikes. Agree or disagree with one's thoughts on a particular thing or technology when the individual One has perceived ease of use, perceived benefits, and perceived risks. Therefore, people have a good attitude towards using technology and resulting in the intention to continue using the technology

2.5 Relate Research

That Sriratanaban (2015) *The Social Meanings of the Poy Sang Long Ceremony of the Tai Yai People in Mae Hong Son province*. This article aims to analyze and explain the evolving meaning and function of the Poy Sang Long ceremony in the Tai Yai community, which has undergone social and economic transitions from the traditional period up to the present day. The subject of the study is the Tai Yai community in Muang district, Mae hong son province.

The study finds that, in the traditional period, the Poy Sang Long ceremony served such purposes as signifying the Tai Yai people's beliefs in Buddhism; providing means to education and occupational skills training for Tai Yai males; and establishing social relationships and cohesion within the Tai Yai community in Mae Hong Son province, whose livelihood depended upon agriculture, forestry, and trade.

With the evolving socio-economic environment, the meaning and function of the Poy Sang Long ceremony has also undergone a transformation. At the present day, the ceremony mainly functions in the following ways: catering to the

emerging trends of localism and nostalgia among the Tai Yai people; promoting local tourism; strengthening the consciousness of the ethnic identity of both the local Tai Yai and the Tai Yai migrants; and creating new forms of social relationships which correspond to the changes in modern society.

Jack C.P. Cheng, Keyu Chen, Weiwei Chen (2017) *Comparison of Marker-based AR and Marker less AR: A Case Study on Indoor Decoration System*. The feature of combining the real world with virtual objects enables Augmented Reality (AR) to provide a better display of information, resulting in its increasing popularity in a variety of industries. However, the two types of AR application – marker-based AR and markerless AR – are confusing sometimes to developers. These two types of AR can be applied to different situations because both of them have their own advantages and disadvantages. So, it is necessary for developers to learn the difference between these two types of AR. In this paper, an AR-based indoor decoration system is developed to illustrate the difference between marker-based AR and markerless AR. The developed system can aid in viewing the effect of the indoor decoration with both virtual facilities and product information in advance. Based on the two modules of this system (marker-based and markerless module), this paper makes a comparison between these two types of AR in the following four aspects: (1) methods in realizing AR, (2) position accuracy, (3) stability, and (4) hardware support. The comparison results can provide future developers with a judgment basis when deciding which types of AR to select.

Areti Damala, Isabelle Marchal, and Pascal Houlier (2010) *Merging Augmented Reality Based Features in Mobile Multimedia Museum Guides*. Augmented Reality (AR), a computer science field considered by many as a subfield of the broader concept of Mixed Reality, could alter dramatically the way we interact not only with computers but also with the real environment surrounding us, as well as with other human beings. Augmented Reality has so far been used for applications linked with military training, medicine, maintenance, architecture and urban planning, tourism, and entertainment. This last category embraces museums, considered by

many not only as research and exhibition spaces but also as important informal learning environments. Does Augmented Reality have the potential to break into museum and exhibition environments and revolutionize the way we see, approach, and comprehend the exposed exhibits, alongside more traditional interpretation and communication methods? This presentation examines both the state of the art in Augmented Reality applications for cultural heritage and mobile multimedia guides for the museum setting, proposing an Augmented Reality approach for the last. A taxonomy of augmented and non-augmented functions is proposed, aspects of the development are presented and reasons that could favor or slow down the integration of Augmented Reality in mobile museum guides are tackled. The potential mutual benefits both for the Augmented Reality community as well as for cultural heritage professionals are also presented briefly.

Suwichai Phunsa (2018) *The Development of Augmented Reality for Creative Learning Martial Art of Thai Boxing*. The objectives of this research were: 1) to develop Augmented Reality media for creative learning of Mae Mai Muay Thai art 2) to assess the satisfaction of Mae Mai Muay Thai learning development 3) to compare opinion levels. In the perception of Augmented Reality and acceptance of innovation Selection of samples using the purposive sampling method. It consisted of 60 undergraduate students and 30 pairs of Maemai Muay Thai postures. The research tools consisted of: 1) Augmented Reality media for creative learning in Maemai Muay Thai arts, 2) satisfaction assessment form, and 3) Augmented Reality media opinion assessment form. The statistics used in the research were averages. Finding the standard deviation and finding the difference between independent t-tests

The results of the study showed that 1) Media development consisted of the development of 3D animation media, 30 Muay Thai poses using motion capture techniques, and Augmented Reality developed by researchers using the HP Reveal application. installed on the device Users can search for the HashTag in the name #AR-MuayThai and track 2) the overall user satisfaction with the media 3) the opinions on Augmented Reality media perceptions were found to have the overall

opinions at a high level, and 4) the results of the comparison of the opinions of the samples found that in terms of perceptions of Augmented Reality media, there are different levels of opinion.

Natthapong Pralabraksa. (2013) *Participant Production of Augmented Reality Multimedia to Promote Maha Sarakham Province*. This study is to: 1) study the characteristics and the requirement of the public as well as the multimedia production to promote Maha Sarakham province with community participation by using Augmented Reality multimedia (AR), 2) develop the Augmented Reality multimedia (AR) to promote Maha Sarakham province, and 3) publication the Augmented Reality multimedia (AR) for promoting Maha Sarakham province. The instruments of this study are multimedia for public relations in tourist attraction places in Maha Sarakham province, the audience's satisfaction forms in multimedia for public relations in tourist attraction places in Maha Sarakham province. The statistical analysis of the data consisted of means (\bar{x}) and standard deviation (S.D) Findings are as follows: 1. the villager would like multimedia for promoting the province that shows the characteristic of the community, easy to access and use simple language 2. There are three multimedia for public relations in tourist attraction place in Maha Sarakham province in form of guided tours which divided into three periods: Phra Phuttha Ming Mongkol Akanakkhiri lasting for 11 minutes, Ku Santarat for 11 minutes, for Dun Lauphan Wildlife Sanctuary lasting for 10 minutes and Ban Nong Khuean Chang Handicraft Village lasting for 10 minutes 3. The audience has satisfaction to the multimedia for public relation in tourist attraction place in Maha Sarakham province in good level (\bar{x} = 4.45, S.D.= 0.80 for Phra Phuttha Ming Mongkol Akanakkhiri, \bar{x} = 4.30, SD = 0.60 for Ku San Tarat, \bar{x} = 4.21, SD = 0.60 for Dun Lauphan Wildlife Sanctuary and \bar{x} = 4.23, SD = 0.40 for Ban Nong Khuean Chang Handicraft Village). From this study suggests that Augmented Reality multimedia (AR) is one attractive way to public relations the tourist attractions.

Chapter 3

Research Methodology

In this study, the researchers applied the concept of interactive perception with the integration of AR technology to promote the identity of the Tai Yai ethnic group through Poy Sang Long ceremony in Mae Hong Son province. This concept is applied to this research which relates to media use and to promote awareness of the target audience more effectively. These six steps consist of a literature review: data collection, analysis, design, measurement, evaluation, and final design.

Classification Types of Research

This research is classification types of historical study and experimental research by studying the history of the Poy Sang Long tradition of Mae Hong Son Province and using it to experiment with creating AR media to present complex content for easy understanding

Methodology

This research uses a mixed-method research model by using the interview and media satisfaction measurement

Population and Sample Group

The sample group in assessing the suitability of Augmented Reality technology presenting Tai Yai ethnic identity through Poy Sang Long ceremony in Mae Hong Son Province are selected by Purposive Sampling.

- Academics: experts in history and ethnography.
- Youth volunteers and students
- Media Design Specialist

Experimental Analysis

Phase 1: Literature reviewed purposively focusing on the identity of the Tai Yai ethnic group through the Poy Sang Long ceremony in Mae Hong Son province and the development of AR technology, a design theory that emphasizes the perception of interactive media.

Phase 2: Data Collection - The data was collected from the study in the textbooks to find information on the history of the Tai Yai ethnic group, including the legend of the Poy Sang Long tradition. The data was collected from interviews with knowledgeable villagers, wisdom teachers, community leaders, and people in Mae Hong Son province.

Phase 3: Data Analysis - During the pre-operation stages, various techniques were used: 1) data analysis and content analysis, 2) typological analysis, 3) frequency analysis, and 4) triangulation analysis. This was to synthesize all the information from phase 1 to generate key concepts for AR media design.

Phase 4: Design - Analysis of findings from previous steps to define AR media concept and character design. At this stage, modeling and presentation prerequisites were planned for further evaluation of applications.

Phase 5: Measurement - Experts assessed the quality of AR media and the feasibility of being tested on a sample of youth volunteers in Mae Hong Son province by measuring media satisfaction and presenting the results as a mean.

Phase 6: Final Design - Final edits in AR media based on expert proposals and sample groups before the actual use.

Experimental analysis and Research Methodology as follow by research objective are explained in the diagram below.

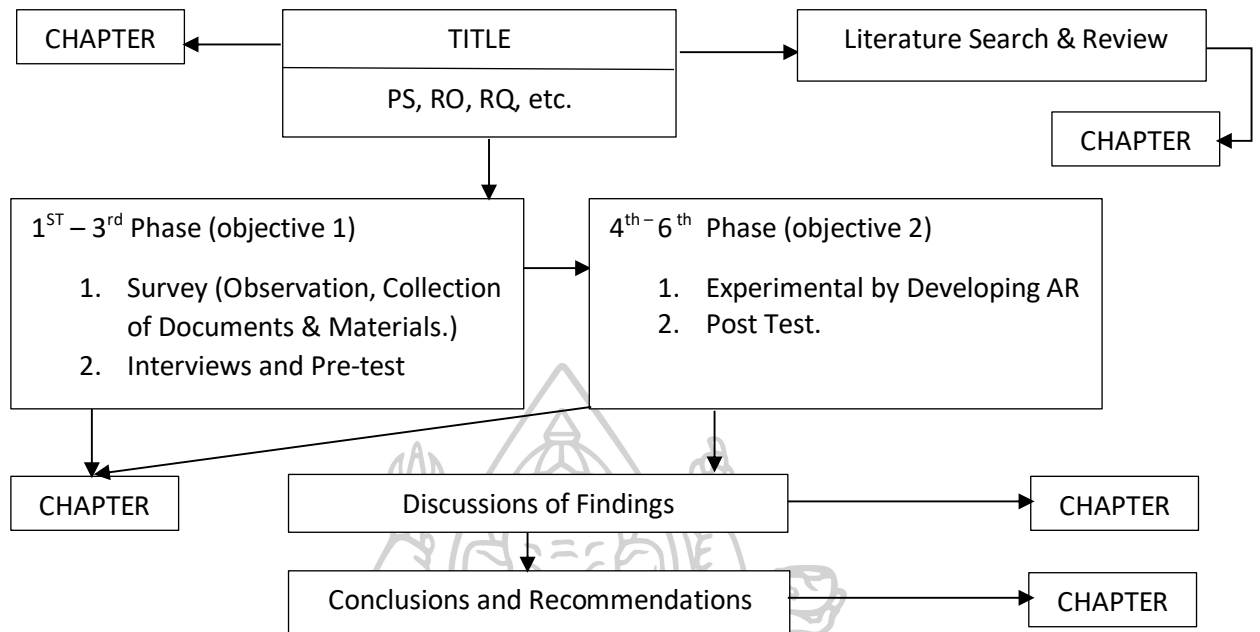


Diagram 8 Experimental Analysis and Research Methodology I.



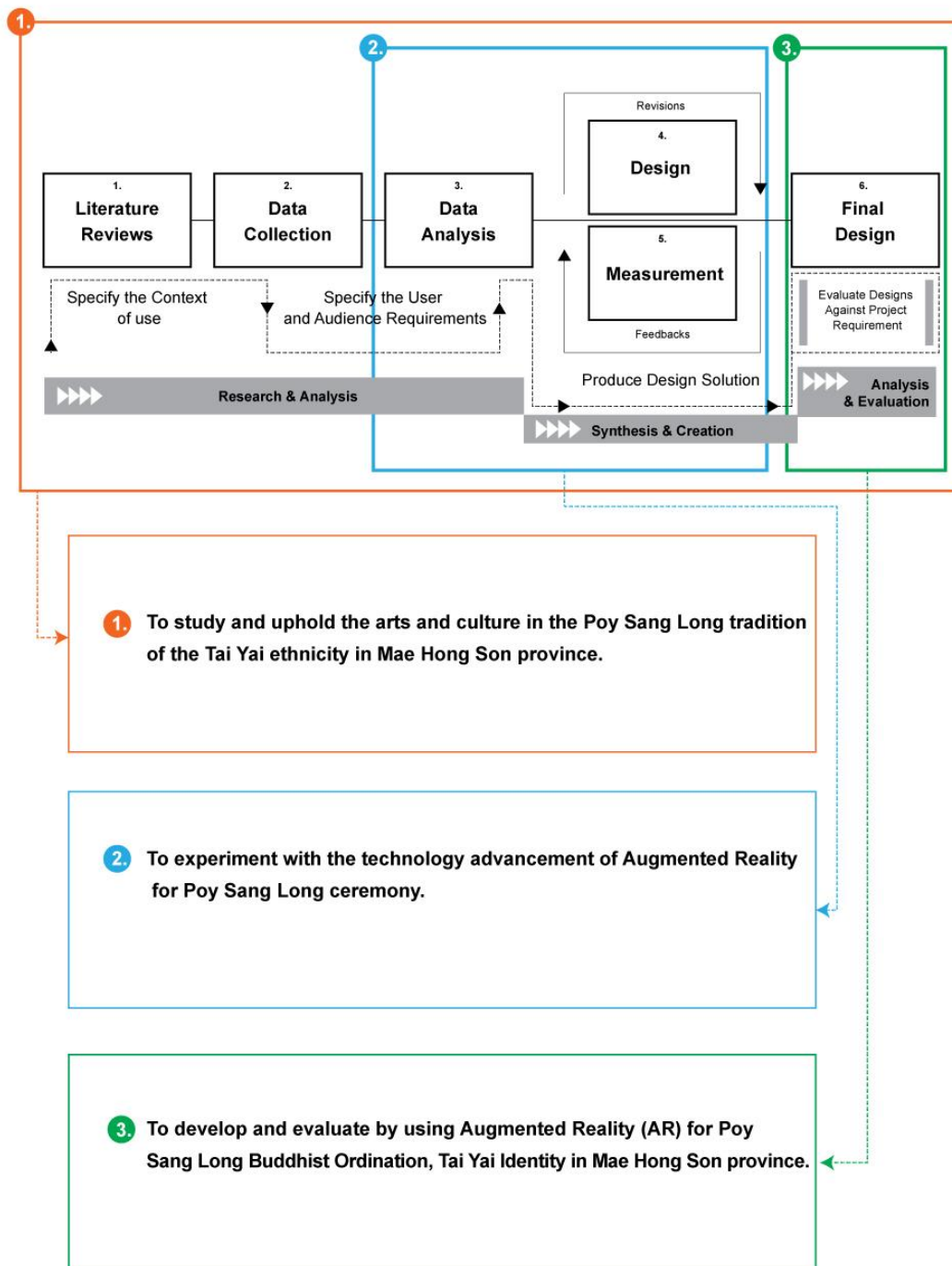


Diagram 9 Experimental Analysis and Research Methodology II.

Phase 1: Literature Reviews

The aforementioned data focused on Tai Yai ethnic identity through the Poy Sang Long ceremony Mae Hong Son province and the development of AR technology, design theory that emphasizes the perception of mixed media. From the data collection and analysis in Phase 1, it leads to the creation of media character patterns of AR technology using Tai Yai ethnic identity through Poy Sang Long ceremony.

Research documents, textbooks, and related researches about the creation of Tai Yai ethnicity from portraits of the kings of China, India, and Myanmar respectively has been studied.

The processes of designing the legend of Poy Sang Long in terms of faith, the legend of Poy Sang Long for Motion 2D have been studied.

Poy Sang Long or rituals have been traced. The ordination of the novices of the Tai Yai people means that it is a ritual that gives meaning and importance. About the transition of the boy's status, including parents and related persons, each step has meaning and is related to existence in Tai Yai society. As a result, the ritual was continuously reproduced which from research has found evidence in the reference which is believed to be three myths as mentioned in the research papers are related

Third version of Legend

At one point in Varanasi, wealthy men held their children's ordination ceremony and a grand celebration. A widow in that town had an ugly son but had faith to ordain in Buddhism. Due to monetary poverty, when she heard the news that the wealthy man would hold an ordination ceremony, the son and his mother hugged each other, crying because of regret in fate. Knowing this, Indra came down to bring the ugly boy into the pool and washed it with holy water, giving him a beautiful and elegant figure. When Brahma came to know him, he created the Bodhisattva-style costume and was accepted as the host for the novice ordination. The aforementioned legend is the origin of the word "Sang Long" because Brahma in the Tai Yai dialect is called "Khun Sang," who traveled to achieve the status of

Bodhisattva. In Tai Yai language, it is called "Chao Along." The boy was called "Sang Long" and later became "Sang Long". (That Sriratanaban, 2019: 97)

This expression can convey beliefs that differ from the main influence of beliefs that grew into the latter. It is also an expression that communicates in Sang Long's name and leads to the belief of Phor Khaam - Mae Kham, which is an essential mechanism in organizing rituals. Phor Khaam - Mae Kham refers to the patronized as a matriculation host and has the same status as the legendary "Brahma." It is an adjustment to the social level of Phor Khaam - Mae Kham. In addition, the Phor Khaam - Mae Kham system in Tai Yai society also creates a labor and economic network, which affects the economic status of Phor Khaam - Mae Kham and Look Kham. This is a kinship relationship of the community by using the rationale of religious beliefs in holding and implementing community practices.

Study the Information for the Design Process of the Poy Sang Long Legend

The place from the version brought up to create a legend. The Poy Sang Long tradition is traced from the landscape of Varanasi, India, the capital of the Kingdom of Kashi during the Buddha's time. It is currently located in Uttar Pradesh State. India is 320 km from Lucknow, the capital city of Uttar Pradesh (Wikipedia.org, 2021). Varanasi flows through the Ganges. It is one of the most sacred cities of the seven holy cities. In the beliefs of Hinduism and Jainism, with a history of more than 4,000 years, Varanasi is India's oldest city and is also the most extended inhabited city in world history. It is considered to be the dwelling place of Siwathep. It is regarded as the eternal city of India and is a pilgrimage site for both Hindus and Buddhists around the world.



Figure 15 The landscape of Varanasi, India. (Wikipedia.org, 2021).

To its landscape and architecture, there was almost no change from primitive times. This makes it possible to draw on the uniqueness of the city to be used in drawings.

A survey of the characteristics of indigenous people living in the area found that most of them were poor (Rediff.com, 2011). Boys did not like to wear shirts. This is similar to the past the mother dressed in typical Indian women's clothing is to wear a robe up to the ankle and cover them with a sari often wear bright colors and bun behind the head.



Figure 16 Characteristics of indigenous people living in the area.

(Ewsick, 2018, Krause, 2011)

From a search, it is found that Indra is a deity according to the motto of Hinduism and Jainism. It is responsible for ruling the heavens and overseeing the world. Born in the Rigveda period, later in the period when the Trimurti occurred, Indra was reduced to a role and began to have more sexual behavior. Until becoming a deity inferior to the present Trimurti, Indra had a wife named Kalalajna, a son named Pali, and a younger brother named Sukreep. Child of the sun Indra had a stalwart body, golden hair, beard, and nails, eyes all over his body, and four arms. (Kaewwangchai, 2018, Kradanbogboon, 2021), with a red, off-white body, and now green.

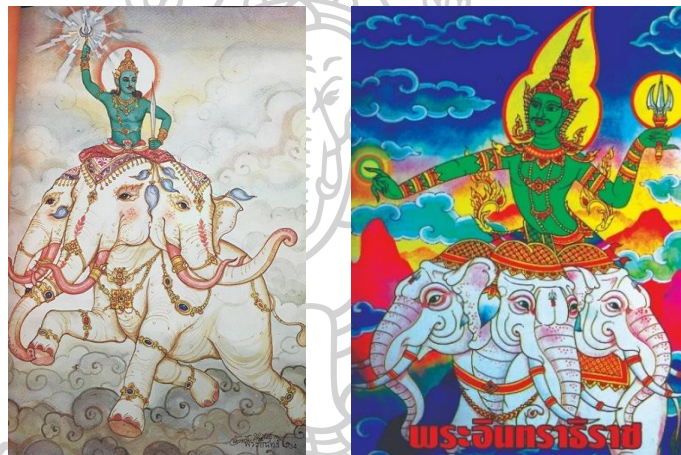


Figure 17 Characteristics of Indra. (Kaewwangchai, 2018, Kradanbogboon, 2021)

From searching, Brahma found that the Brahma in Buddhism is Thao Mahathadapajapati Brahma. It is the supreme deity (Trimurti) in Hinduism. He is the god of creation, mercy, the creator of the world, and all things in the universe and the Vedas. Brahma has four faces. His head wears a rosary. Each hand holds a lotus flower, a scripture, and a cauldron (Singto, 2021).

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Figure 18 Characteristics of Brahma. (Singto, 2021, alamy.com, 2016)

Novices from the investigation found that novices and novices mean the clumps of monks. The monk's flesh Refers to a young male priest in Buddhism not yet been ordained as a monk. If a young female priest is called a novice, the word “novice” is a specific term in Buddhism. It is a term used to refer specifically to Buddhist monks. Not general public those who will be ordained as novices and novices, the Vinaya prescribes a minimum age of about seven years old, which is enough to help themselves. The Vinaya stated that it was enough to scare away the chickens. Height is indeterminate. Those under 20 years old will be ordained as a novice forever. Cannot be ordained as a monk. The characteristics of the robe color are light orange tones, yellow-orange, and reddish orange, with their hair shaved, eyebrows shaved, and in a calm posture. (wikipedia.org, 2020)



Figure 19 Characteristics of Novices. (pinterest.com, 2019, homhuan.com, 2016)

Study the Process of Character Design.

The character was created in 4 steps:

1) Searching for historical images from the following information sources:

Era 623 BC, the era of Prince Siddhartha.



Figure 20 Young Prince Siddhartha. (Pbs.org, 2010)

It is said in the tales that he was the son of a king who grew up in a palace that was as luxurious as imaginable. He is called Siddhartha Gautama as the image depicts the prince. Amid a group of servants, governors, and servants (Pbs.org, 2010).

“When I was a child, I was delicately brought up, most delicately. A white sunshade was held over me day and night to protect me from cold, heat, dust, dirt, and dew. My father gave me three lotus ponds: one where red lotus bloomed, one where white lotus bloomed, one where blue lotuses bloomed.”

According to legend, the first version is consistent with the importance of Sang Long wishing to equate ordination with Prince **Siddhartha**.

2) Search for historical costume images from the following sources.

The era of the 1800s -1900s of the King – A search of uniforms that presumably influenced Sang Long’s attire; with reference from the belief that Sang Long is a portrait of the king before his ordination.



Figure 21 Royal Commander of Asia.

Figure k1 Xianfeng Emperor. (17 July 1831 – 22 August 1861)

Figure k2 Maharaja Chamarajendra Wadiyar X. (22 February 1863 – 28 December 1894)

Figure k3 Thibaw Min, also Thebaw or Theebaw. (1 January 1859 – 19 December 1916)

Figure k4 Phrabat Somdet Phra Paraminthra Maha Chulalongkorn Phra Chulachomklao Chao Yu Hua (Rama V) or Chulalongkorn. (20 September 1853 – 23 October 1910)

3) Search for historical costume images from the following sources.

The costumes of the King of Fighters are believed by Thai and Myanmar people. The image was created using 3ds max, Zbrush, and Photoshop Normal, and AO was created with XNormal.



Figure 22 The King of Fighters are believed by Thai and Myanmar people.

(Deviantart.com, 2014)

3.1) King Naresuan the Great (Panyawathutrakul, W. nd) the war was when King Naresuan was the king. It was a great and important event for the Thai nation. His Highness saved the Thai freedom from the loss of Ayutthaya for the first time. And spread the power of the Kingdom of Thailand expansive since the whole of Southern Myanmar, that is, from the western Indian Ocean. On the east coast of the Pacific Ocean on the south side to the Malay Peninsula On the north side, it's always on the banks of the Mekong River and also including some Shan states

3.2) King Bayinnaung Bayinnaung Kyawhtin Nawrahta (baanjomyut.com, 2019), the hero of Myanmar. He was a monk who could fight until he was promised that 'The Winner of the Ten Directions,' which in addition to the battle, he also had other geniuses, such as vision on the propagation of Buddhism

3.3) Chao Suea Khanfa is considered the hero of the Shan nationalists. (Atcharyaprasit, 2004), If compared to the era, consider that he was born before the reign of King Bayinnaung and King Naresuan a lot. The highlight of Chao Khan Fa is the one who unites the Tai Yai kingdom into one.

3.4) Design the characters and costumes from inspiration from searching for information.

3.4.1) Sang Long character design



Figure 23 Sang Long's Character prototype development.

The form of Pichaiyut IX inspires the costumes used in the design. This will highlight the dress embroidered with gold thread contrasting the fabric's color. Jewelry is worn to represent wealth. Poy Sang Long's dress is popular with brightly colored clothes and decorated with all sorts of patterns. And accessories like a king, however, the designers wanted to choose a red dress, red means courage. Wrapped in a blue cloth showing strength decisiveness, like a mighty king contrasting with a green turban symbolizes peace, serenity, and fertility. It contrasts with white stripes showing pure purity and the gold representing being honored as a king, as Poy Sang Long's legend has said.

Phase 2: Data Collection

The researcher collected data from the study in the textbooks to find information on the history of the Tai Yai ethnic group, including the legend of the Poy Sang Long tradition. The data was collected from interviews with knowledgeable villagers, wisdom teachers, community leaders and people in Mae Hong Son province.



Figure 24 Field visits to collect data by interviewing community leaders history and ethnography specialist.

Important Beliefs of the Tai Yai People – Local Flower

This local flower Myanmar people call the Myawaddy flower. The people of Pai call it “Maymyo Flower,” but in the Great Thai language, it is called “Sadevata Flower.” which means rich man's plan. When the Maymyo flowers bloom, the elders of Thai Yai would like to cut this flower to pay homage to monks and sacred things for the prosperity of life

In general, there are two types of bright flowers in the beliefs of Thai Yai people, namely Maymyo and Dok Kaew Muang In that usually bloom during the end of Buddhist Lent Dok Kaew Muang Inthon Locally, Pai is also rare and endangered. Dok Kaew Muang in It is also called "Jing Zhu Chai." Chinese people like to put the top in the pork blood soup menu. But the Thai Yai people believe that bringing Kaew Muang Inthara flowers to worship monks during the Buddhist Lent season will receive a lot of merits. When they die, they will go to heaven.

The flower of the Songkran festival of Tai Yai is “Mok Ko Soi.” It is a shrub that grows in the forest naturally. The trunk is straight, the bark surface is brown, and the ends of the branches are bright green. Leaves are simple, V-shaped, leaf base, pointed apex, leaf surface, and inner margin wavy. The flowers are in bouquets at the ends of the branches, spherical. When they bloom, they are white and light green, giving off a long-distance scent. Importantly, it is said that the flowers will only bloom on Songkran Day so that the Shan people will collect only the mist. to be used to worship monks in temples and in the home, including used to decorate the Song Phra gutter during the Songkran festival as well have brought these two types of flowers to design a new pattern to have a reduced shape

“Aung Kham flower” is a term used to refer to orchid flowers commonly used in northern Thailand. And the Tai people in the Xishuangbanna region of southern China. Time is also used to guide orchids. Among the Tai people, the famous “Dok Aung Kham” (Rattan Orchid) will bloom from late January to late May. The people of Mae Hong Son province used to decorate the head of Sang Long. In the Poi Sang Long tradition, the word orchid conveys wealth, vitality, and brightness like gold and is also used in rituals according to beliefs.

From data collecting, it was concluded that the flowers were used to decorate Sang Long's head. Most of them use the Aung Kham flower or a beautiful seasonal flower. And has an auspicious name. Auspicious flowers are hard to find. However, villagers often use plastic flowers instead of real flowers.

The researcher has taken the characteristics of bright flowers. Used in the experimental design of Pankum or head ornament by unraveling the pattern from real flowers to be a pattern for use in 2D and 3D images in the following order.

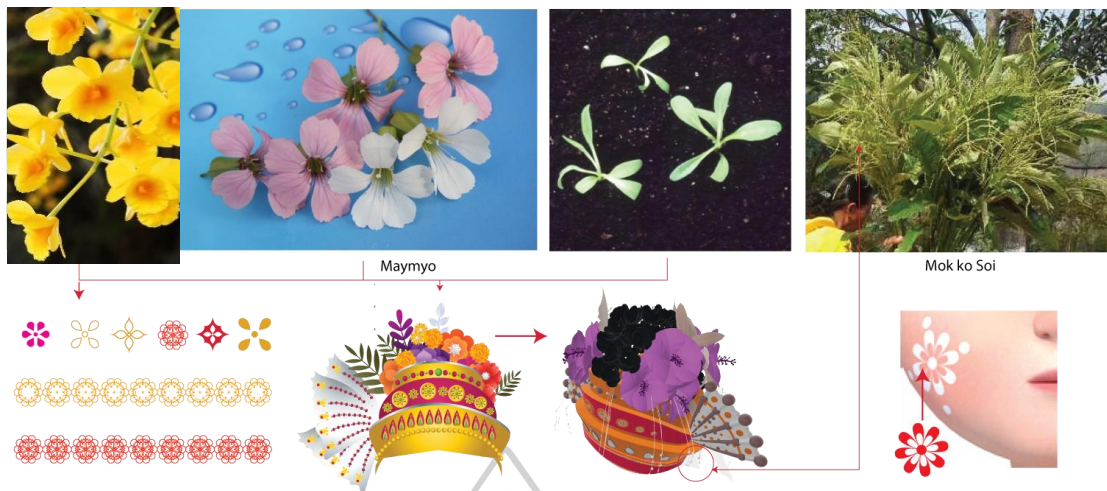


Figure 25 Bringing flowers of the Tai Yai faith to create hats decorating heads.

Bring the characteristics of bright flowers to unfold to create a pattern. Emphasis on simplicity can be connected with Mok ko Soi flowers used to decorate the side. The flower protrudes on the outermost part of the headdress. The patterns that have been used to accompany the outfits and accessories.

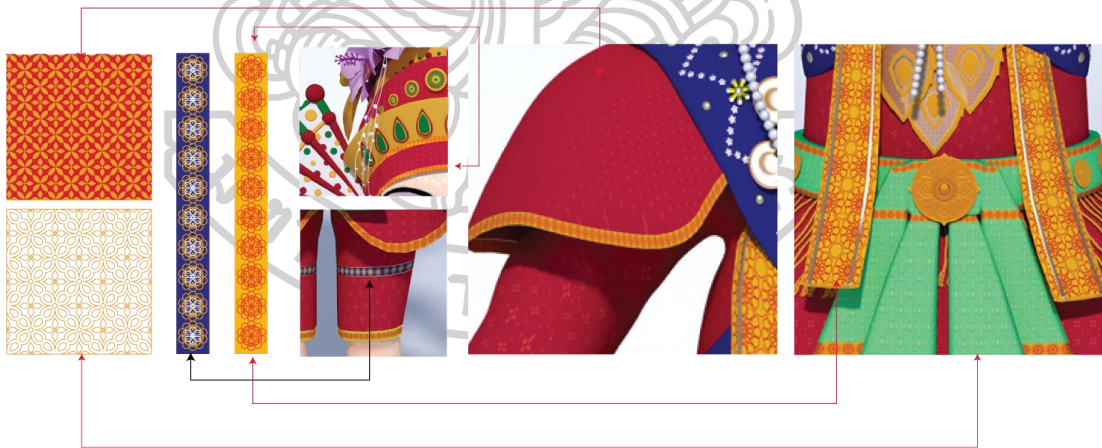


Figure 26 A pattern that extends to Poy Sang Long dress.

CHARACTER DESIGN

Figure 27 Render each side of Sang Long.

Character design of the Tai Yai male.

The dress of a Tai Yai men, men wear long-sleeved Chinese shirt-like shirts, called "Tak Tak Pung," and khaki pants, known as "Kon Hong Yong," with cloth colorful headdress. In the past, Shan men used to have long hair. Klao is a bun in the middle of the head. Ear piercing to insert the ear loops, but now it's not popular anymore.

If they have to travel far away, they always carry a satchel to carry things. The Tai Yai people call the satchels "Tong" or "Tong Pai" and prefer to carry swords or knives, all-purpose weapons of the Shan people. Sometimes, they have a blade, called "Papa Lee," the word "Pa" means a knife, and "Lae" means a sword.



Figure 28 Character design of the Tai Yai male.

Character design of the Tai Yai female.

Women wear a sarong or a long sarong covering the eyes. Long-sleeved shirt covering the waist the shirt label is overlaid on the same side as the sarong, and it is loose. The well-known and unique sarong pattern is the “Luntaya Ashe” fabric pattern (Kulabutr, 2004). Trendy designs are formed by island weaving techniques or through the entire fabric in overlapping waves. Many layers across the whole plot there are both monochromatic and multicolored. It is said that this beautiful pattern May refers to the Sattabariphand Mountain that surrounds Phra Sumeru Mountain.

The pattern of vines, flowers, and leaves is representative of the Himmapan Bang forest. It is said that it is a pattern of clouds in the heavens of Daowadung. Luntaya Ashe fabric is woven with silk, both ways, and flowers. It is usually silver metallic inserted appropriately. Elaboration intricates with various weaving techniques that requires a high level of skill and expertise, hence the name Luntaya Ashe, which means the cloth woven with hundreds of bobbins, similar to the Luntaya Ashe sarong, is available in both a single piece of fabric and as a bag, which is a single piece of cloth. When you wear it, wrap it around your body. Let the edges of the fabric overlap the front. Therefore, it looks like a piece of cloth. One piece of Luntaya Ashe has three parts: the upper part is a dark cloth. Usually, it is red velvet, pounded or brown. The middle loop is the beautiful sarong. And the lower

part is soft pink silk has a simple pattern. When wearing, it will cover the foot length if used in dancing or performing.



Figure 29 Character design of the Tai Yai female.

Field visits in Muang district and outer area of Mae Hong Son province, including in some areas of Chiang Mai province, were deployed to understand the Poy Sang Long set in each area. The data is collected data on the Shan ethnicity and the legend of Poy Sang Long tradition, from interviews with knowledgeable villagers, wisdom teachers, community leaders and people in Mae Hong Son province.

- 1) Mae Sariang district, Mae Hong Son province
- 2) Pa Pao Temple, Chiang Mai
- 3) Ban Huai Makhuea Som Mae Hong Son province
- 4) Pai district Mae Hong Son

The style of the dress often emphasizes bright colors. The indispensable aspect of preparation for being a Sang long and the color of Sang Long is very much, that is, clothes. Colorful decorations, try to wear the villagers will attach importance to dressing for Sang Long no less than preparing another merit-making. The villagers, who are women, will decorate the clothes and accessories to be beautiful. The characteristics of the clothes that Saeng tries to wear in the ritual are a dress similar to the Khon costume, but the uniqueness of the pattern and the

colors of the clothes are influenced mainly by Myanmar practices. Sang Long's attire consists of Chada decorated with colorful flowers, bright colored clothes, neck filters, embroidered with sequins, patterns that are beautifully alternating colors.



Figure 30 styles and differences of outfits in each area. (bloggang.com, 2007)

Sang Long's makeup popularly writes patterns with white powder and uses techniques of pointing, or uses various forms of molding, from observing in each area. Designs are preferred over the eyebrows, cheeks, and in the middle of the forehead.



Figure 31 The style of drawing on the face of Sang Long. (Touronthai.com, 2018)

Sang Long's jewelry consists of a lap or chest strap, a narrow neck or a necklace, a circular bow-shaped brooch. Sang Long is often worn on arm bracelets, gemstones, and numerous gold necklaces. With implications for showing wealth and

the patronage of parents and relatives, the important thing is that the Hand fan will always hold it.



Figure 32 Styles of Sang Long jewelry in each area.

Pankum or flower hat or Chada or head accessory for wearing in the last step of dressing up, there are different formats by the area of Mae Hong Son province. From the field visit, it was found that popularly used fresh flowers or artificial flowers to decorate the main.



Figure 33 Patterns of flower hats of each area. (Pantip.com, 2014)

Phase 3: Data Analysis

During the pre-operation stages, various techniques were used: 1) data analysis and content analysis, 2) typological analysis, 3) frequency analysis, and 4)

triangulation analysis. This was to synthesize all the information from phase1 to generate key concepts for AR media design.

Field Study to Collect Data and Film the Poi Sang Long Tradition, Pai District, Mae Hong Son Province

From visiting this area, the researcher reviewed the literature from relevant documents, and has visited the data-collected area from observation and interviews with experts in the process of ceremonies, summarizing the process of performing the rituals in Poy Sang Long tradition for about 3-5 days, depending on the host, community leaders, or the person in charge of the event set the number of days. (Suraphet Sitthiphet, personal communication, 23 January 2019, Siddha (Buddhist Monk), personal communication, 24 January 2019, Sukprasert, 2016., Rungtawan, 2012. Sanguan, 1969) It can be explained as follows.

“Rab Sang” Day

The ordination is usually performed in the early morning. Before taking the Sang Long, try to achieve the ordination ceremony at that temple. Tapae will bring Sang Long tries to hide it somewhere else. To demand money from the host after receiving the money, Sang Long can be given to ordain. On the day that "Sang Long" will be taken to ordain at that temple, there will be a large parade of adults carrying the Sang Long on their shoulders and taking them around the city.

The Sang Long procession will be played with Mong Seng (set of gongs), cymbals, and drums, creating a live performance in tandem with pictures of beautifully dressed. Tapae brings Sang Long on their shoulders, gradually marching in a procession. Both are walking and rocking dance and dance over the shoulder with the rhythm of the sound. The parade of Tapae will bring Sang Long to worship sacred places; such as the City Pillar Shrine, the Muang Shrine, the abbot, and respected elders, and important people in the community to show their respect and receive the blessing. Taking Sang to ask for forgiveness is like apologizing for intentional trespassing or not good intentions as for those who are asked for forgiveness, they will be forgiven, not offended or offended.

Krua Lu Parade Day.

The second day of Poy Sang Long is called Krua Lu Parade Day. Or the day of the parade of Thai elements to offer to monks. There is a procession of Sang Long and Thai food offerings from the temple along the various roads. The train consists of Ji Jae (Kangsadan), the ruler's horse, the tapestry tree, the Buddha image. Ta-pei tree, monks are bursting into pieces, silver candles, gold candles Golden bush U Tong, Pan Tong, low cauldron, Atthaborikhan (basic 8 monk's appliances), Sang Long procession, where Sang Long on a nanny's neck with a golden umbrella or "Tikham" covering the sun.

There is a ceremony to make a motto and recitation of slogans in the evening. The essence of making a gift is to teach and show your biological parents' grace and prepare for Sang Long, who will be ordained the next day. Sang Long will return to his own home when the gift is done. Sang Long's relatives and friends come to offer blessings to Sang Long, which is another time when relatives of the host Sang Long's house could meet and socialize.

“Kham Sang” Day

The last period is Wan Lu or Kham Sang. It is considered an important day, which is the day of the ordination of novices and offering Thai necessities to the monks. All Sang Longs will attend the ceremony to request permission to be ordained from the elders, when preached, they change the attire from Sang Long dress to Tri cloth to become a complete novice (Mae Hong Son Provincial Cultural Office, 2021), each Sang Long may ordain for 15 days or one month.

The ordination ceremony of the Tai Yai people is said to do big things and spend a lot of money; some people spend time collecting money for this purpose. For a year to hope for merit in the ordination of monks regardless of waste After the event and thank you ceremony or "Aung Poy" ceremony, this ceremony is to express gratitude to those who came to help the event and offer food to the new novices as well. As mentioned, there will be relatives and people in the community at every step of the ritual, who come to help from the stage of preparation until the job is done. The host will prepare food to feed the people involved in the event, including



having an entertainment ceremony throughout the event as well Mong Sheng drum ensemble, long bottom drums, Mo Kham (Sai Yai drummers), jad Tai (Lika Tai Yai), which are the colors of celebrations or tuff events in Tai Yai society. (Sriratanaban, 2015)

In the motion picture collection operation, the researcher has prepared a production team consisting of a director. Video recorder still image recorder, light maker, sound recorder and divided teams to collect data subtleties in each process as shown in the table








Table 1 Poy Sang Long Ceremonial Elements on the First Day.

No.	DATA	Description
1.		<p>On the first day in the evening, the children's hair is shaved at the temple ceremony. After the child's parents cut the hair for the child, then let the children take a shower in Som Poy, which the temple has provided and dressed in white to prepare for the next day.</p>
2.		<p>Rab Sang day, in the early morning, parents and relatives and Tapae come together at the temple and help each other dress up to try on the clothes used in ceremonies like in the past. They are wearing accessories such as a narrow neck made of metal stamping in various patterns, wearing a bun, and decorating the head with paper flowers or plastic flowers.</p>
3.		<p>In the morning and the afternoon, there will be a visit to Sang Long's relative's house.</p>

No.	DATA	Description
4.		<p>In each area there will be a procession and a band playing merrily.</p>
5.		<p>When entering the house, Sang Long will apologize, and then the elders will tie their wrists along with giving money to make merit, then Sang Long will pray.</p>
6.		<p>Preparation of Tapae equipment before moving the parade to various places.</p>
7.		<p>Visits to adult relatives will continue until the entire area.</p>
8.		<p>Taking care and feeding Sang Long food each day.</p>
9.		<p>The host prepares meals to welcome guests throughout the day.</p>

No.	DATA	Description
10.		A Drone view was recorded for observation. Topography and essential points in Mae Hong Son province.

Table 2 Poy Sang Long Ceremonial Elements on days 2-4.

No.	DATA	Description
1.		In the morning and afternoon of receiving Sang Long, they will go to the rest of relatives' houses until the listed are completed.
2.		Still has visited with elder relatives as in the past.
3.		There is still blessing from elder relatives and wrist.
4.		The full Sang Long meal is 32 side dishes.
5.		Sang Long's daily routine Tapae will be in charge of dressing, makeup, and letting Sang try to ride his neck. when traveling to different places




No.	DATA	Description
6.		Sang Long, when dressed, must wait in the prepared pavilion.
7.		The ceremony to call Kwan or Hong Kwan and the fourth day, also known as Khan Khaek Day.
8.		Every time Sang Long returned from the parade will come to the breakpoint for the guests to join in making merit and tie their wrists.

Table 3 Poy Sang Long Ceremonial Elements on day 5.

No.	DATA	Description
1.		On the fifth day, also known as Wan Kham Sang, there is a Sang Long parade with relatives. And those who attended the event around the village.
2.		The necessary equipment for the monks' ceremonies will be brought during the procession.

















No.	DATA	Description
3.		<p>When the parade arrives at the temple area, there will be a loop around the chapel. With a coin scatter Popped rice and flowers.</p>
4.		<p>During the ordination, the monk who performs the ceremony will lead a prayer for Sang to change from a prince to a novice.</p>
5.		<p>During the ordination period, the monks who performed the Thai alms offering ceremony brought the tri robe to Sang Long.</p>
6.		<p>During the ordination, the monks wore robes to the novice. And enter the final ceremony is to be a complete novice.</p>
7.		<p>Still image recording team and animation to bring it back to synthesize the formalities in detail.</p>

Table 4 Parade Equipment, Worship, Sang Long Items used in the Ritual.

No.	DATA	Description
1.		Silver bush, gold bush, for offering to the Buddha and decorating the procession.
2.		Atthabarikhan or the 8 basic monk's appliance is used by novices. It consists of, rosaries, robes and monk attire set, razor, sewing kit, alms-bowl, and other utensils of novices.
3.		Silver candles, gold candles are candles, and pie candles, as an offering for the instrument preceptor.
4.		U-Tong and Pan Tong are betel nut cones and flower cones.

No.	DATA	Description
5.		<p>Bouquet of flowers for the ceremony and put a string to tie the wrist to Sang Long and flower bushes for worshipping the Buddha or used in religious ceremonies.</p>
6.		<p>Candles for offering to the Buddha and decorated in the Sang Long parade.</p>
7.		<p>Sang Long's shirt is a round-neck shirt with cylinder sleeves. Curvy hem opt for brightly colored fabrics. And decorated with gold threads with embroidery.</p>
8.		<p>Pankum is a headgear used to decorate Sang Long. Often decorated with fresh flowers or plastic flowers or decorated with buns of the elderly, adorning the head of Sang Long.</p>
9.		<p>Auspicious flowers often use the Aung Kum orchid, flowering in March-April.</p>

No.	DATA	Description
10.		<p>Kabkor or chained into several round coins. These coins are made of gold plated with round embossed patterns in the shape of various animals. The most popular is the peacock pattern.</p>
11.		<p>Atthabarikhara is used for novices, including alm-bowls, water bottles, bedding and attire for the novices.</p>
12.		<p>Sang Long's with 32 different menus.</p>
13.		<p>There is umbrella sun protection for Sang Long.</p>
14.		<p>The Sang Long procession will be played with Mong Seng. (set of gongs), cymbals, and drums; creating a dynamism coupled with pictures of beautifully dressed Tap-Than Sang Long, gradually marching in a procession. Both are walking and rocking dance and dance over the shoulder with the rhythm of the sound.</p>

No.	DATA	Description
15.		Relatives and people in the village attend the Sang Long procession.

From collecting information about the ceremonies and the necessities used in the ceremony, which in total can be divided into three main parts:

1. Equipment and necessities for the ceremony
2. Ceremony

Table 5 Poy Sang Long Ritual Elements

The Role of Those Involved	Equipment Used in Ceremonies	Ritual Session
1.1 Big host 1.2 Tapae 1.3 Band 1.4 Who will be ordained 1.5 Guests	2.1 Sang Long's costume 2.2 Sang Long's equipment 2.3 Preparation of Atthabarikhan 2.4 Tapei Sa Tree 2.5 Preparation of Lu's kitchen utensils or kitchen utensils 2.6 Food and snacks for guests at the event 2.7 Monk offerings 2.8 Venue	3.1 The first day, also known as "Hack Day" 3.2 Second day of work 3.3 Third day of work 3.4 The fourth day, also known as "Kham Khaek Day" 3.5 Blessing Ceremony or "Hong Kwan" 3.6 Full Sang Long meal: 32 side dishes 3.7 The fifth day, also known as "Kham Sang Day" 3.8 The ordination period

These elements are at the heart of the Poy Sang Long tradition's collective aspects that adhere to and are passed down from generation to generation. There may be differences in the device's format, the number of days or the number of duties of each party depending on the availability of the host and the situation at that time.

Phase 4: Design

Analysis of findings from previous steps to define AR media concept and character design. At this stage, modeling and presentation prerequisites were planned for further evaluation of applications.

AR Platform Prototype

Once the Character prototype was obtained, the researchers experimented with AR-based on mixed/integrated/alternative learning.

Analyze the data in phase 1: Augmented Reality technology offers identity of Tai Yai ethnicity through Poy Sang Long ceremony, Mae Hong Son province, via a smartphone running Android operating system.

An overview of the system is planned using symbols installed at information points when interested persons or tourists bring their smartphones and turn on the camera to capture pictures at the signs. Then there will be 3 D character with animation talking about the ceremony in Poy Sang Long tradition. With background music, it can also display videos and animations.

1) Bring a prototype character, which may not be complete in detail, to test interaction with Platform Poy Sang for longer. The first step is to try marker-based AR. Test design using marker as an image and informative information on using it. Work test the display via Unity program with camera.

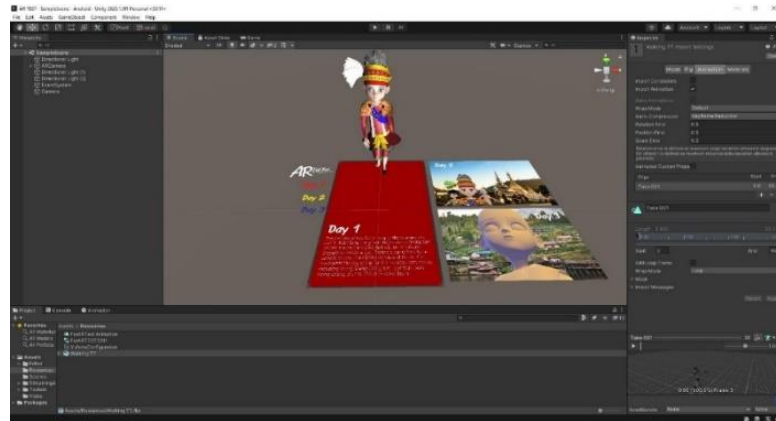


Figure 34 Platform Poy Sang Long AR.

2) Test platform Poy Sang Long AR interaction by selecting an image on the touch screen; the data will be displayed as an auxiliary scene and seen through the smartphone screen. Depending on the brochure scanned by the camera, the said information can be a 3D object or video.



Figure 35 Platform Poy Sang Long AR.

3) Test 3D model figure with selection **superimposition-based** AR using model printing to display data.

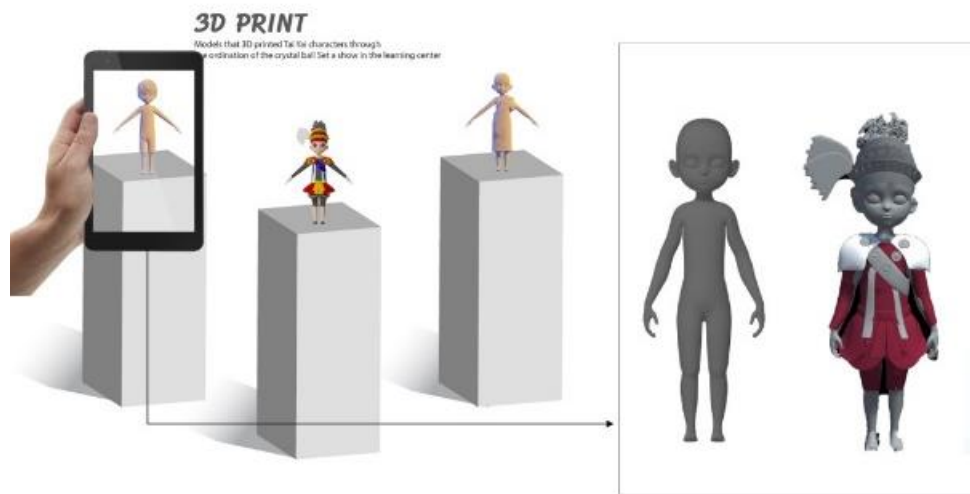


Figure 36 3D model figure on platform Poy Sang Long AR.

The test was conducted with the following target groups: 1) academics: experts in history and ethnography, 2) thirty youth volunteers interested in Poy Sang Long tradition, and 3) 5 media design experts using an AR media questionnaire.

Phase 5: Measurement

Experts assessed the quality of AR media and the feasibility of being tested on a sample of youth volunteers in Mae Hong Son province by measuring media satisfaction and presenting the results as a mean.

Population and Sample Group

The sample group in assessing the suitability of Augmented Reality technology presenting ethnic Shan identity through Poy Sang Long ceremony in Mae Hong Son province by specific sampling:

- 1) Academics: Specialists in history and ethnography.
- 2) Thirty youth volunteers interested in Poy Sang Long tradition.
- 3) Five media design experts.

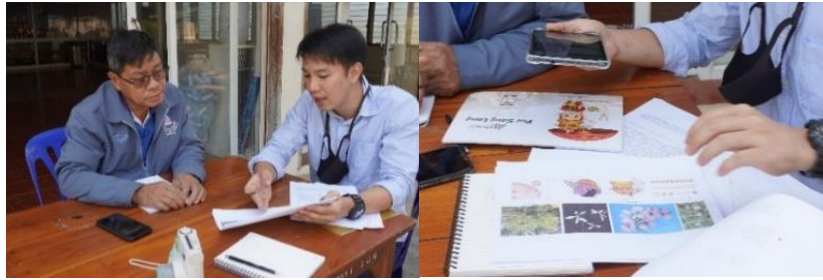


Figure 37 Onsite interviews with community leaders who is an expert in history and Poy Sang Long tradition.



Figure 38 Field visit to interview the abbot of Wat Klang Temple, Pai district, Mae Hong Son province, who is an expert on Poy Sang Long tradition.



Figure 39 Field visit to interview monks at Wat Chong Klang, Muang District, Mae Hong Son province who is an expert on Poy Sang Long tradition.



Figure 40 Field visit to interview Dr. That Sriratanaban who is an academic and expert in Tai Yai ethnicity and Poy Sang Long tradition.



Figure 41 Field trial of Platform Poy Sang Long AR with 30 youth volunteers interested in Poy Sang Long tradition.

Phase 6: Final Design

Final edits in AR media are based on expert proposals and sample groups before the actual use.

Experimental Analysis

The legend of Poy Sang Long, the ceremony and various details, in summary, the structure of the AR media and its contents are as follows;

1) Platform Poy Sang Long AR is compatible with smartphones or tablets using the Android operating system. The smartphone is a device that can be carried anywhere with flexible fast wireless data connection, also a camera for capturing images or symbols to pass information to the data processor. It makes users convenient because most of them already have smartphones.

2) Vuforia Library or SDK (Software Development Kit) It is used as an AR media contributor for use with Android phones, as shown in Figure 1 . Vuforia analyzes the image using the marker detector and generates data such as text, video, 3D objects, or in-camera animations from the markers detected by it. Vuforia API

From the experimental studies following the previous research process, the researcher summarized the results of the experiment and obtained the structure used to set up the system as follows.

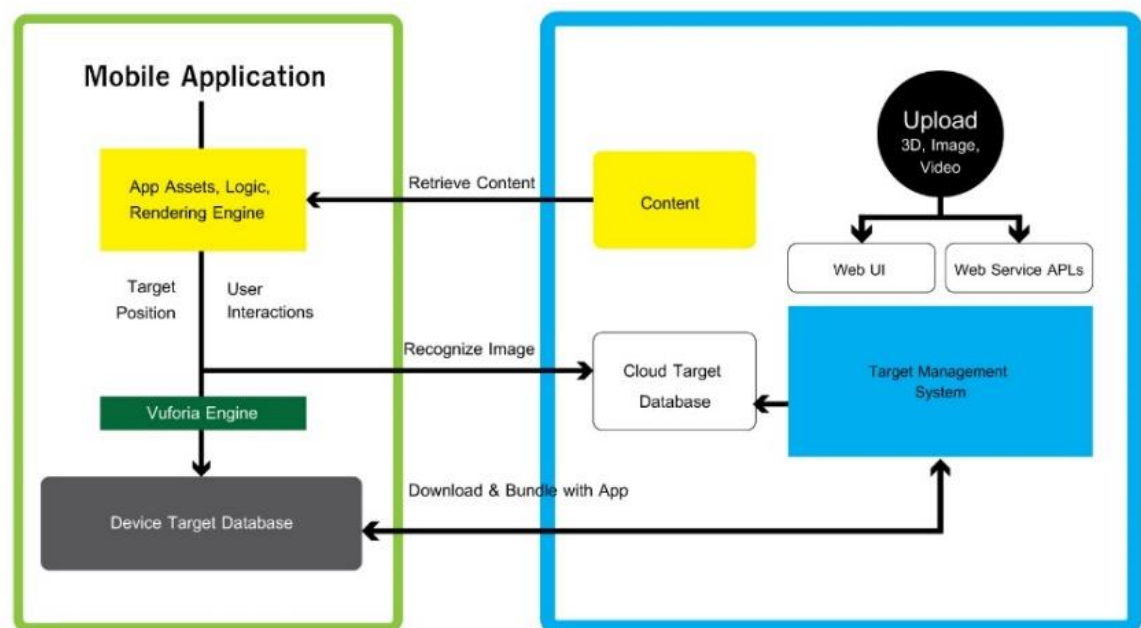


Diagram 10 Vuforia Structure.

Media design process: The experiment with the sample model requires more media than a single format. Therefore, it has experimented with the nature of multimedia capabilities of integrating presentations of different media using

computer processing as the main device and multimedia presentation software programs. It consists of important elements (Malithong, 2005., Linda. 1995), which when talking about media in Augmented Reality is talking about data. Content formats that display results in various formats such as text, graphic, full-motion video, animation, sound, etc.

The researcher has separated the main categories that in the multimedia graphics principles of Augmented Reality can be divided into four categories corresponding to the research involved: Graphic Animation & Motion Video Mix Multimedia Graphic.

Then proceeded to determine the format of the media. For use in assessment and measurement, designing media types include:

- 1) 3D and 2D
- 2) Videos
- 3) Model figure

From the experimental studies following the previous research process, the researcher summarized the experiment results. As follows, compare the pros and cons of each time and develop the design in the next step.

The researcher conducted a sample questionnaire to compare their satisfaction with types of multimedia for an Augmented Reality, divided into five types: 3D, 2D, Videos, Figure Model, and Mixed Media.

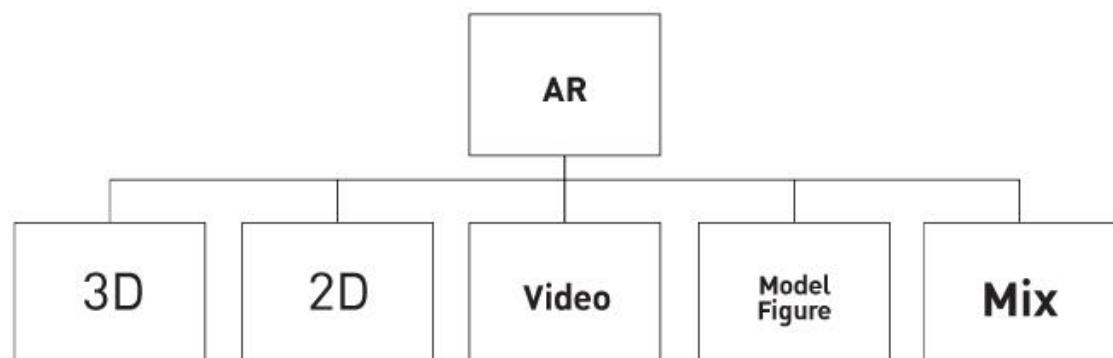


Diagram 11 2D Characters and Animation.

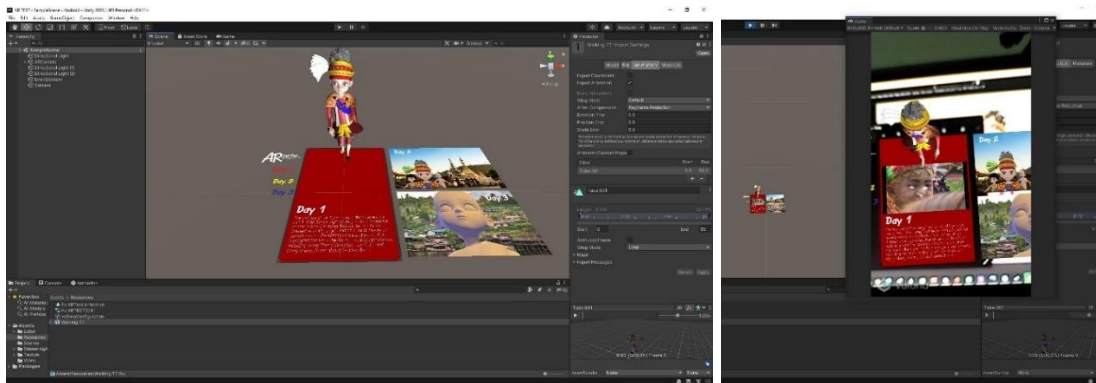


Figure 42 2D Characters and animation.

Table 6 Summary Table of Media Satisfaction for Types of Media for an Augmented Reality.

Types of Media for an Augmented Reality				
Types	Satisfaction with the Style of Graphics	In terms of Motivating Viewers	AR Suitability	\bar{x}
3D	4	4.5	4.5	4.3
2D	4.5	4	4.5	4.3
Video	4.5	5	4.5	4.6
Model Figure	4.5	4.5	4	4.6
Mixed Media	5	5	5	5

The evaluation results of the satisfaction with the formats of types of multimedia for an Augmented Reality, comparing scores from 5, divided into five types, namely 3D, 2D, videos, model figure, and mixed media. Mixed media format is the largest.

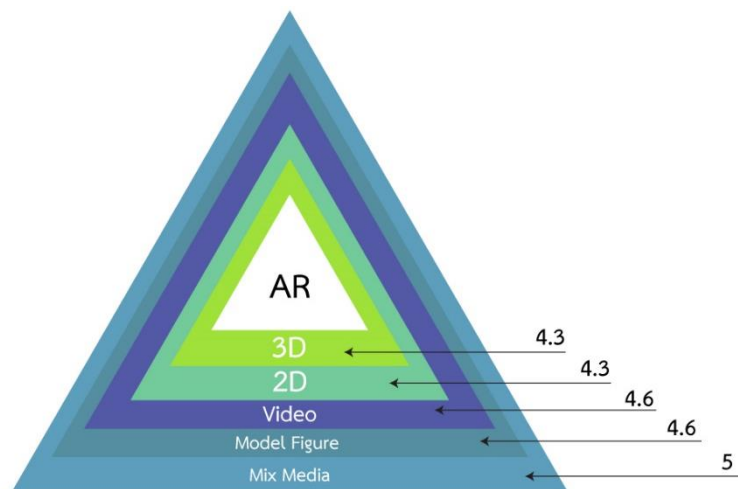


Figure 43 Measuring the satisfaction of different types of media.

After reaching a conclusion on satisfaction with Types of media for an Augmented Reality, the researcher entered the experimental process of creating each type of media by

3D Animation

Presenting the Poy Sang Long ritual using a marker-based AR format, users can scan images from where they are placed, and it will appear in 3D animation to show the form of the ceremony, which, according to the in-depth information and from the data collection, has highlighted the important parts of the main ceremony into three parts as follows:

- 1) Preparation before the ordination by simulating the subject of shaving the head. The main characters are the father, mother, and Sang Long.
- 2) It simulates the parade-style, with people carrying Sang Long, a group of bands, people dancing and throwing flowers.
- 3) Simulation of the monk's activities by choosing the novice's alms is considered one of the routines that the monks must go out on foot to receive food offerings from relatives or those who have faith in offering one of the factors.

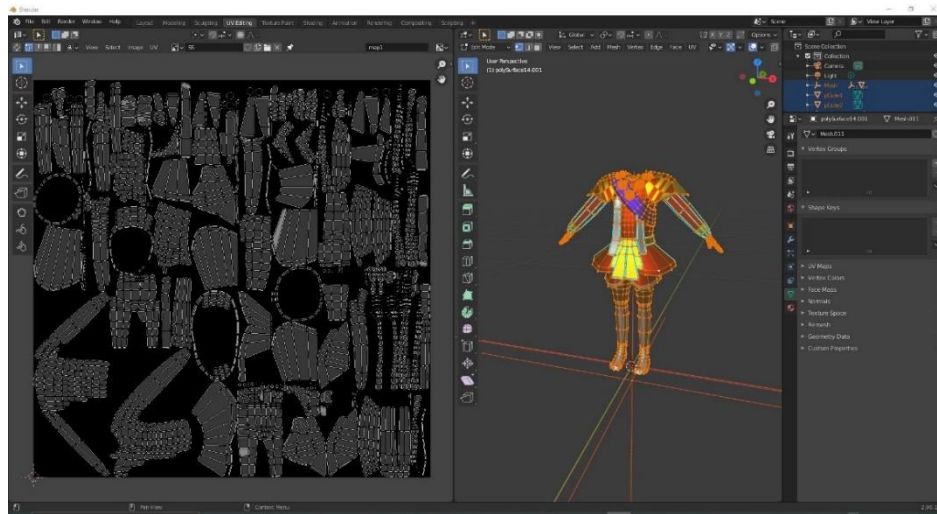


Figure 44 Steps to make a 3D character.



Figure 45 Completed Character 3D Sang Long.

Bring a character to animation by presenting a part of the ritual process to bring the animation file to AR next.

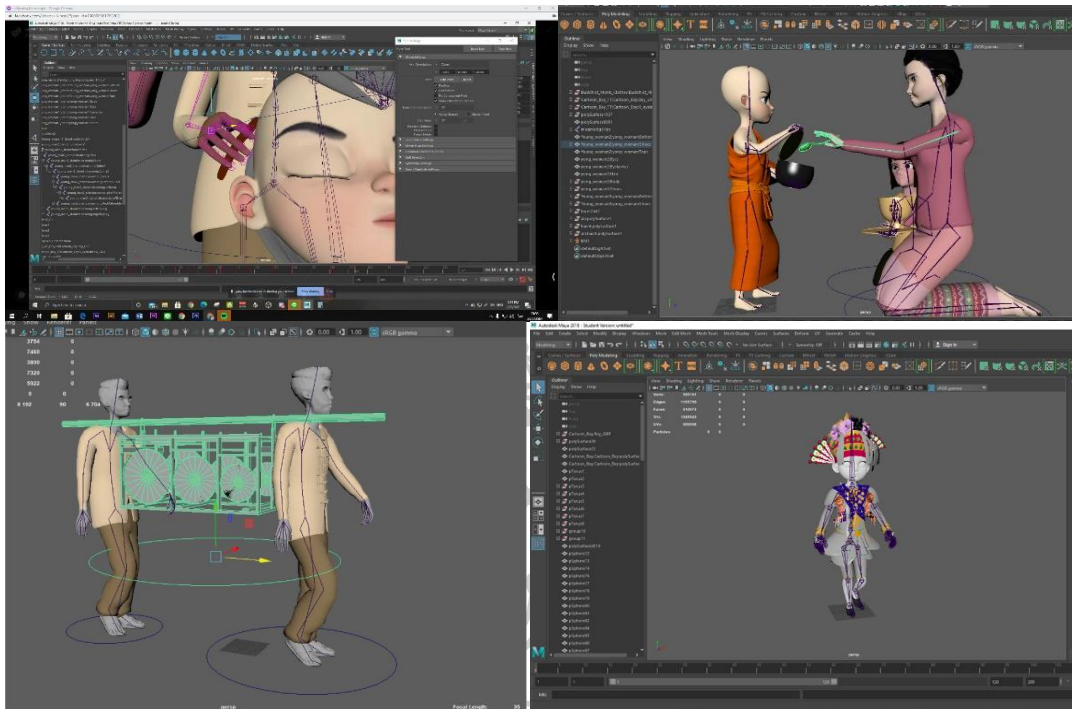


Figure 46 Manipulate the movement.



Figure 47 3D animation preview.

In this format, users will be able to interact with and understand the traditions, which the subjects who took part in the experiments were satisfied with and liked by all ages due to easy access to interesting pattern and not complicated.

2D Characters and Motion

It presents the legendary Poy Sang Long tradition with references to influential legends passed down to the present day. From searching for information about Poy Sang Long's legends and traditions, it was found that there are three legends mentioned. The author has put forward only one legend that is most consistent with the narrative and the information from the search. This is considered a belief in imagination, and It is a belief based on the history of the Buddha.



Figure 48 Drawing process with the digital painting technique.

The design uses techniques. Designing 2D images can be created by drawing in Adobe Photoshop using the technique Paint from the Brush Tools.







Design	Description
	<p>An image of an ugly boy and his mother. Inspiration from photographs of indigenous people in the Varanasi state, India</p>
	<p>Indra replicated from a mural and paintings by Thai and Indian artists.</p>
	<p>A portrait of a handsome boy Inspired by the image of the Buddha (thongthailand.com, 2011) (google.com, 1998)</p>
	<p>The image of a novice and a calm expression developed from a novice inspiration in Mae Hong Son province. and Buddha paintings (trueplookpanya.com, 2021)</p>
	<p>Phra Brahma is inspiring from both Thai and Indian novels. (hotcore.info, 2019)</p>
	<p>Sang Long, a reproduction from a photograph of Sang Long wearing a traditional dress in the Sang Long tradition of Thailand.</p>



Figure 49 2D Characters and animation.

After getting the characters, design the scene and bring all the developed characters together in Photoshop layers, then take the finished drawing split into layers assemble and animate in After Effects.

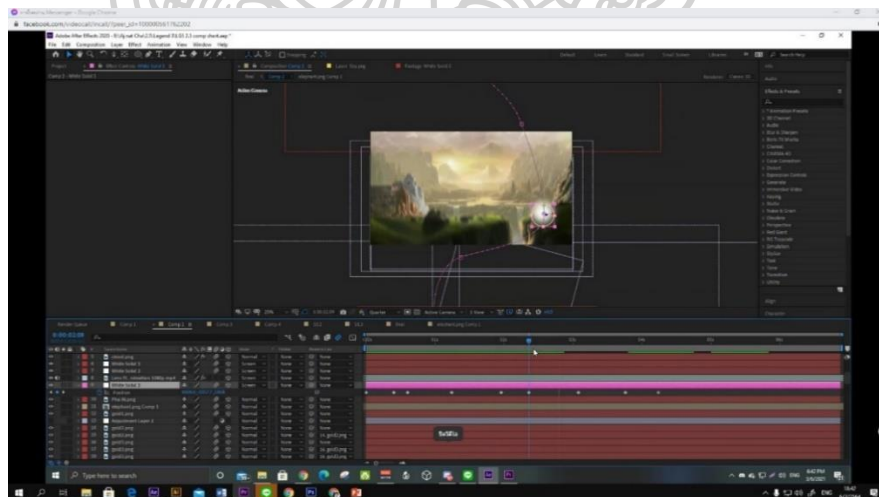


Figure 50 The positioning of objects causes distance in the scene.

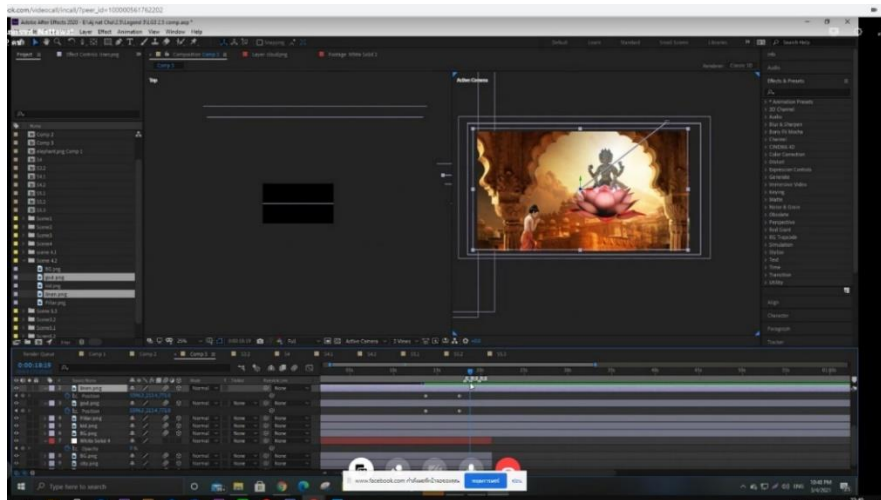


Figure 51 2D Character Movement.

Final step, the work was imported and edited in Adobe Premier with additional dubbing and background music.

From experimenting with 2D Motion techniques in presenting the legend of Poy Sang Long, it was discovered that the style of drawing is a semi-realistic illustration, but still with colors that give a feeling like a painting with a brush. Choosing the technique of Digital painting will also create the image of accessibility and still suitable for a wide range of target groups.

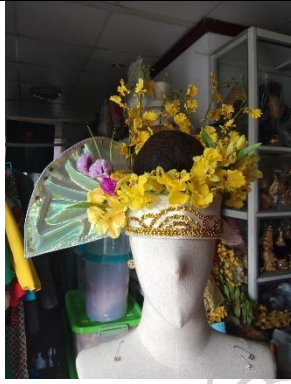


Videos Poy Sang Long Ceremony





The video design process to showcase Poy Sang Long's ordination starts from collecting data from the field and studying the differences from the area and the context of internal and external factors of each community and those involved. The process has been deciphered from hearsay, previous observations, and video recordings. Therefore, it has developed since the preparation of the costume, including equipment and rituals to shoot video. The work is divided into three main parts: preproduction, production, and post-production


Preproduction

The first step is to prepare the costumes for the upcoming Sang Long actors.

Table 7 Pre-production

No.	Design	Description
1.		<p>Essential flowers as the beliefs of the Thai Yai people focusing on the Aueng Kham flower as the main focus, and it is considered the main flower that clearly shows the identity of the Thai Yai people. The hair bun in the old days was cut from Mae Kham, then embroidered with a hairpin to be beautiful.</p>
2.		<p>Red dress decorated with golden flowers. According to the concept of the royal uniform and is classified as the lucky color of the Shan people according to the information searched, including related research.</p> <p>The shirt looks like a round neck shirt with cylinder sleeves. The hem of the sweater is curved embroidered with silver and gold tinsel. Use fabrics with different floral patterns.</p>
3.		<p>Based on advice from a costume designer expert. advised on the planned background color from red become golden yellow in faith and the fabric used as a technique for embroidering Luntaya patterns to stand out even more.</p>

No.	Design	Description
4.		<p>Shoulder decorations made of leather or plastic sheets embroidered with cup sequins, flat sequins, silver and gold.</p>
5.		<p>A necklace, or narrow neck, is made of several round coins. These coins were beaten in gold into round discs with embossed patterns in the shape of various animals. The most famous image was the peacock, a narrow neck worn along the chest panel, similar to the logo, or maybe added a pearl necklace or others.</p>
6.		<p>Around both shoulders, round bows are attached with hems hanging down, bows made of gold threads. and decorated with tiny sequins</p>
7.		<p>Gold ring, gemstone ring, and ruby ring enhance the prestige and show wealth.</p>

No.	Design	Description
8.		<p>One fan for blowing and used to make costumes. An overview of all the outfits of parents. Or the caregiver will provide for it.</p>

From the dress design by comparing and selecting the important identity in the Muang district and the outskirts of the Muang district, Mae Hong Son province, including in the area of Chiang Mai by bringing the results to the creation of a new Poy sang long set which is planned in the design, that is, must be consistent with the main character models used in AR media are from costume design and development. Based on the color rule theory, the 55-40-5 color scheme has been changed from the original to fit the ritual beliefs and inserting the identity of Tai Yai into the set as much as possible.

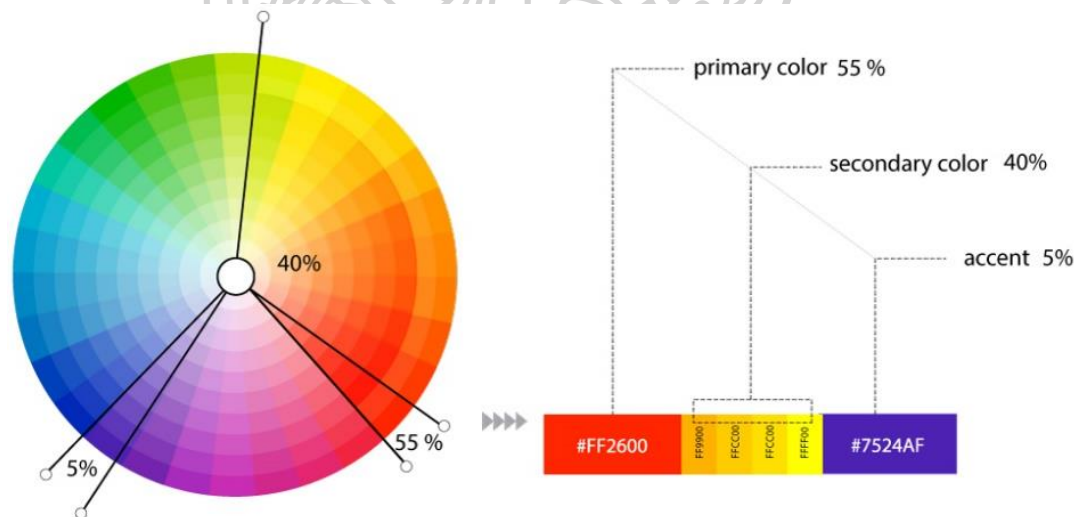










Figure 52 Color Rule for Poy Sang Long Ceremony Dress.



Production

The filming process has prepared the performers and important people involved for the Poy Sang Long ceremony. By contacting the local people, including the abbot of Shan ethnicity, to provide the most accurate and realistic information. The narrative sequence and the content of the filming of the rituals are shown in the table.

Table 8 Production





No.	Scene	Description
1.		<p>Before the Poy Sang Long ritual starts, there will be a hair shaving ceremony. Where children have to pay respects to their parents and ask for prayers made to ask for forgiveness before ordaining.</p>
2.		<p>Around 3:00 p.m., the child's parent or host will take the child, Sang Long to have his hair shaved at the temple.</p>
3.		<p>The older monks will cut their hair using scissors or razors in the first hair transformation.</p>






No.	Scene	Description
4.		<p>The child's parents or the host will cut the hair after the older monks.</p>
5.		<p>After that, take a bath with turmeric, SomPoi for good luck. Then put the flour over the face. White dress and then went back to sleep at home Or maybe slept at that temple.</p>
6.		<p>The following day (second day), around 9 o'clock, the Sang Long lit incense sticks and candles to worship the triple gem for benjasila. When finished, the abbot will allow it. to be able to dress up to Sang Long</p>
7.		<p>Parents or Tapae will make up for Sang Long by starting to apply powder on his head.</p>
8.		<p>Then apply foundation cream, use powder, draw eyebrows, slit eyeliner: red lips, cheeks with powder, circles, and dots inherited. It is unique to Tai Yai.</p>


No.	Scene	Description
9.		<p>Tapae will be the dressing to the Sang Long dress will dress like a Tai Yai prince. The outside is dressed in a freshly colored loincloth. Release the long male behind the petals fasten with a silver belt or a naga.</p>
10.		<p>Wearing a curvy man's sleeveless shirt Openwork shirts with floral patterns in different colors, the color of the shirt and the loincloth are similar or in the same shade. On both shoulders, round bows are fastened with three to five hems hanging down and are worn narrowly at the neck, arranged along with the chest panel, similar to that of the insignia.</p>
11.		<p>Wearing a curvy male barrel sleeve Embroidered shirts with floral patterns in different colors.</p>

No.	Scene	Description
12.		<p>A beautiful part of Sang Long is the head, starting with a towel to support the head than using a brooch to fasten the towel to absorb sweat from flowing and keep the ornaments on the head. Use a turban with a loincloth inserted with flowers. Tapae, dressed in Sang Long, will check the neatness until satisfied.</p> <hr/> <p>The second and third days are the Sang Long parade to visit relatives' homes or important people in the community.</p> <p>The fourth day, also known as Khan Khaek Day, is when relatives from other villages come together to join the event. Today is considered very important because there will be three ceremonies which are the Kolu Procession ceremony or Thai Dharma Kwan or Hong Kwan ceremony and feasting on Sang Long dishes with 32 side dishes.</p>

No.	Scene	Description
13.		<p>The fifth day, also known as Wan Khamsang, is when Sang Long will be ordained as a novice. The ceremony will begin in the morning. Tapae will dress to Sang Long and lead Sang Long to travel around the village by beating gongs to lead the procession and there may be long bottom drum music in the parade as well to wait for the time to enter the temple.</p>
14.		<p>They will circle the temple hall three times and then go up around the pavilion when reaching the temple. To wait for the ordination ceremony, people will gather at the temple early in the morning. Especially the older adults will go to the temple first.</p>
15.		<p>Sang Long's parents and relatives will sprinkle rice and nail flowers as a gesture of appreciation throughout the procession around the temple hall.</p>
16.		<p>Sang Long's parents and relatives will sprinkle rice and nail flowers as a gesture of appreciation throughout the procession around the temple hall.</p>

No.	Scene	Description
17.		<p>The guests who attended the Sang Long event were dancing along with the parade. Throughout the procession around the temple hall.</p>
18.		<p>When sitting on the pavilion in unison, Sang Long will receive a robe from his father, mother, Por Kham, Mae Kham, representing the bond and support between father, mother, and child. After that, he turns back to the preceptor. Pay respects to the preceptor three times.</p>
19.		<p>The preceptor took the robe to unwrap and took the Angsa cloth or a piece of cloth wrapped in a robe wrapped around his neck to bring to change the machine to try.</p>
20.		<p>Then take off the Sang Long try-out. but still wearing rosaries.</p>

No.	Scene	Description
21.		<p>The monks will help to put on a robe. As for Tapae, he will wipe the face for a boy to be ordained.</p>
22.		<p>When finished, sit back ready to utter ten precepts giving a new ordination novice which has become a group of monks. Is a novice being a symbol of purity who entered the Buddhist path.</p>
23.		<p>After the ordination is complete, the novice will stay in the sex of the beginner for about 30 days.</p>
24.		<p>While the novices will arrange asceticism. Give to relatives according to tradition.</p>
25.		<p>Monks will prepare for novices to perform daily activities. According to the guidelines set by the measure.</p>

No.	Scene	Description
26.		The novice behaves to be useful; such as cleaning and taking care of the order within the temple.

Post-Production

When the video shooting is complete, combined with AR to allow users to access the content, both continuous and selective viewing are part of the ritual.



Figure 53 The sequence of images is used to illustrate information through AR.

It is a further development from onsite video shooting and collecting information from community leaders and experts. The data was then synthesized to design and plan a video shoot to showcase Poy Sang Long's procedures and traditions. A model that brings out the uniqueness of the Tai Yai and enhances creativity to allow audiences to access contemporary content and understand the details in depth, extending the ritual information of Poy Sang Long tradition better.

Model Figure for AR Marker

From experimenting with a model that has been molded from a 3D program and printed out to be a mannequin for use in AR, the results are displayed as set-in various formats that can be switched. The result is satisfactory for users.

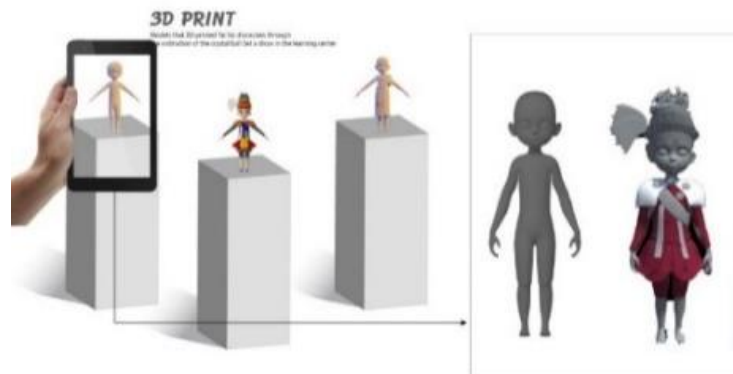


Figure 54 2D Characters and animation.



Figure 55 2D Characters and animation.

The experts suggest that if it is developed into a format that provides more detailed information, it will be more beneficial to users. The researcher, therefore, saw that the extension by adding details to the dummy, which will be able to be used for more variety. Therefore, there has been an experiment to recreate the mockup.



Figure 56 Rendering of Poy Sang Long character.

After adjusting the 3D Model from the original design to enter the printing process, which at this stage, thickness and feasibility testing must be done, in printing parts are relatively small. However, some details need to be emphasized; such as decorations.



Figure 57 Raw piece Model figure Poy Sang Long.

The essential equipment in work consists of automotive putty water-sand paper of various sizes, epoxy glue for sculpting tools, Itawa airbrush model HP-CH, resolution 0.3, Layland brand paints,. There are many shades to choose from and

color intensity, including the deep saturation of the color which is better than that of other brands.



Figure 58 Equipment used to decorate the model figure.

There are problems of 3 D printing as the researcher chooses plastic as printing material which makes noticeably floating streaks and square surfaces. This is different from using a resin material that provides higher clarity, but with cost constraints, if used in mass production, the cost of using resin is higher than using plastic material. Therefore, the researcher chose plastic and fixed the surface to be smooth by polishing and puttying method.



Figure 59 Polishing and surface finishing.

Sang Long's pants were previously printed in incorrect shape as planned due to stripes cloth belts and other parts which lacks realism. Therefore, the problem was solved by using Epoxy clay to mold the desired position and polished smooth decoration.

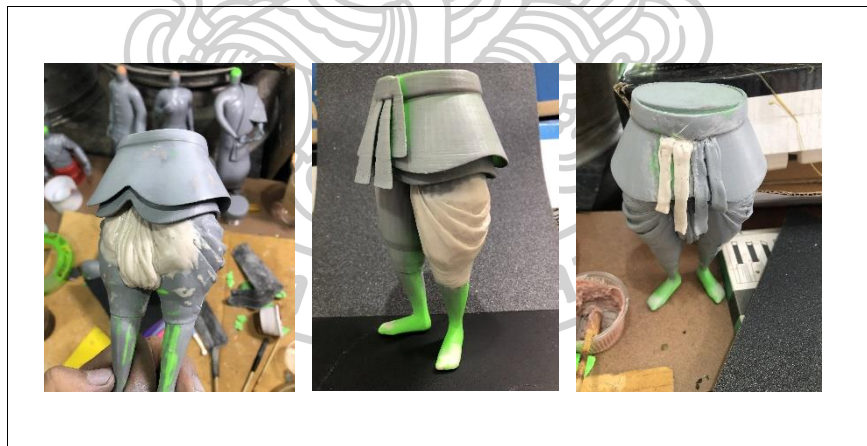


Figure 60 It is decorated with epoxy clay.

When the work is completed, the surface is polished again with water sandpaper. Until the surface is smooth, spray the primer with gray primer spray paint to inspect the last model figure before applying the actual color.

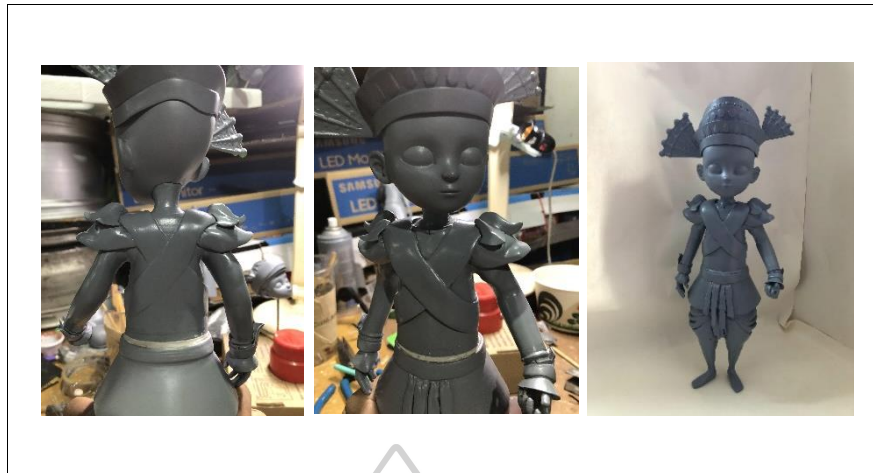


Figure 61 Primer spray.

Masking tape is used to protect the areas that do not want to be painted. Then mix the desired colors. Spray with airbrush and decorate with brush details.

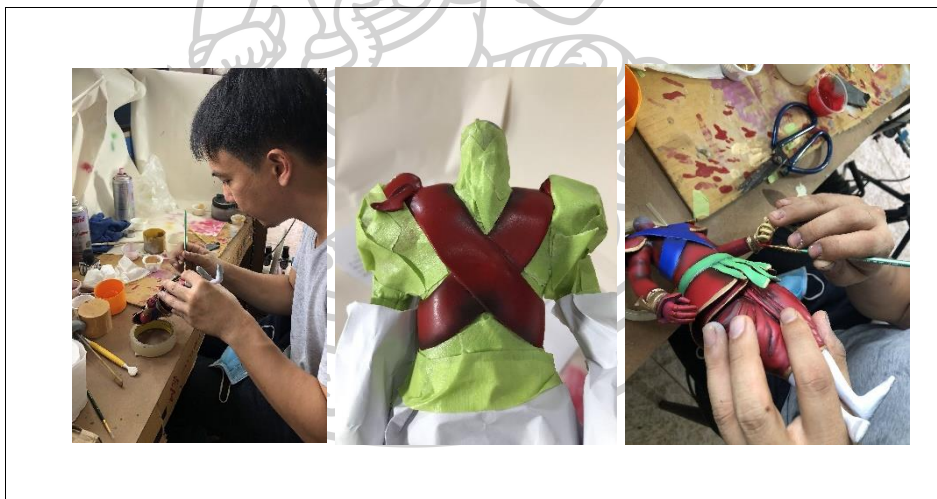


Figure 62 Color the details.

The same method is used on the face part by using airbrush to spray paint the foundation in order to create a gradient of soft weight to the deep area. This will create a shadow, then the details are decorated with a small brush.

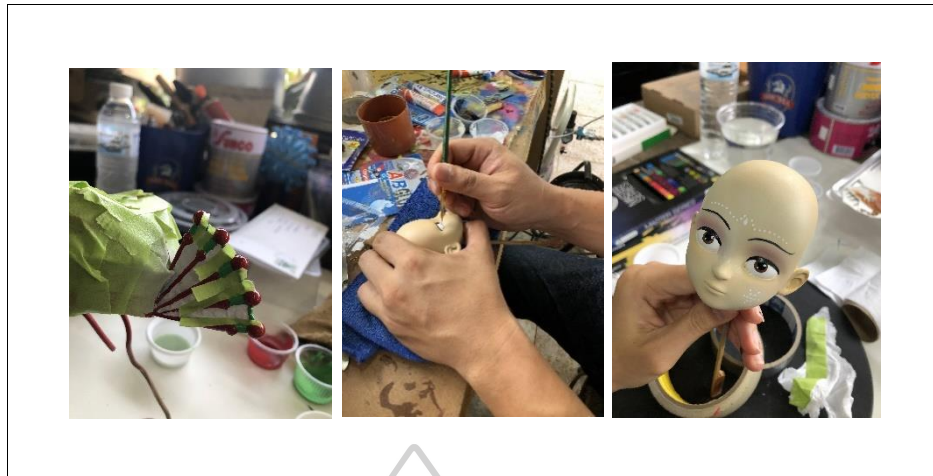


Figure 63 Face paint.

In the process of decorating the details on the model set, Sang Long emphasizes the use of a variety of additional materials; such as silver-plated metal gold plated metal, due to its hardness and thinness to offer more details, then fix it with epoxy glue.



Figure 64 Decorate details.

The workpiece when complete, there are still problems with implementation. It might need to add a base for strength when on display.



Figure 65 Model figure complete.

Steps to create a model figure novice. The workpiece, after finishing, is neat. The details are pretty complete.



Figure 66 Steps to create a model figure novice.

The process of creating a model figure of a Tai Yai man. The additional part is the hair and the stripes of the cloth around the headdress.



Figure 67 The process of creating a model figure of a Tai Yai man.

The process of creating a model figure of a Tai Yai woman. The painting of the pattern around the sarong is quite detailed, and spent a lot of time on this part.



Figure 68 The process of creating a model figure of a Tai Yai woman.

Chapter Summary

This research uses a mixed method by collecting both quantitative and qualitative data. The conceptual framework consists of 3 issues: multimedia design, Augmented Reality design, and interactive learning with AR media, which can be divided into six steps:

Phase 1: Literature reviewed purposively focused on the identity of the Tai Yai ethnic group through the Poy Sang Long ceremony in Mae Hong Son province and the development of AR technology, a design theory that emphasizes the perception of interactive media. **Phase 2:** Data Collection - The researcher collected data from the study in the textbooks to find information on the history of the Tai Yai ethnic group, including the legend of the Poy Sang Long tradition. The data was collected from interviews with knowledgeable villagers, wisdom teachers, community leaders and people in Mae Hong Son province. **Phase 3:** Data Analysis - During the pre-operation stages, various techniques were used: 1) data analysis and content analysis 2) typological analysis 3) frequency analysis and 4) triangle analysis. This was to synthesize all the information from phase1 to generate key concepts for AR media design. **Phase 4:** Design - Analysis of findings from previous steps to define AR media concept and character design. At this stage, modeling and presentation prerequisites were planned for further evaluation of applications. **Phase 5:** Measurement - Experts assessed the quality of AR media and the feasibility of being tested on a sample of youth volunteers in Mae Hong Son province by measuring media satisfaction and presenting the results as a mean. **Phase 6:** Final Design - Final edits in AR media based on expert proposals and sample groups before the actual use.

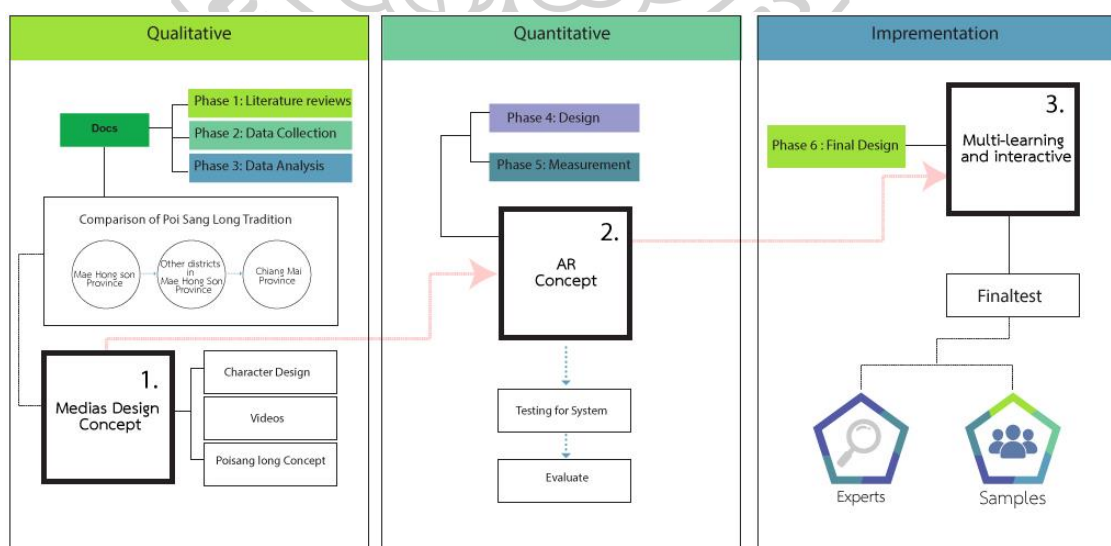
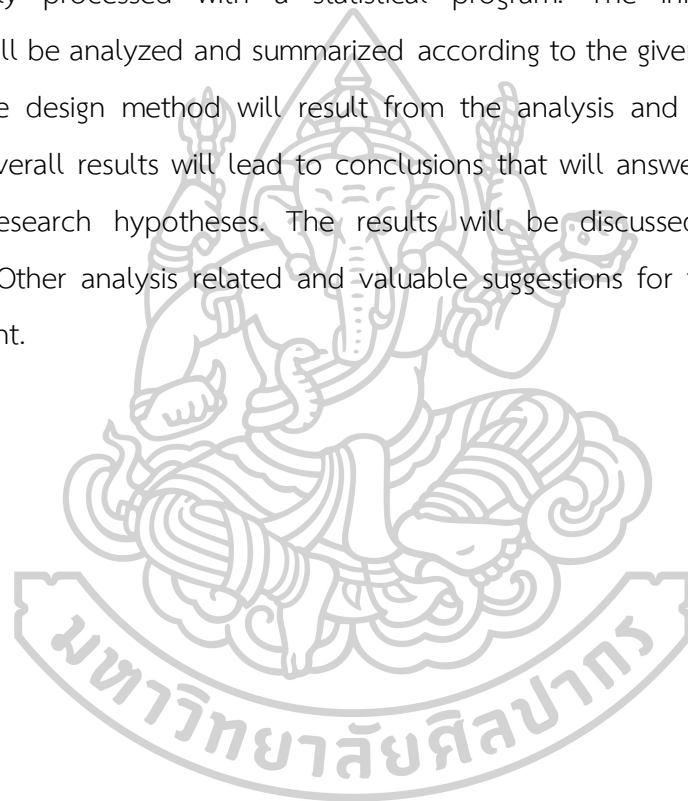


Diagram 12 Diagram of the Process of the Study.

In assessing the suitability of Augmented Reality technology, the sample group presented ethnic Shan identity through the Poy Sang Long ceremony. Mae Hong Son province specifically, randomly selected 1) academics: experts in history and ethnography 2) 30 youth volunteers interested in Poy Sang Long tradition 3) 5 media design experts.

Analysis of data from case studies was done through comparisons. Research in the form of tables and descriptive summaries the data from the questionnaire is quantitatively processed with a statistical program. The information from the interview will be analyzed and summarized according to the given topics

The design method will result from the analysis and synthesis of all the data; the overall results will lead to conclusions that will answer research questions and test research hypotheses. The results will be discussed with the findings presented. Other analysis related and valuable suggestions for further research and development.



Chapter 4

Research Results

This part of this research is a practical base that the researcher has compiled. Relevant data are analyzed, classified, and synthesized to conduct experiments on topics to be studied according to objectives under the implementation of the research methodology. Until it came out as the final design step of this research, the results can be summarized in the following steps.

1. To study and uphold the arts and culture in the Poy Sang Long tradition of the Tai Yai ethnicity in Mae Hong Son province.
2. To experiment with the technology advancement of Augmented Reality for Poy Sang Long ceremony.
3. To develop and evaluate by using Augmented Reality (AR) for Poy Sang Long Buddhist Ordination, Tai Yai Identity in Mae Hong Son province.

4.1 To study and Uphold the Arts and Culture in the Poy Sang Long Tradition of the Tai Yai Ethnicity in Mae Hong Son Province.

The process to study and uphold the arts and culture in the Poy Sang Long tradition of the Tai Yai ethnicity in Mae Hong Son province consists of 3 steps as follows;

Importance of Poy Sang Long Tradition (Data Collect and Analysis)

Tai Yai people in Mae Hong Son Province has settled for 150 years since "Tai Yai people" came to live in the local area of Mae Hong Son province. From the telling evidence, "Jaray" is a person who learns from the elders of Tai Yai people from studying the history of Mae Hong Son. The evidence has indicated that the "Tai Yai people" who come to live in Mae Hong Son are the Tai Yai people who migrated from the land in the northeast of Myanmar, known as "Shan State", Muang Mhong Mai, Muang Nai, Lan Khe and other towns in the Salween River Valley and came to

live in Mae Hong Son province around 1831, which is exactly with the reign of King Rama III to King Rama V.

Mae Hong Son province has approximately 104 Tai Yai communities. Within these communities, there are many valuable things, history, language, culture, tradition, way of life, beliefs, folk games, food, tourist attractions, music, local wisdom, resources for learning, houses, temples, etc.

However, the tendency of these valuable things will be lost or changed according to social trends, for example, the Tai Yai youths have less use of the Tai Yai language. Lack of knowledge and understanding of the history and way of the Tai Yai, there is a decrease in the traditional Tai Yai dress. Some of the youths are not confident to present themselves as Tai Yai. Many traditional ceremonies have begun to change from the former to be more convenient and faster.

Poy Sang Long, or the ordination ceremony is a celebration of the ordination of novices in Buddhism. Usually, the event will be held for about three days. However, if the ordained person is in good standing, there can be a celebration that lasts for 5 or 7 days. This event will be held at the end of March or April, which is the dry season when most villagers are free from farming, and it's the children's summer break.

During the ceremonial period, the event is usually held for 3-7 days. The important ceremonies will be held for 3 days, with **the first day** being the reception day (Rab Sang). It is a ritual that changes the status from a boy to Sang Long and then brings forgiveness to the sacred and respected elders. **The second day** is Wan Lae – Kao Lu's kitchen or reception day. On this day, there will be a procession of Thai food from the host Sang Long's house to prepare it at the temple and in the evening, and there will be a "Hong Kwan" ceremony (Tai Yai blessing ceremony). **The third day** is Wan Lu or Kham Sang. On this day, there will be a novice ordination ceremony and Thai food offerings, which is a change of status from Sang Long to being a Sang or novice

The ethnic identity of the Tai Yai people in Mae Hong Son province through the Poy Sang Long tradition (ordination ceremony) is regarded as an important tradition of the Tai Yai people and is a tradition that has been practiced for a long

time, especially experiences that could not be seen much nowadays or very rarely due to the lower birth rate of children. are rarely seen without visiting during the festival. The relocation of rural people to the capital communities gradually fades the traditions that had been passed down.

Create AR Learning Media for Poy Sang Long Tradition (Design Process)

Augmented Reality is defined as "an enhanced version of reality created by the use of technology to add digital information on an image of something". AR is used in apps for smartphones and tablets. AR apps use your phone's camera to show you a view of the real world in front of you, then put a layer of information, including text and/or images, on top of that view.

AR is a technology that enhances the real world with Augmented Reality. Virtual objects are covered and tracked along with inputs received by the camera in view of the real world which can classify the use of AR into two types: with marker and AR without the marker. The structure will mention the convenience of use and compare the flexibility of use this flexibility is based on the factors of the need for markers involved in the display. Type of AR consists of marker-based AR, location-based AR, projection-based AR, superimposition-based AR, and user-defined marker-less AR. Finally, the researcher chose two formats, i.e., marker-based AR, which uses images and QR codes as a means of accessing Poy Sang Long traditions, and superimposition-based AR to uses model figures as markers for displaying data because the results are fast and easy to access.

Types of media in Augmented Reality: mixed media has the ability to put together a presentation of a variety of media by using a computer as the primary device and using a multimedia presentation software program. When talking about multimedia in Augmented Reality, it is about information; content formats that display results in various forms; such as texts, graphics, full-motion videos, animations, sounds, etc.

If we separate the main categories that are important in the multimedia graphics of Augmented Reality.

Based on the results of the satisfaction assessment of various types of media for an Augmented Reality comparing scores from 5, it can be concluded that media use in AR applications can be divided into 5 categories: 3D, 2D, videos, model figure, and mixed media.

Implementation and Publication

To Implementation and Publication, the researchers measured the satisfaction of using Poy Sang Long media through Augmented Reality technology. The sample groups were students, youth, people in the community, community leaders, and experts. AR work are placed in community learning centers, universities, and major tourist attractions. This is a process of research to uphold the arts and culture in the Poy Sang Long tradition of the Tai Yai ethnicity in Mae Hong Son province. It can be classified into the diagram as follows;



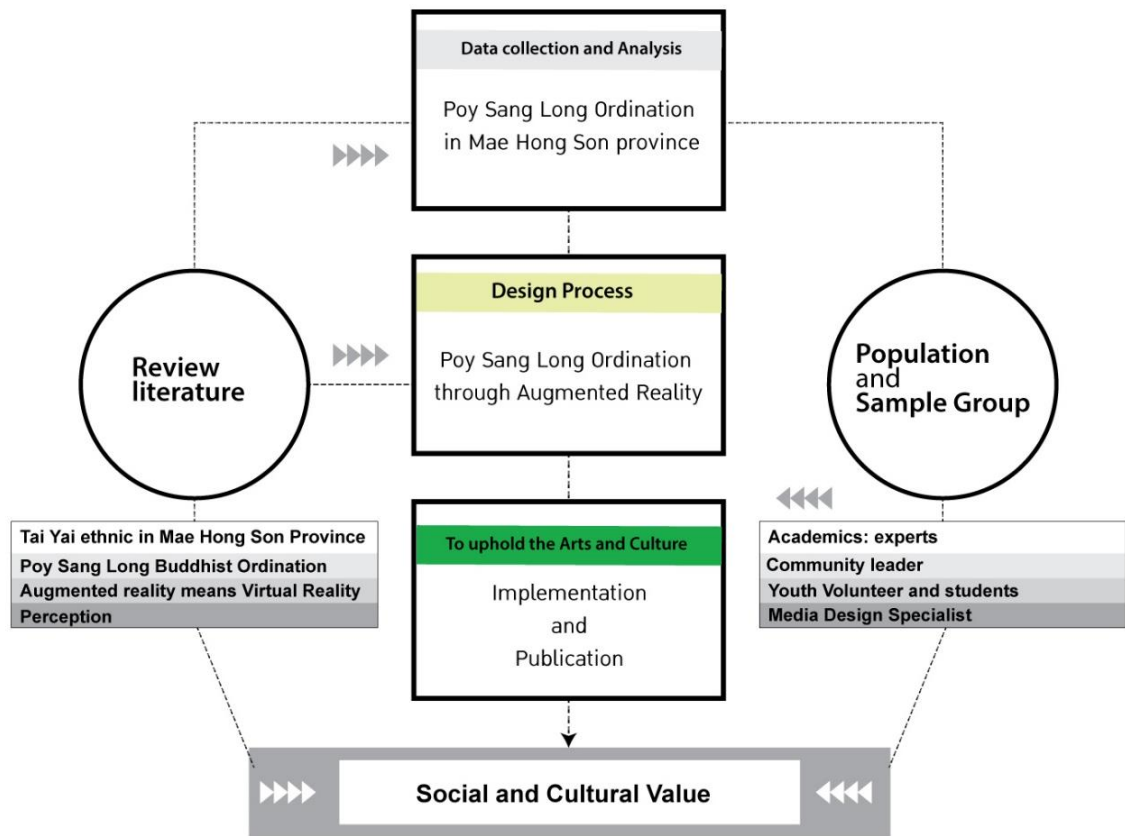


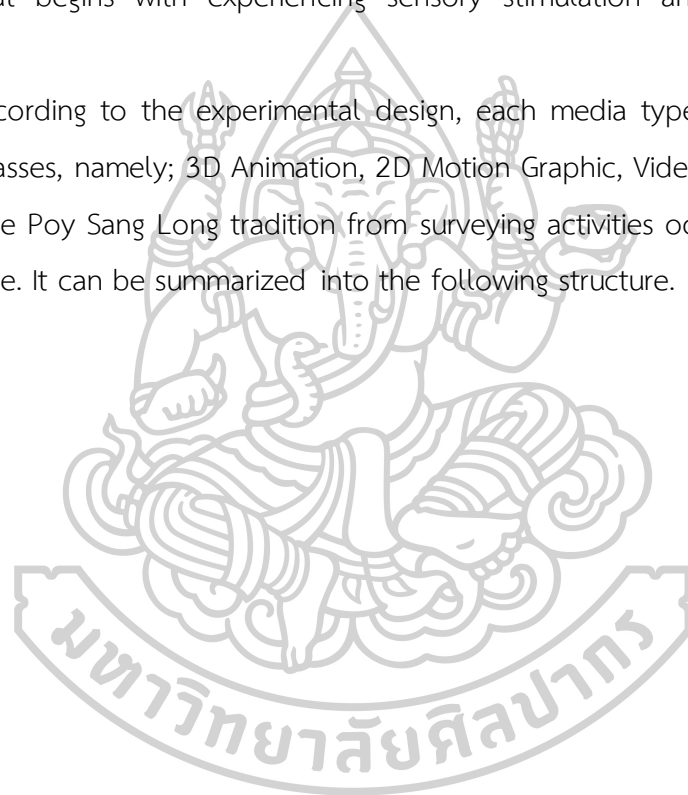
Diagram 13 Objective of Research to Study Uphold the Arts and Culture in the Poy Sang Long Tradition of the Tai Yai Ethnicity in Mae Hong Son province.



4.2 To experiment with the technology advancement of Augmented Reality for Poy Sang Long ceremony.

The design process for integrating all materials for use with AR begins with preparing the materials that have been designed for each part of the Poy Sang Long learning tradition. Through the experiment and measure, the results of the questionnaire were developed until the work was completed and the relationship of the theory was studied. Hawkins and Mothersbaugh (2010) defined perception as a process that begins with experiencing sensory stimulation and accessing various media.

According to the experimental design, each media type can be subdivided into four classes, namely; 3D Animation, 2D Motion Graphic, Video, and Figure Model, by taking the Poy Sang Long tradition from surveying activities occurring in Mae Hong Son province. It can be summarized into the following structure.



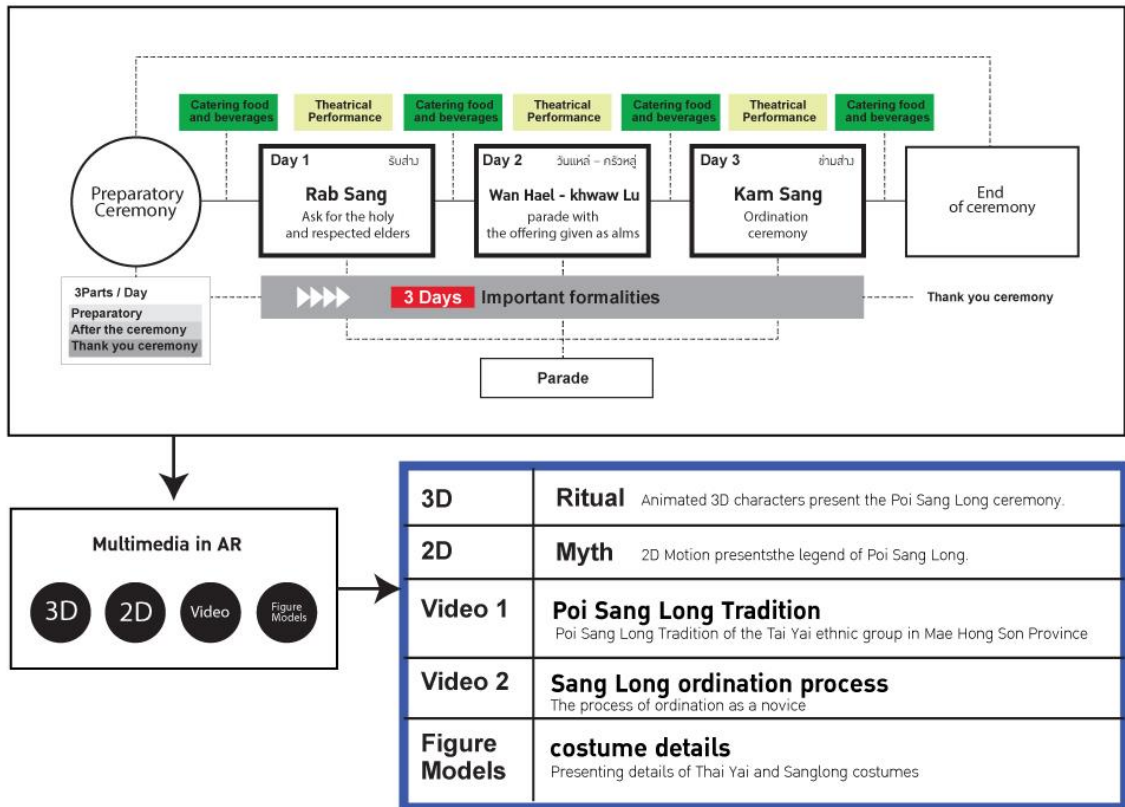


Diagram 14 Design Structure for each Type of Media for Learning the Poy Sang Long Tradition.

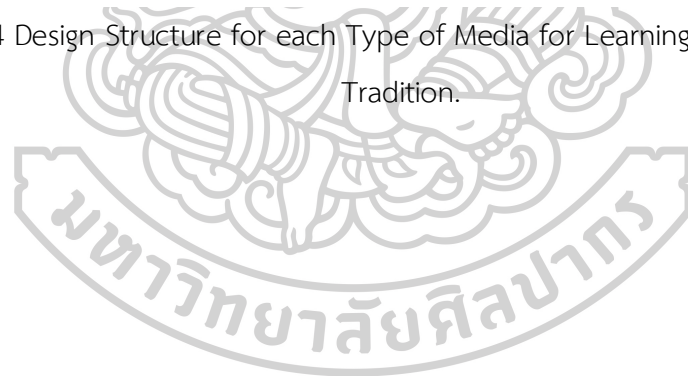








Table 9 Analysis of Mixed Media in Poy Sang Long AR Application

No.	Design	Description
1.		3D Character Design, Sang Long in 3D Animation
2.		2D Character Design, The Legend of Poy Sang Long Motion Graphic patterns and Parallax Techniques. (Zheng, 2019)
3.		Video Production 1. To present Poy Sang Long tradition from the data collection in Mae Hong Son province to be attributed to a story that reflects the way of life of the Tai Yai people.
4.		Video Production 2. To present Poy Sang Long tradition as a standard format for learning by simulating the situation.
5.		Model Figure Model Figure is used as a marker. Sang Long presents information through AR and as a souvenir.
6.		Guidebook Collect data for use as information for learning in Poy Sang Long AR Application.

Once each medium was tested in the initial process, all the desired results were obtained. The next step will be about the structure of media integration with AR applications on smartphones. The system is as follows;

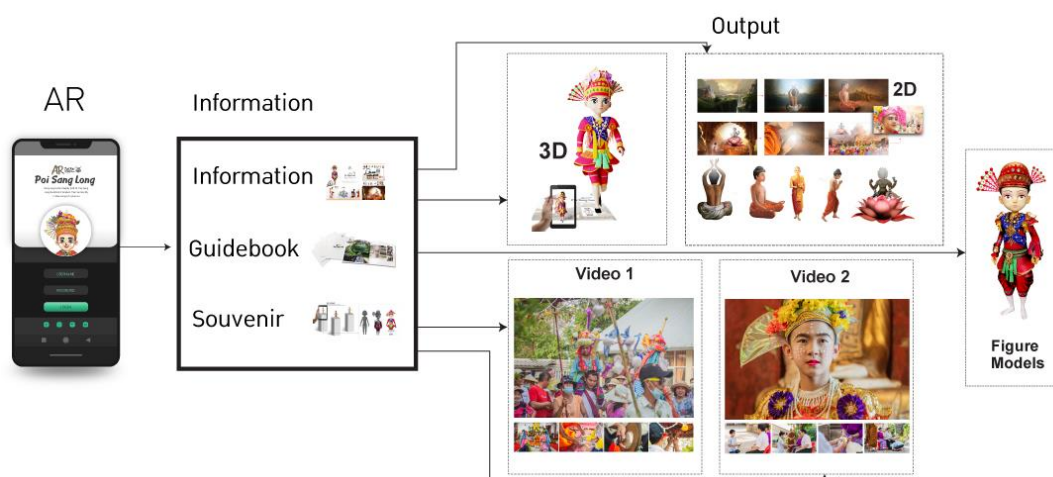


Figure 69 Structure of media integration with AR on smartphones.

According to the structure shown, the first is to design an application to present AR media about Poy Sang Long tradition on smartphones, bringing together five media that have been collected by creating information to make users convenient to access content both in book form by using images or symbols as a marker.

When the information is complete, make the application design to present Poy Sang Long tradition in the Android operating system.

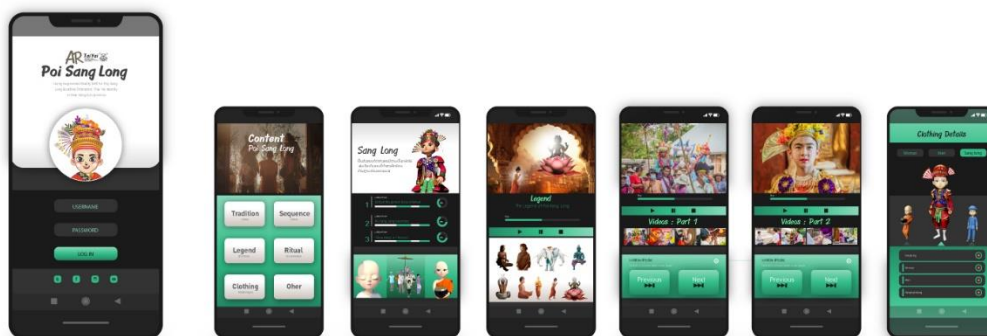


Figure 70 User Interface.

Contents in the Application and appearing in the Guidebook include:

- 1) 3D Animation Poy Sang Long
- 2) 2D Motion Legend
- 3) Videos : Part 1 Poy Sang Long Tai Yai Tradition, Mae Hong Son province
 - Day 1 Receive Sang Long day “First Day” or “Rub Sang Day”
 - Day 2-4 visiting senior relatives "Kham Khaek Day"
 - Day 5 The grand parade before the ordination ceremony "Kham Sang Day"
 - Thirty-two dishes of food
 - Thai Dharma offering ceremonies
- 4) Videos : Part 2 Details and the ceremony of Poy Sang Long
 - Apology ceremony
 - Hairdressing ceremony
 - The ceremony of consecration
 - Dressing ceremony
 - Sang Long Procession
 - Ordination ceremony
- 5) Model Figure
 - Sanglong costume information
 - Tai Yai male costume information
 - Information on Tai Yai female costumes
 - Novice costume information

The document is created to learn the legend of Poy Sang Long in a form of book which is available to tourists, including a package in a gift box.



Figure 71 Guidebook.

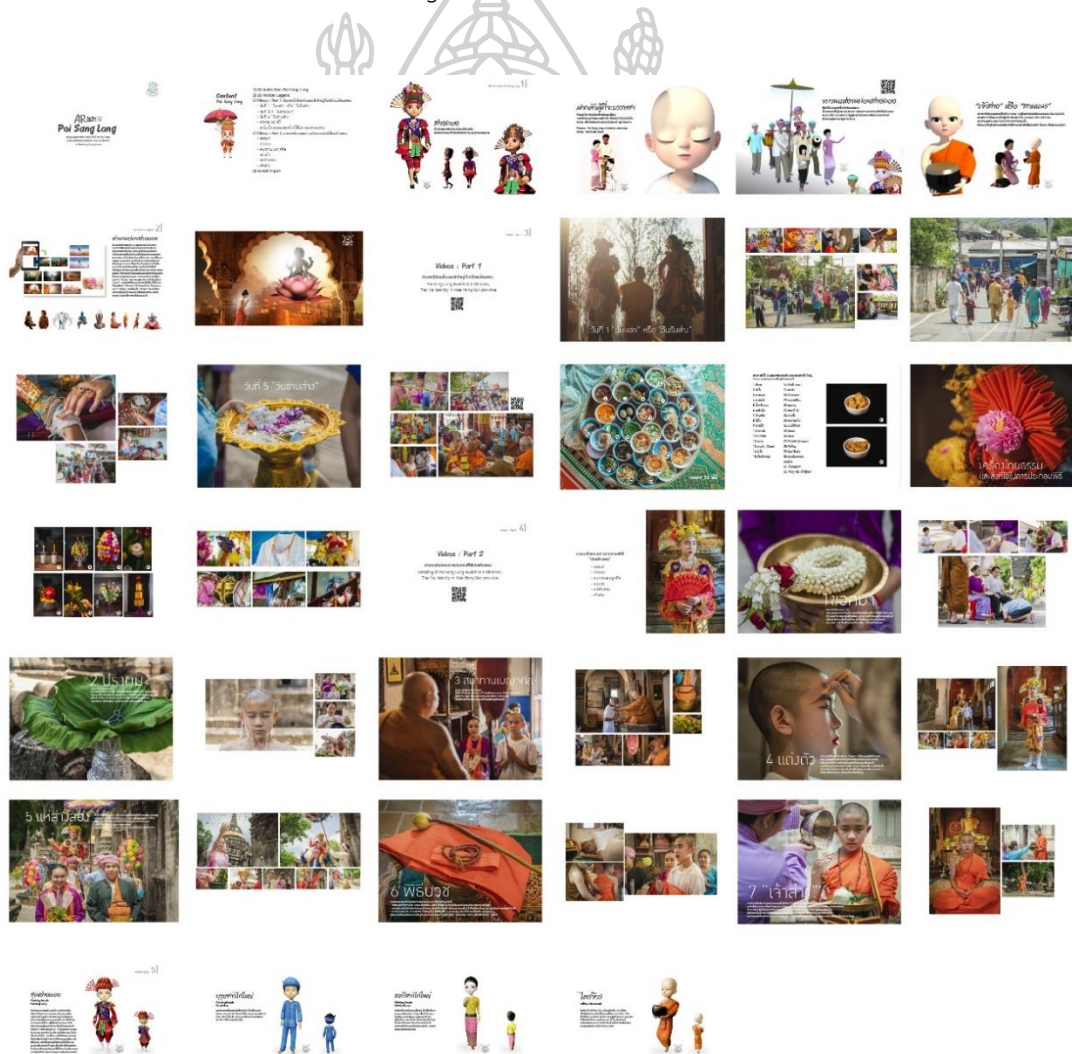


Figure 72 Guidebook inside.

An overview of the design process of 3D Character & Animation for use in learning about Poy Sang Long traditions.

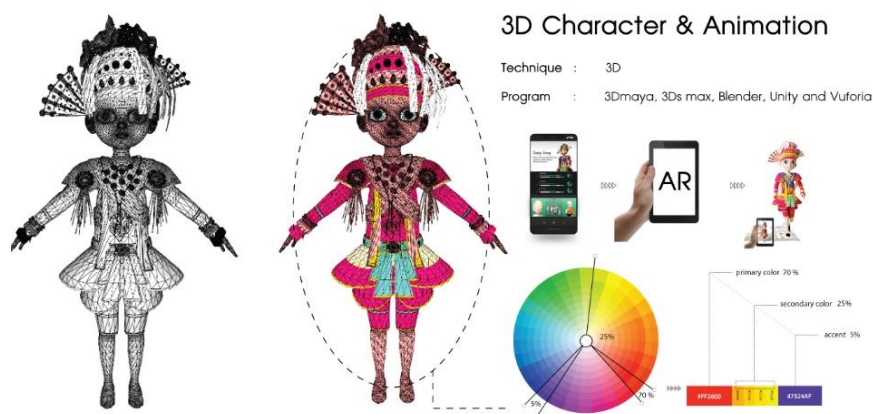


Figure 73 3D Character Design and Animation.

The 3D animation to present Sang Long test result with the marker shown in the guidebook can work effectively. The presentation has diverged into four themes: Sang Long walk cycle, hair shaved and dressed, Poy Sang Long ordination ceremony, and the beginning of the mission of the novice to understand the content of Poy Sang Long ritual. The user can hold the smartphone to rotate the character 360 degrees, and the animation is fully animated. The appearance of the 3D animation is a loop.



Figure 74 3D animation to present Sang Long walk cycle.

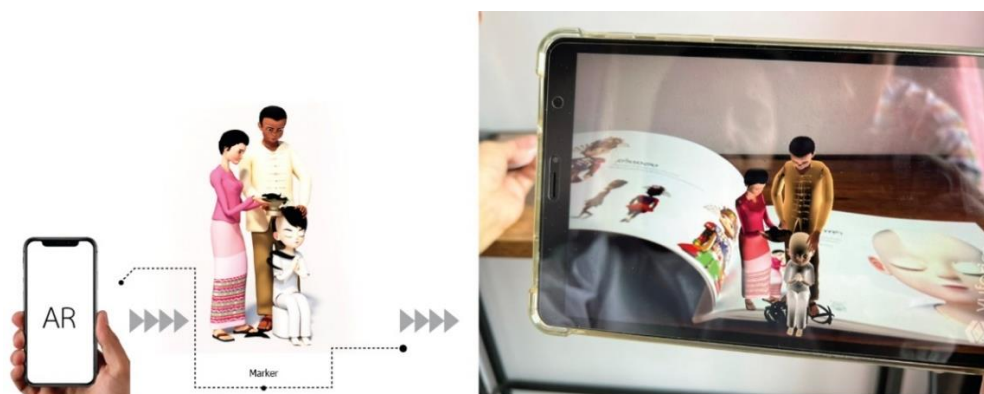


Figure 75 3D animation to present hair shaved and dressed in white through Augmented Reality.

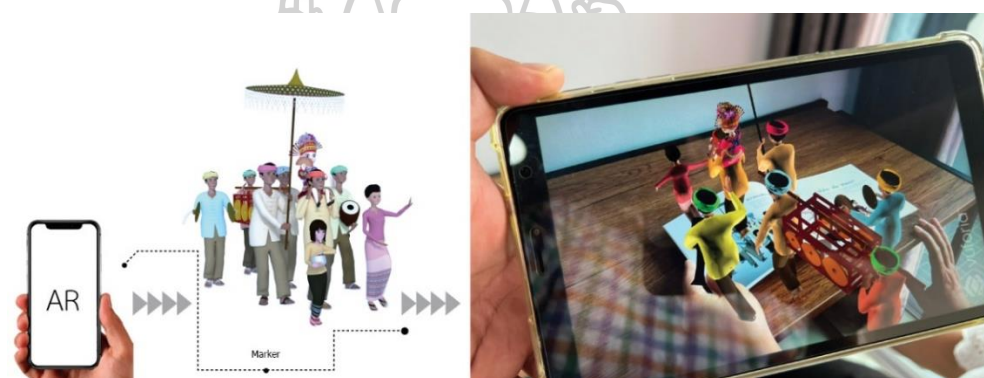


Figure 76 3D animation to present Poy Sang Long ordination ceremony through Augmented Reality.



Figure 77 3D animation to present begin the mission of the novice through Augmented Reality.

An overview of the design process of 2 D Motion for use in learning about the legend of Poy Sang Long.

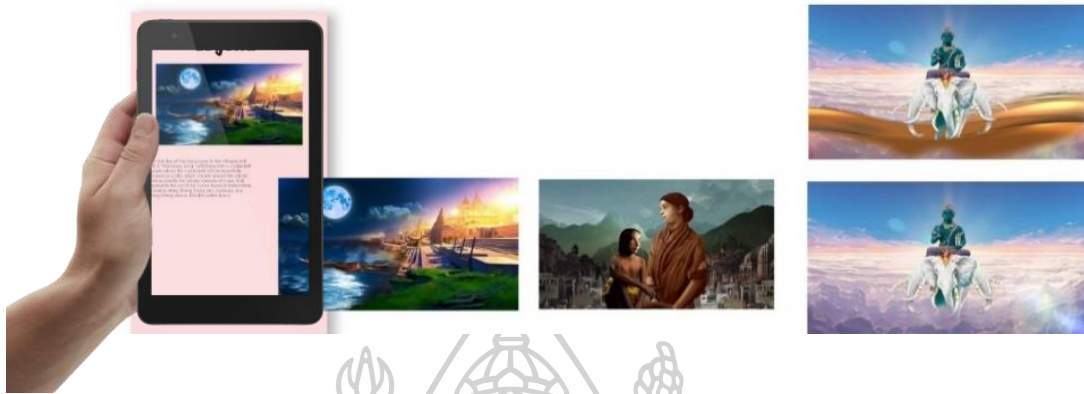


Figure 78 2D Overview of the creative process Characters and Motion.

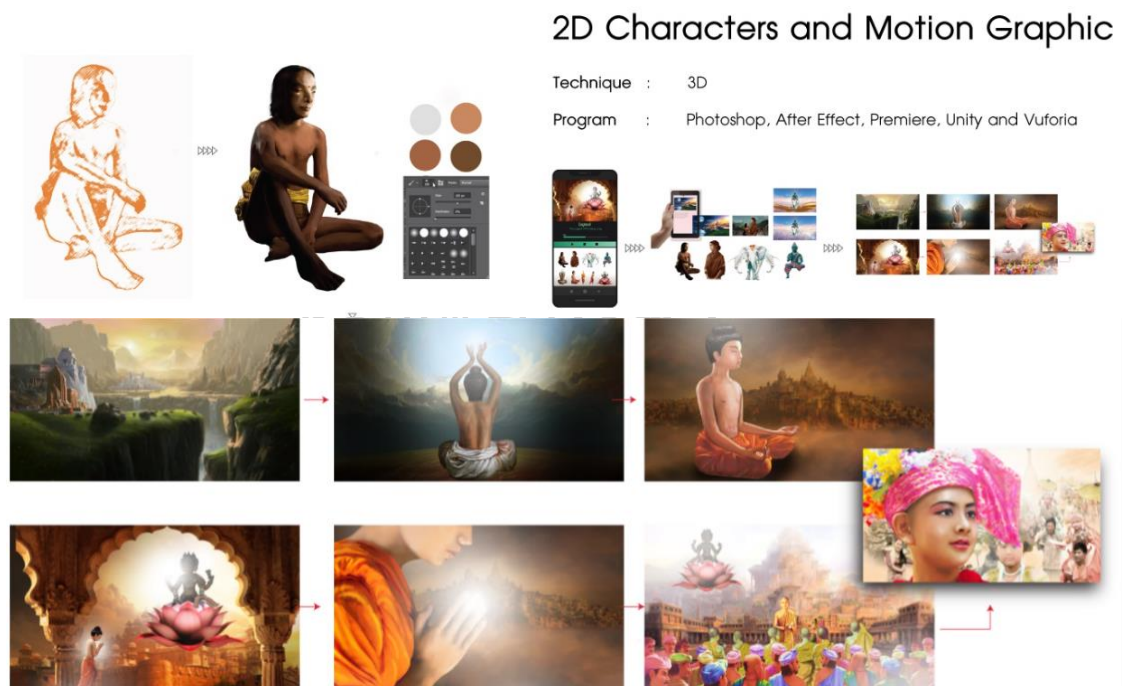


Figure 79 Overview of the creative process Characters and Motion.

Test results using 2 D Motion to present The Legend of Poy Sang Long through Augmented Reality. The response to the marker and the display is efficient, the narration and background music is clear, and the picture is stutter-free. The clip's

content is 1 minute long, creating 2 D Motion media using the Digital Painting technique with Photoshop.

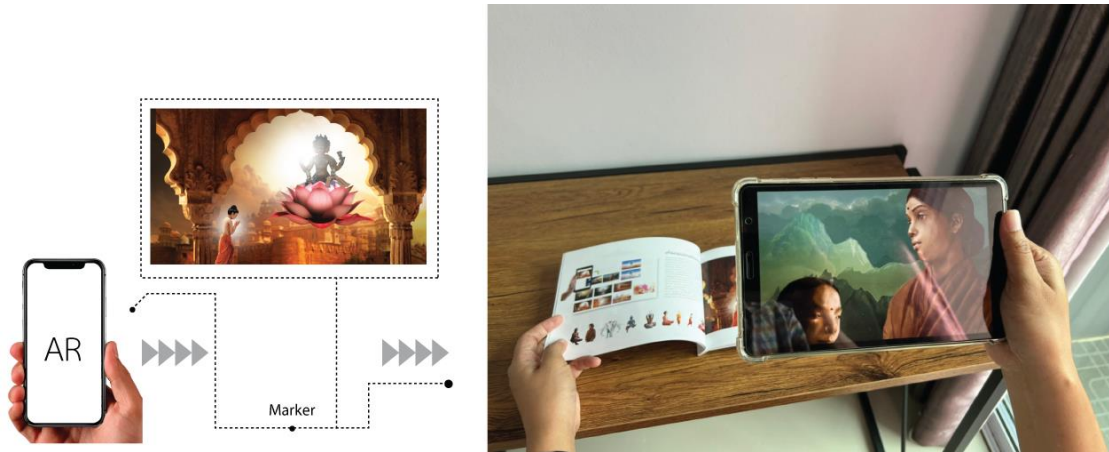


Figure 80 2D Motion to present The Legend of Poy Sang Long through Augmented Reality.

Design process overview Sang long costumes for actors to produce video and to accompany the Poy Sang Long ceremonial learning.

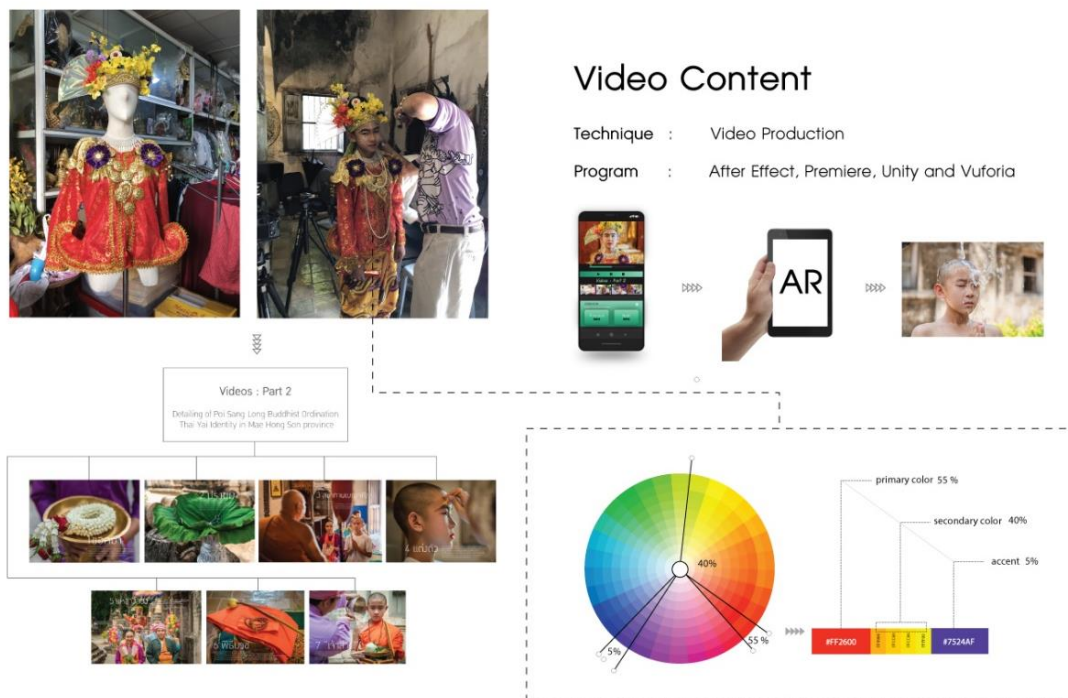


Figure 81 Overview of the video content creation process.

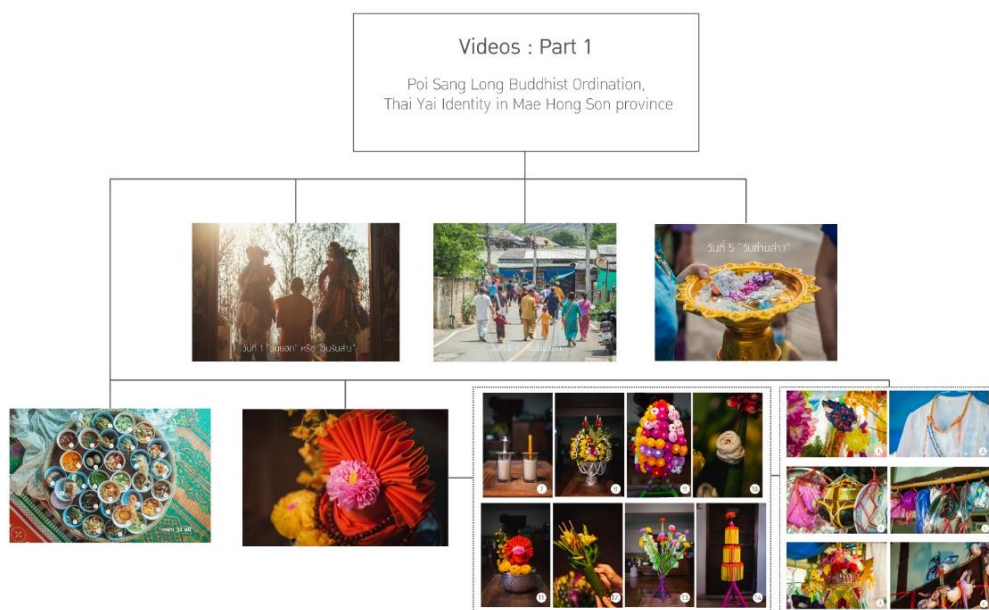


Figure 82 Overview of the video content Part 1 creation process.

The presentation of video content Part 1 is to present Poy Sang Long ordination in Mae Hong Son through Augmented Reality. The content of this video will be divided into 3 periods: the ceremony from the 1st, which is the “receipt day”, 2-4 “Day Kham Khaek”, “Kualu Parade Day” and 5th Day “Kham Sang Day”, in which all content will be obtained from filming from actual locations. The video will appear through the image marker position in each clip, average length of 3 minutes. Viewers will be able to understand Poi Sang Long tradition and watching the atmosphere that arises from the actual situation.



Figure 83 Video content Part 1 (Day 1 of poy sang long ordination) through Augmented Reality.

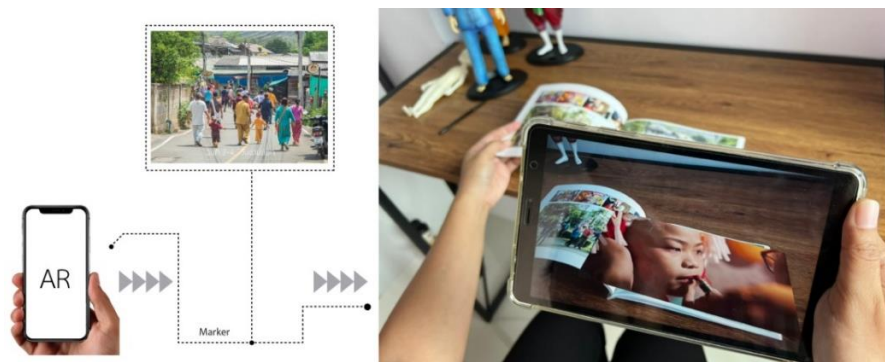


Figure 84 Video content Part 1 (Day 2-4 of ordination) through Augmented Reality.



Figure 85 Video content Part 1 (Day 5 of ordination) through Augmented Reality.

In the presentation of Poi Sang Long Tradition in Mae Hong Son province through Augmented Reality, there is also a marker point that presents the important information, namely 32 types of food used in rituals.

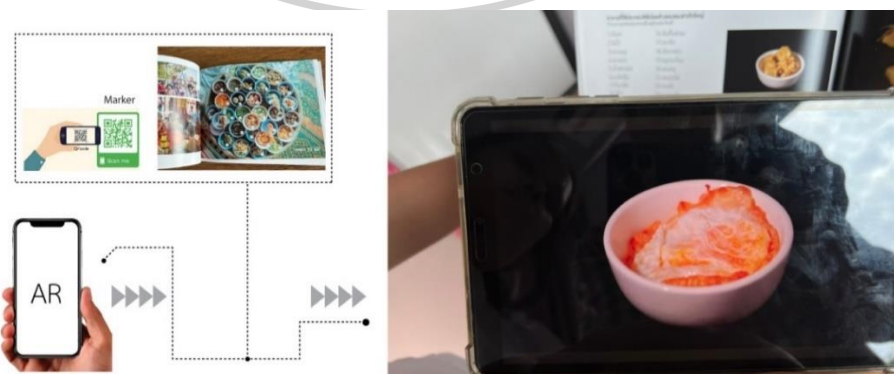


Figure 86 video content Part 1 (Day 5 of ordination) through Augmented Reality.

This part will use the picture as a marker to present the parade equipment. And the necessary item for the Poi Sang Long ceremony through Augmented Reality, the results appear to be text data graphics, explaining the meaning of each picture. The parade equipment presented data from 8 images and present 6 images of Sang Long item.

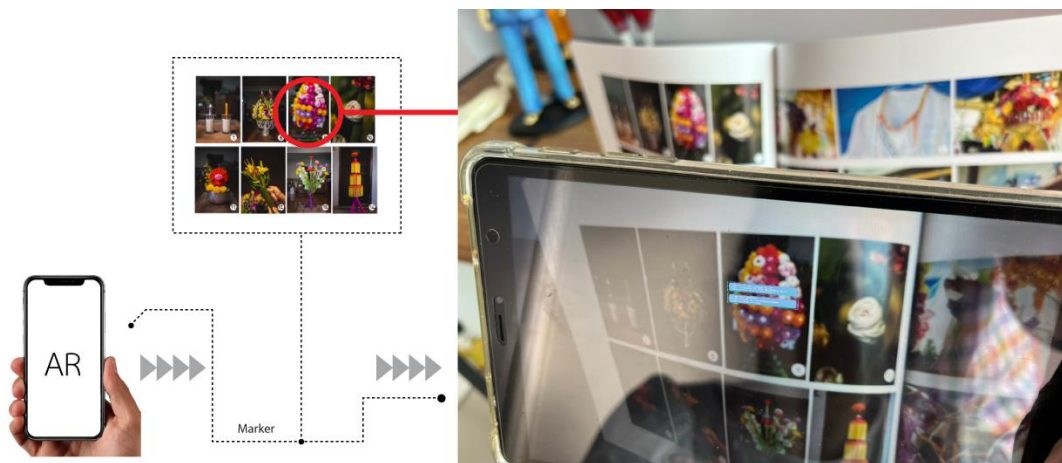


Figure 87 Graphic 2D describes the parade equipment through Augmented Reality.

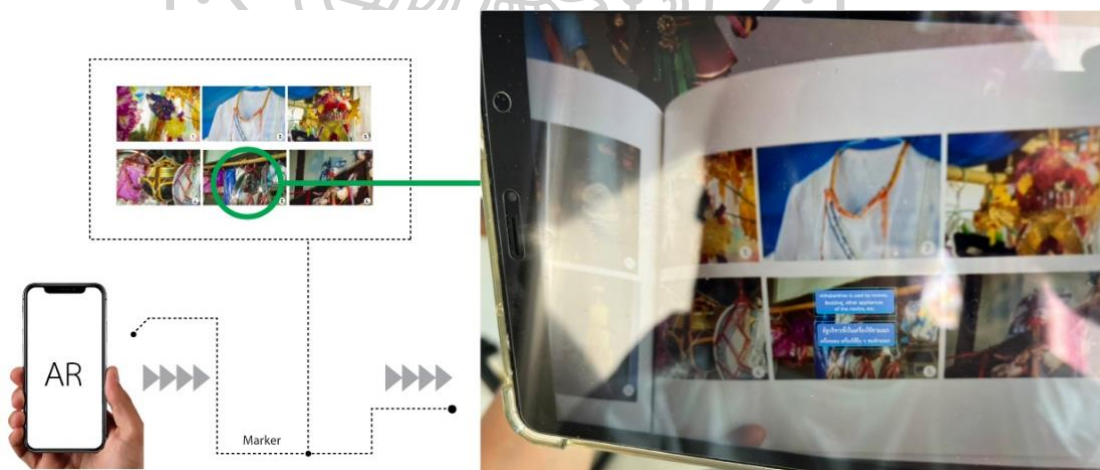


Figure 88 Graphic 2D describe Sang Long items used for ritual through Augmented Reality.



Figure 89 Overview of the video content Part 2 creation process.

Video content Part 2 is to present Poy Sang Long ordination through Augmented Reality by using images as a marker, presenting contents related to important details. The cultural beauty is the heart of this content. The humility and determination for boys to transition to novice is divided into 7 sections: Sang Long asks for forgiveness, hair shaved and dressed in white, the five precepts – commandments, the Dressing, Poy. Sang Long parade, ordination ceremony, and novice - religious activities, each clip has an average length of 1 minute.



Figure 90 Video content Part 2 to present Sang Long asks for forgiveness through Augmented Reality.

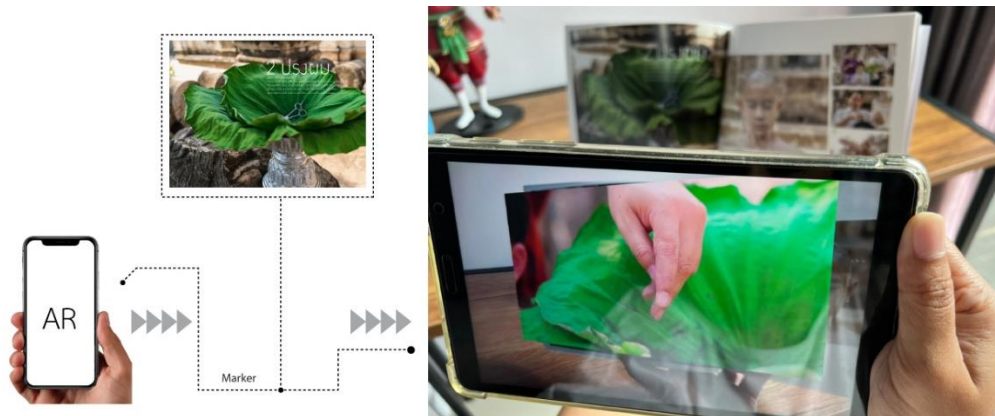


Figure 91 Video content Part 2 to present hair shaved and dressed in white through Augmented Reality.

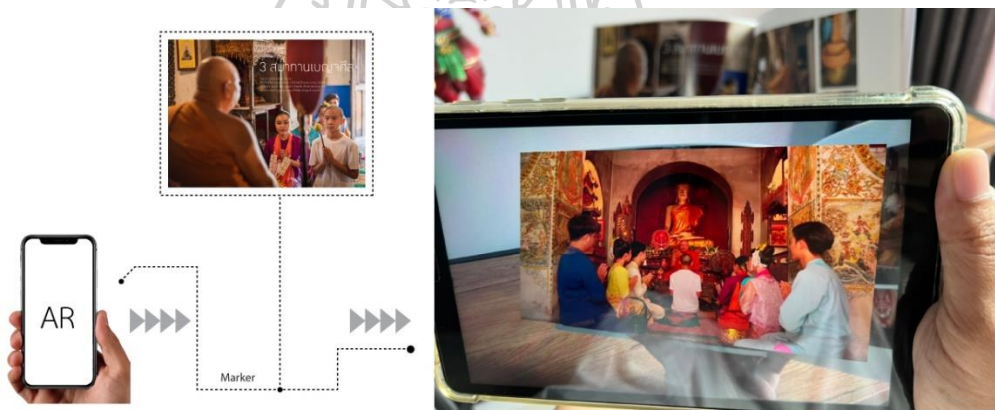


Figure 92 Video content Part 2 present the five precepts-commandments through Augmented Reality.

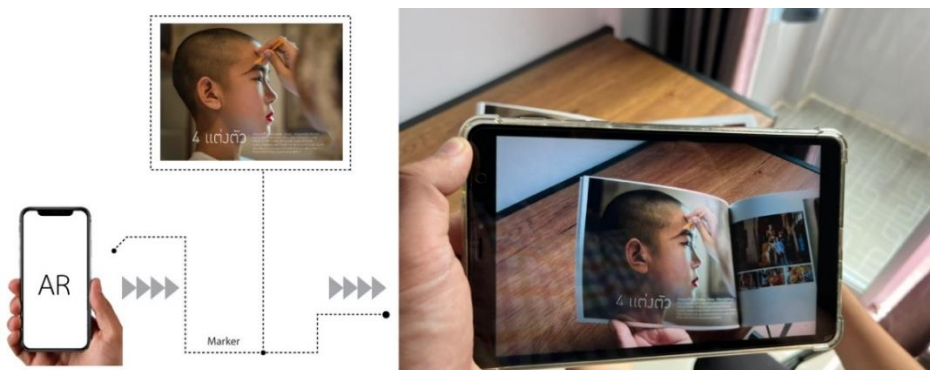


Figure 93 Video content Part 2 to present the Dressing through Augmented Reality.



Figure 94 Video content Part 2 to present Poy Sang Long parade through Augmented Reality.



Figure 95 Video content Part 2 to present ordination ceremony through Augmented Reality.



Figure 96 Video content Part 2 to present novice-religious activities Through Augmented Reality.

An overview of the model figure design process as a souvenir and material for learning apparel information with AR.

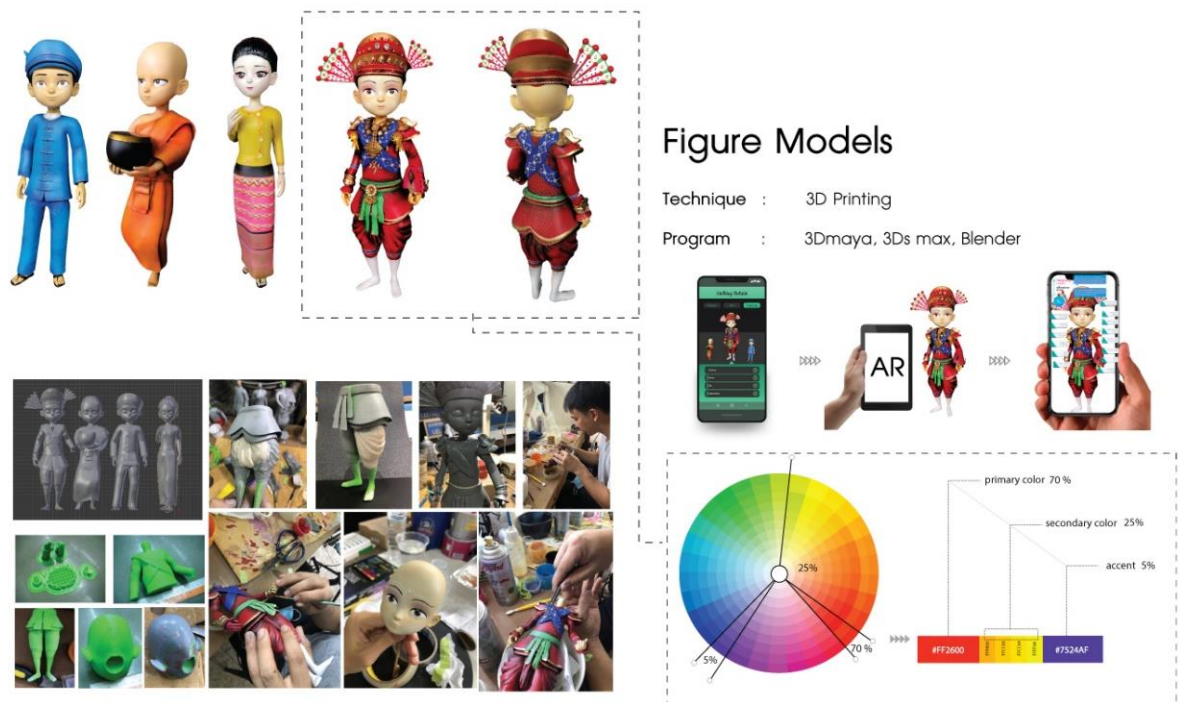


Figure 97 Overview of the Creative Process model figure.

The model figure test results describe the information of dressed through Augmented Reality. Users can use the model figure as a marker to learn about the details of the costumes of Sang Long, Tai Yai men, Tai Yai women, and novices. It appears to be a 2D graphic format that combines with the real world, allowing time to use it to see the environment while learning information with pleasure.

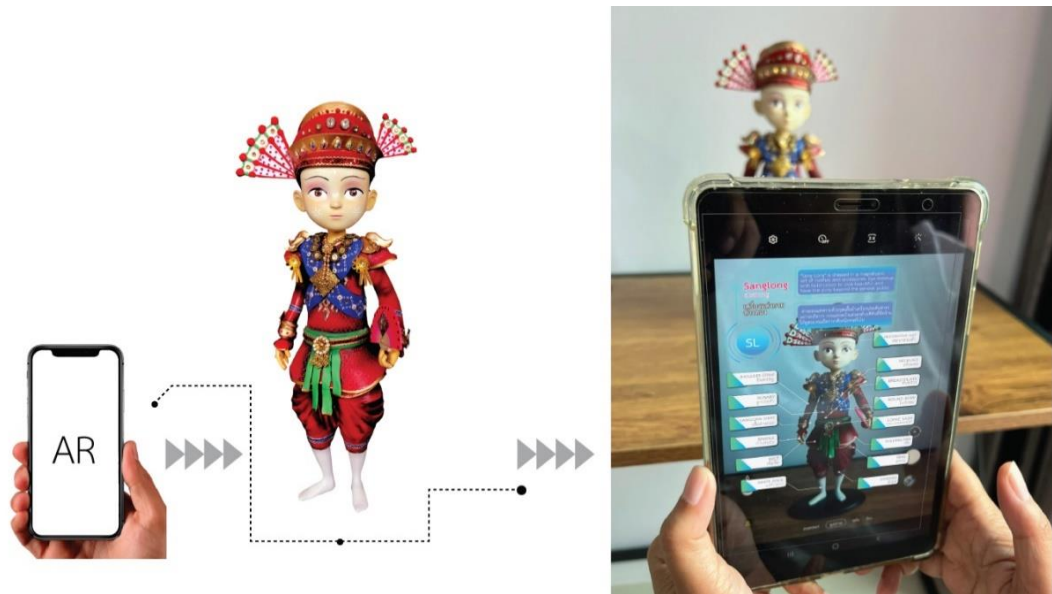


Figure 98 The Sang Long model figure describes the information of dressed through Augmented Reality.

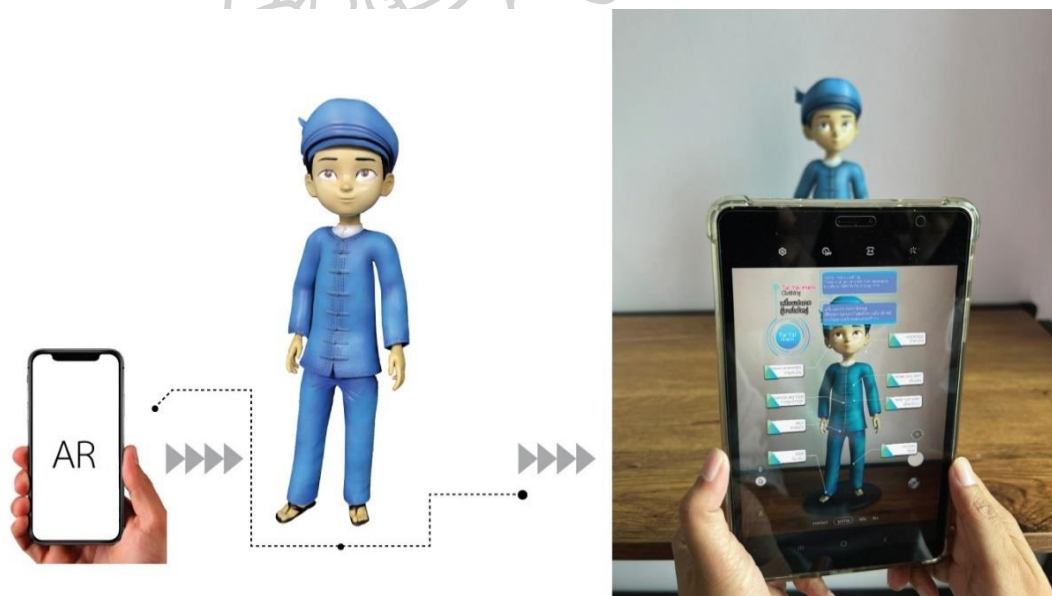


Figure 99 The Tai Yai men model figure describes the information of dressed through Augmented Reality.

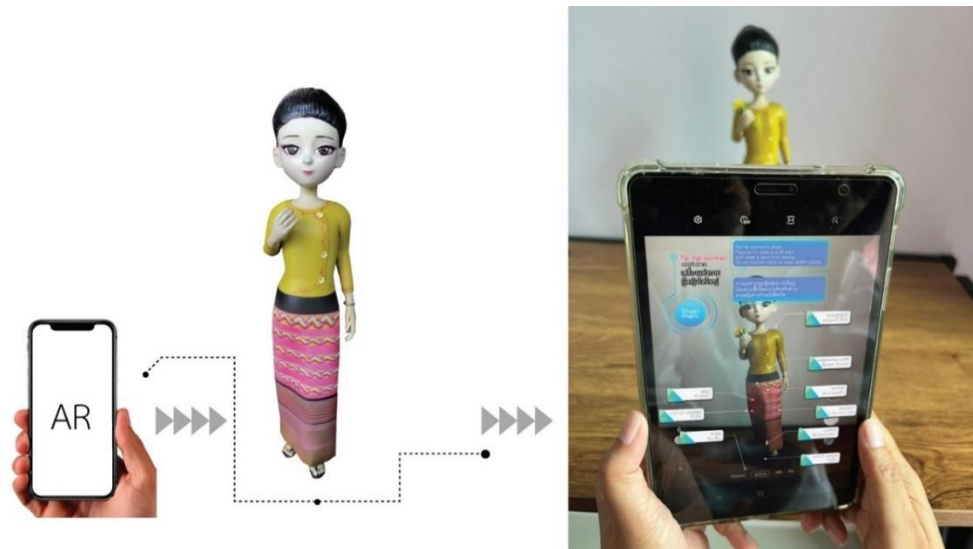


Figure 100 Tai Yai women model figure describes the dressed information through Augmented Reality.

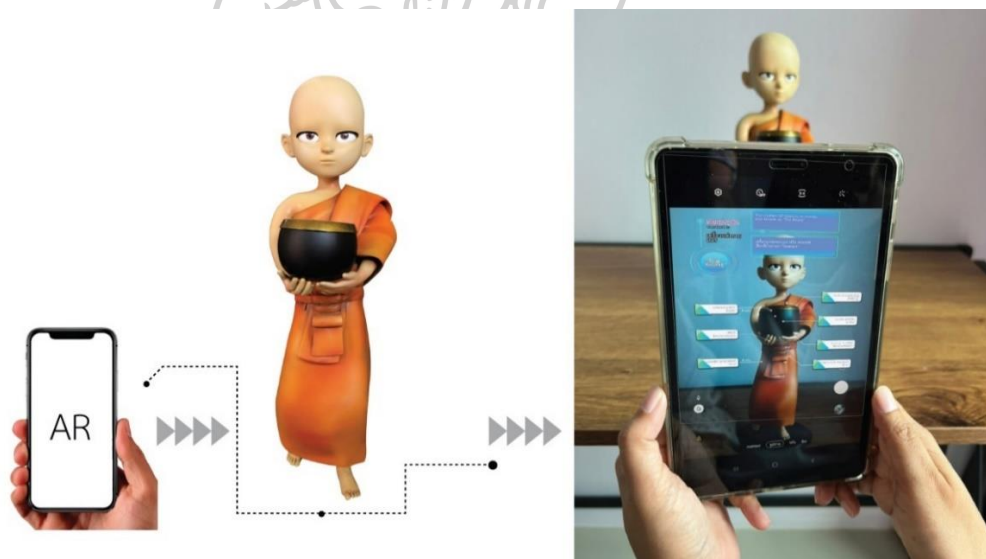


Figure 101 Novice model figure describes the dressed information through Augmented Reality.

Overview of the structure of the media Poy Sang Long AR Application when used together with various media types, consists of the use of documents, guidebooks, information channels that are in a learning resource or an exhibition place, or self-learning

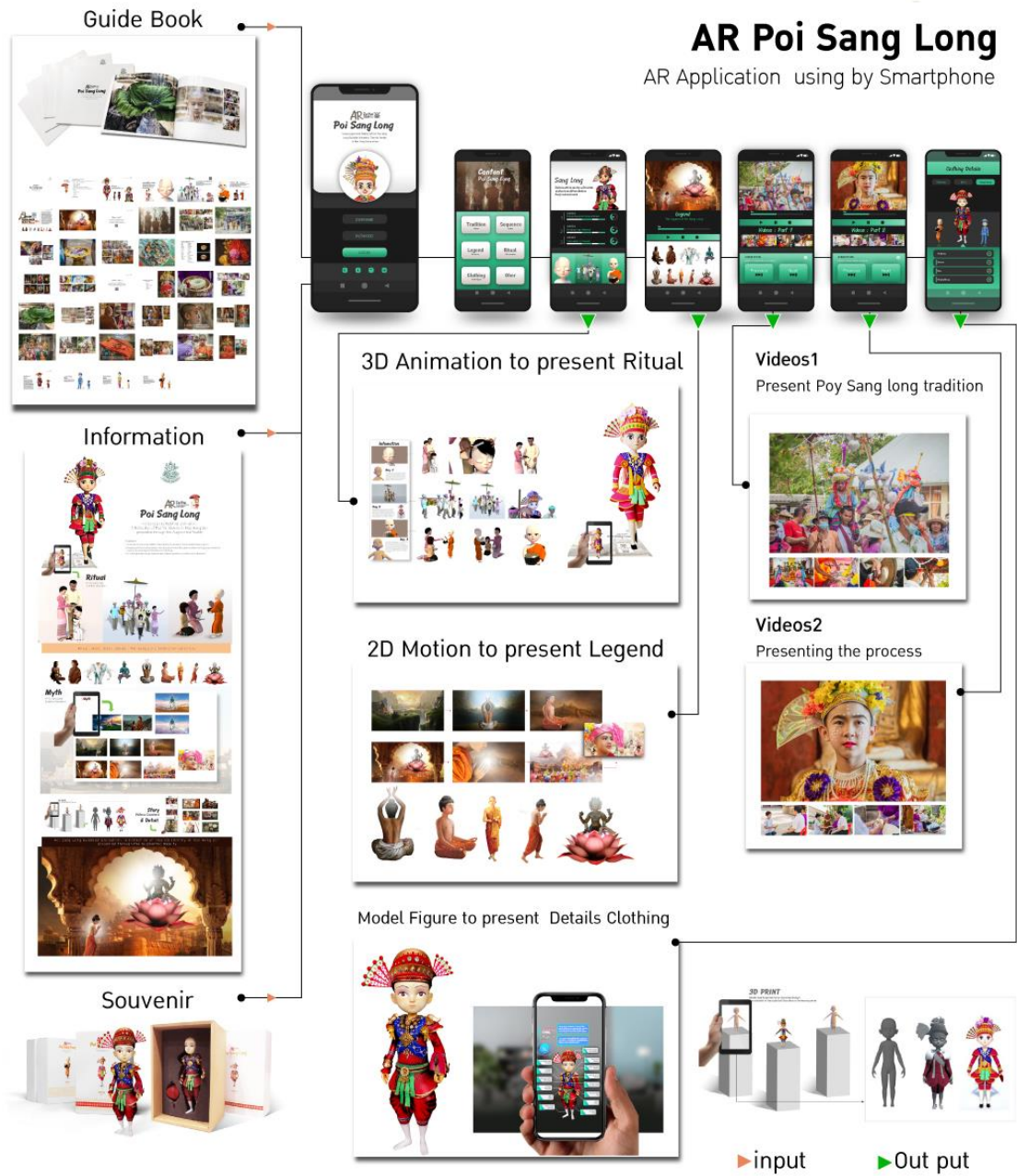


Figure 102 Information for Poy Sang Long AR.

The design of this knowledge set has brought forward the concept by Tessa Jolls and Elizabeth Thoman (2008), a skill necessary for everyday use and work in the 21st century; that is, the average person wants to know more than the main content. Therefore, it is necessary to understand how to use your knowledge and skills,

including critical thinking, data analysis, communication, participation, and problem-solving. It consists of access skills, information, analytical skills, content, and news, evaluates skills, content validation skills. Quality and relevance of content creative skills, skills in which a person can create ideas through text, sound, or images effectively for the desired purpose, and participate skills, which individuals can engage or interact with the media. The researcher has applied this approach in determining media structure to allow audiences to learn the contents through various media; such as 3 D Character Design, Sang Long in Animation, 2 D Character Design, Legend of Poy Sang Long in Motion Graphic format, Video Production to present Poy Sang Long tradition. 3 D Character Design which is demonstrated in a Model Figure for use as a marker, presenting the information through AR, and as a souvenir, and publications to collect information for use as information for learning in Poy Sang Long AR Application. From learning with different access methods, Poy Sang Long AR Application media results in the audience having skills in media perception, which is a necessary skill for everyday use and work in the 21st century.

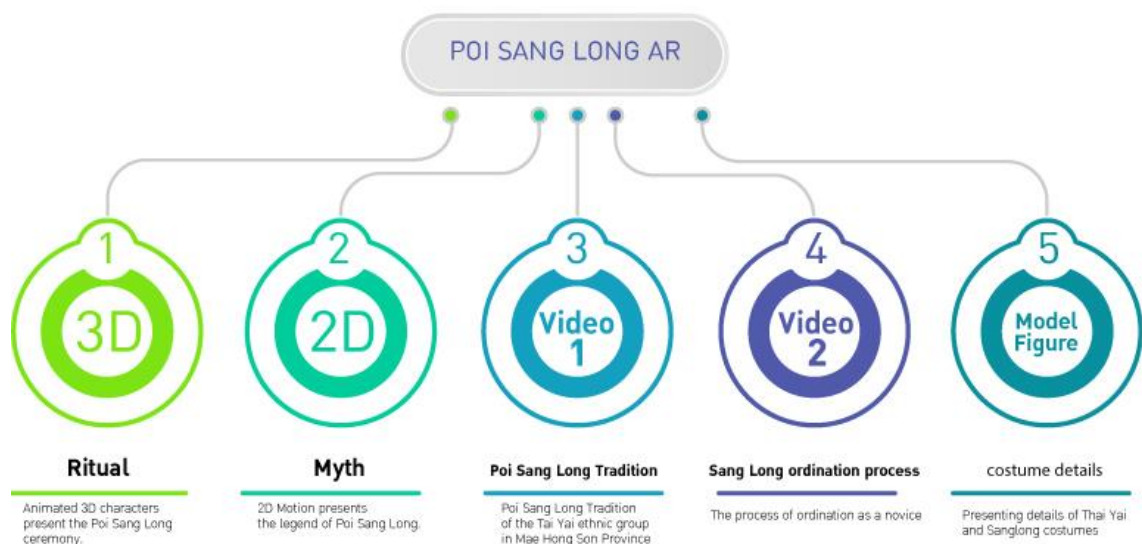


Figure 103 Information for Poy Sang Long AR.

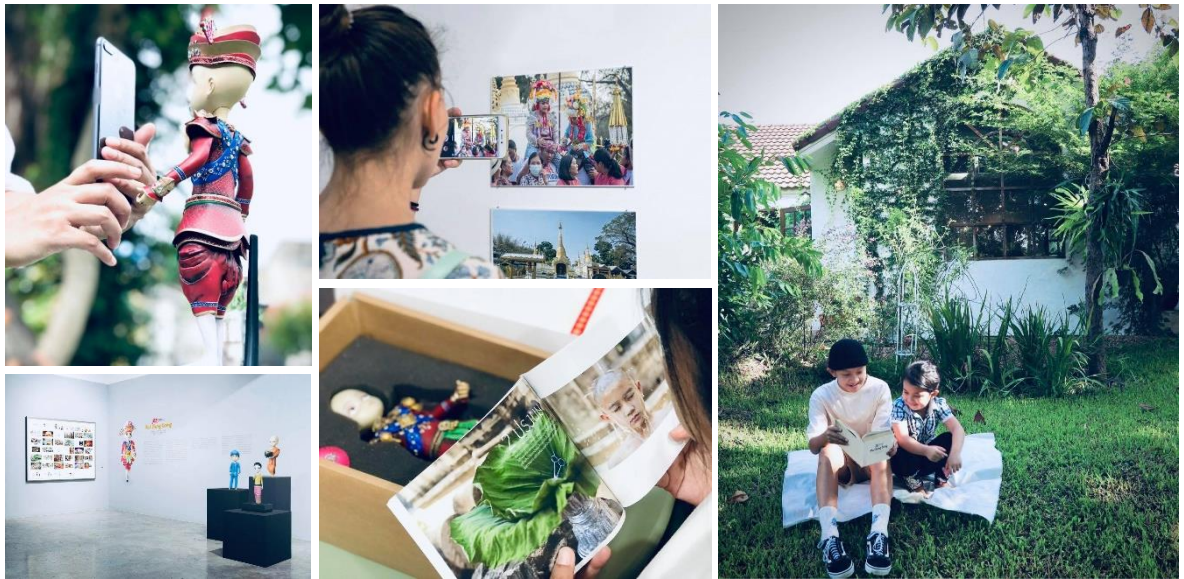


Figure 104 Information for Poy Sang Long AR.



Figure 105 Souvenir Corrections.

Inside the box, there are figure model, guidebook, and a stand. The average model size is 35 centimeters tall, which is a size that can be displayed in detail.



Figure 106 Souvenir Inside.

In addition to being a souvenir for collectors, they can also be used as a marker to present information about the costume. Users can read data via smartphone or tablet through Augmented Reality.



Figure 107 How to use AR Application as a media learning.



Figure 108 Model Figure for Collectable.

In conclusion, the Poy Sang Long Ordination, through an Augmented Reality learning set, can be developed as souvenirs for sale to tourists or those interested in collecting in the form of an art toy. The figure model can also provide detailed information about the costumes integrated with AR. This research will help promote tourism in the preservation of culture, rare and complex traditions. It can also make all genders and ages access information smartly.

4.3 To develop and evaluate by using Augmented Reality (AR) for Poy Sang Long Buddhist Ordination, Tai Yai Identity in Mae Hong Son province.

To study the effect of using Augmented Reality (AR) for Poy Sang Long Buddhist Ordination, Tai Yai Identity in Mae Hong Son province by measuring the satisfaction of using the media from the online questionnaire and field visits, questionnaires are collected from the sample group, i.e., college students, experts, and people in the community,



Figure 109 Post-Production Questionnaire: Onsite test.

Online test: Satisfaction questionnaire for using Poy Sang Long AR Application.

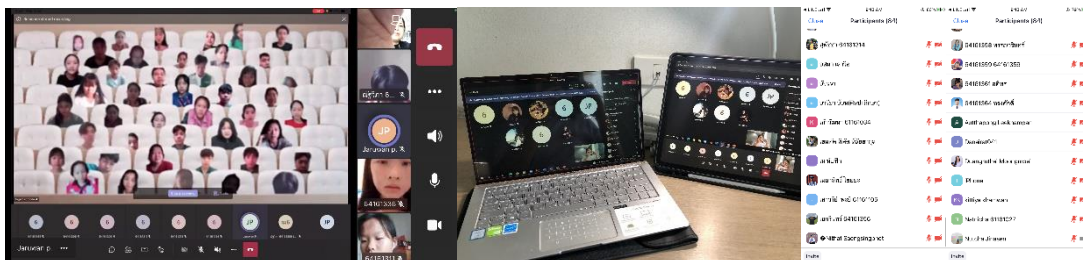


Figure 110 Post-Production Questionnaire: Online Test.

Field visit test: Satisfaction questionnaire for using Poy Sang Long AR Application in Mae Hong Son



Figure 111 Post-Production Questionnaire: Onsite Test in Mae Hong Son.



Figure 112 Post-Production Questionnaire: Onsite Test in Mae Hong Son.

List of qualified persons as consultants for the research and doing a media satisfaction measurement from Poy Sang Long AR Application

1. Assoc. Prof. Renu Wichasilp: Specialist in language, literature, history, culture, and Tai society and Screenplay Adviser
2. Dr. That Sriratanaban: Deputy Director of the Office of Arts and Culture, Chiang Mai Rajabhat University, who researched and wrote textbooks about the Tai Yai ethnicity in the North advised on Legends and History of Poi Sang Long Tradition
3. Lecturer Siriporn Kuanmamuang, Deputy Director of the Office of Arts and Culture, Chiang Mai Rajabhat University, Adviser on arts and culture presentations
4. Assistant Professor Dr. Nilobol Wimonsitthichai, Deputy Director of the Office of Arts and Culture, Chiang Mai Rajabhat University, Advisor on Application
5. Lecturer Sarayut Ongsaengkun, Department of Dramatic Arts, Faculty of Education, Chiang Mai Rajabhat University, Advisor on costumes / ceremonial equipment



Figure 113 Post-Production Questionnaire: Onsite Test for Experts.

For the results of using Poy Sang Long AR Application, it is found that the satisfaction in using Poy Sang Long AR Application media, Mae Hong Son province, according to the questionnaire by the sample group, i.e., college students, experts, and people in the community, their satisfaction with animated media presenting stories, legends, and beliefs inherited from Poy Sang Long tradition were at a high level (\bar{x} = 4.26 SD=0.68), and the evaluation of the quality of the animated media presents the stories, legends, and beliefs inherited from Poy Sang Long tradition through Augmented Reality. According to the evaluation, users can understand their local traditions, resulting in their pride in local culture and practices, and this media also helps to preserve and carry on the cultural identity of the Tai Yai ethnic group of Mae Hong Son province to be passed on to the next generation

The research instrument was the Poy Sang Long AR Application satisfaction questionnaire which consisted of 3 parts: Part 1: Personal data of the respondents; Part 2: Media use satisfaction of Poy Sang Long AR Application; Part 3: Benefits from using Poy Sang Long AR Application. Data was collected via online questionnaire data and field survey with specific samples. Population are 100 students, university students, local people in the community, experts, and community leaders in Mae Hong Son province. After that, the questionnaires were used to analyze the data and process the questionnaire with a statistical program.

Part 1: Questionnaire on Personal Data of the Inquirer

The followings are results of data analysis of the questionnaires classified by gender, age, education level, occupation are as follows;

Table 10 Number and percentage of respondents classified by gender.

Gender	Number	Percentage
Male	34	34.0
Female	66	66.0
<u>Total</u>	100	100

The survey found that most of the respondents were female which was accounted for 66.0%, while males was accounted for 34.0%, as shown in Table 11

Table 11 Number and percentage of respondents classified by occupation.

Occupation	Number	Percentage
Student	62	62.00
Community members	31	31.00
Community leader	4	4.00
expert	3	3.00
<u>Total</u>	100	100.00

The survey found that most respondents were 62 students/college students, representing 62.0%, 31 in the community, 31.0%, four community leaders, 4.0%, and 3 experts, accounting for percent. 3.0

Part 2: Satisfaction in Using Poy Sang Long AR Application Media

The results of the analysis of data on satisfaction in using animated media, legends, beliefs, traditions, Poy Sang Long Tai Yai, Mae Hong Son province of the sample of personnel, students, people in the community, community leaders, and experts in Mae Hong Son province classified according to the satisfaction characteristics of the users are shown in Table 12

Table 12 Mean, standard deviation, and the satisfaction of using Poy Sang Long AR.

List	Mean	Standard Deviation	Meaning
1) Historical content	4.35	0.67	High level
2) Character design	4.53	0.54	Highest level
3) Animation and relationship of each scene	4.25	0.68	High level
4) Computer graphics techniques	4.07	0.72	High level
5) Background music	4.12	0.69	High level
6) Audio narration	4.30	0.54	Highest level
7) Understanding of content and expected benefits	3.94	0.71	High level
8) Persuasion and motivation to watch	4.18	0.70	High level
9) Accessing mixed media using AR technology	4.56	0.54	High level
Total average	4.26	0.68	High level

From Table 12, the overall satisfaction of the respondents in using Poy Sang Long AR Application media was at a high level with the same mean of 4.26.

When considering each side, it was found that the first three levels of satisfaction were mixed media using AR technology with the highest level of satisfaction, with an average of 4.56, followed by character design with the highest level of satisfaction. The mean was 4.53, and the historical content aspect was 4.35, respectively.

The researcher saw that in addition to providing information for learning, it also promotes the identity of the Poy Sang Long tradition and the Tai Yai people to be known. Build a good memory.

This Poy Sang Long AR media is based on a development by collecting data from textbooks, narratives, and field surveys, and obtaining information that will be used to design based on the theory of interactive perception and the integration of AR technology in order to promote the identity of the Tai Yai ethnic group through the Poy Sang Long ceremony in Mae Hong Son province. This concept is applied to research related to media use and promotes awareness of the target audience more effectively. These six steps consist of a literature review: data collection, analysis, design, measurement, evaluation, and final design. The results of the measurements were analyzed and developed for the design and accessibility flaws of the Poy Sang Long tradition to ensure the quality and diversity of media.

The study of Poy Sang Long AR media found that the overall satisfaction of the respondents in using Poy Sang Long AR Application media was at a high level with the same mean of 4.26. When considering each side, it was found that the first three levels of satisfaction were mixed media using AR technology with the highest level of satisfaction, with an average of 4.56, followed by character design with the highest level of satisfaction. The mean was 4.53, and the historical content aspect was 4.35, respectively.

All data that have collect from the method can arrange the discussions in to the proper diagram below.

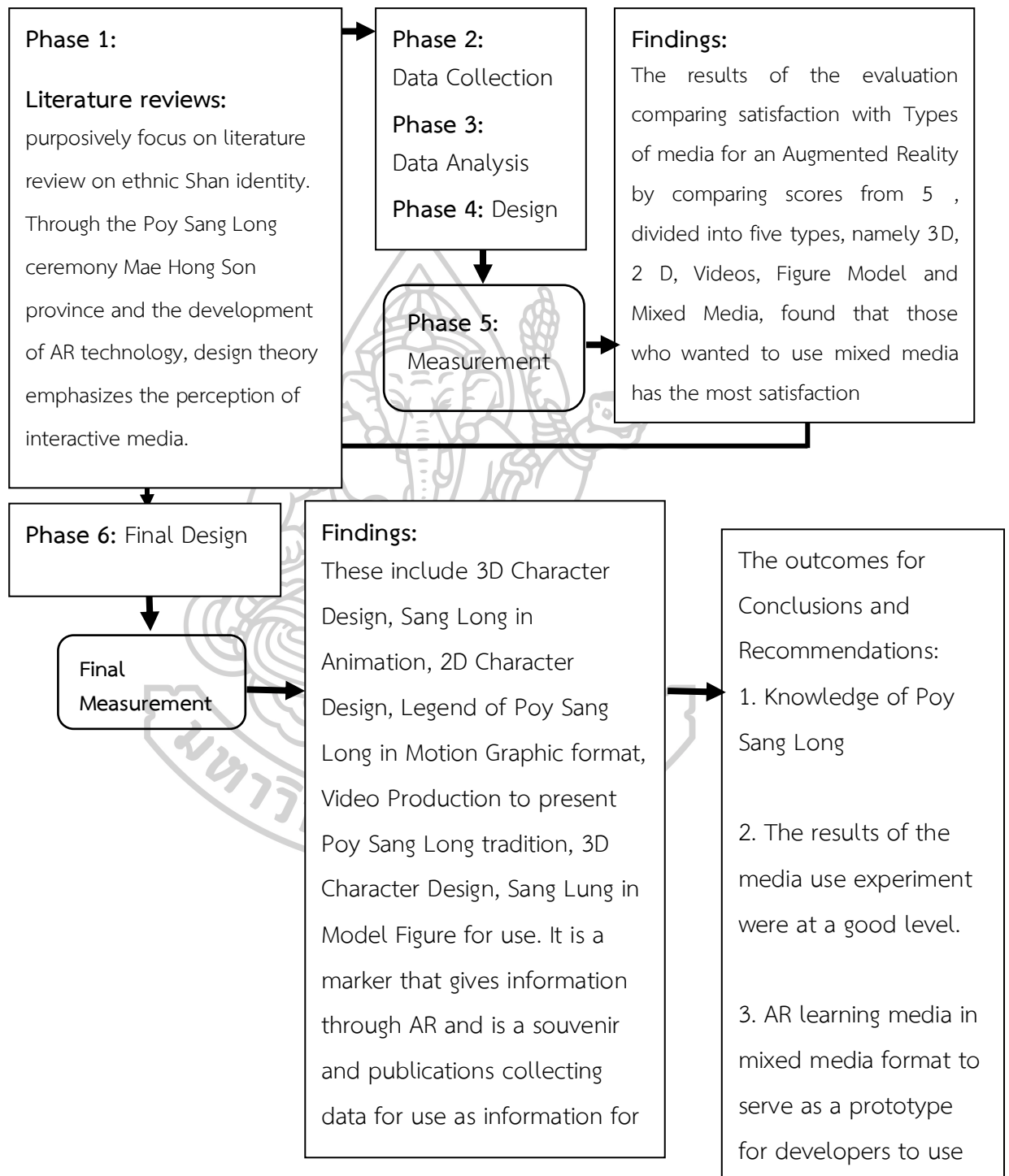


Diagram 15 Research Method and Result.

Chapter 5

Conclusion and Recommendation

This section presents a summary of the research results, the experiment with creations and the application to actual situations. According to the established research plans and field visits using AR media in actual locations. these allowed the researcher to gain new knowledge, and the results can be summarized as follows:

1. Conclusions of research
2. Recommendation
3. Contributions

5.1 Conclusions of Research

The summarization of the results based on the research plan can be divided into sub-sections as follows.

5.1.1 Conclusion of Studying and Upholding the Arts and Culture in the Poy Sang Long Tradition of the Tai Yai Ethnicity in Mae Hong Son Province.

The study of the content of theoretical papers, the researcher collects information from various sources and collects data from textbooks, research papers, academic articles, and interviews to find historical details of the Tai Yai tribe, including the legend of Poi Sang Long tradition as follows;

The concept of ordination ceremony of the Tai Yai ethnicity Mae Hong Son province can be concluded that ordination is an important tradition of the Tai Yai. Mostly, monks are ordained from the ages of 7-12 years, usually in March, April, and May of every year, and the event is scheduled for 3-7 days. This young priest ordination ceremony in Tai Yai language is called "Poy Sang Long". Poy Sang Long is a ceremony to celebrate the ordination of a novice in Buddhism of Thai people of Tai Yai lineage found in Mae Hong Son province and in some districts of Chiang Mai province. "Sang" means a novice, Long or "Along" (Rungtawan Uam-in, 2012 and

Sanguan Chotisukrat, 1969). Such beliefs and faiths have been passed down and become legends based on the history of Buddhism. According to the data collection from the telling of the Tai Yai community leaders in Pai District, Mae Hong Son province, and the abbot of Wat Jong Klang, Muang District, Mae Hong Son province, the researcher obtained relevant and consistent information. In addition, according to the searching for information from textbooks, it was found that there were 4 expressions of the legend of the Poy Sang Long ritual. All four of these have attempted to create a connection between the patterns of action to reach salvation by following the way of the Buddha and the disciples as a model. It emphasized the importance that leads to liberation or to being born in a better life as a result of the present action (That Sriratanaban, 2019: 98). The researcher had selected expression 3 that is described as at one point in Varanasi, wealthy men holding their children's ordination ceremony and a grand celebration. There was a widow in that town who had an ugly son but had faith to ordain in Buddhism. Due to monetary poverty, when she heard the news that the wealthy man would hold an ordination ceremony, the son and his mother hugged each other, crying because of regret in fate. Knowing this, Indra came down to bring the ugly boy into the pool and washed it with holy water, giving him a beautiful and elegant figure. When Brahma came to know him, he created the Bodhisattva-style costume and was accepted as the host for the novice ordination. From the aforementioned legend, it is the origin of the word "Sang Long" because Brahma in the Tai Yai dialect is called "Khun Sang" who traveled to achieve the status of Bodhisattva. In Tai Yai language, it is called "Chao Along". The boy was called "Sang Long" and later became "Sang Long" (That Sriratanaban, 2019: 97). This expression can be used to convey beliefs that differ from the central influence of beliefs that grew into the latter. It is also an expression that communicates in Sang Long's name and leads to the belief of Phor Khaam - Mae Kham, which is an important mechanism in organizing rituals. Phor Khaam - Mae Kham refers to the person who is patronized as a matriculation host and has the same status as the legendary "Brahma". It is an adjustment to the social status of Phor Khaam - Mae Kham. In addition, the Phor Khaam - Mae Kham system in Tai Yai society also creates a labor and economic network, which affects the economic

status of Phor Khaam - Mae Kham and Look Kham. This is a kinship relationship of the community by using the rationale of religious beliefs in holding and implementing community practices.

The concept of Augmented Reality or AR integrates technology between the real world and a layer of information by using a software system and connected devices; such as smartphones or other related devices. The virtual objects that may be images, videos, sounds, data, etc., are processed from computers, mobile phones, or various small wearable devices which allow us to respond to the simulation. Compared to virtual reality, Augmented Reality enhances the real world instead of replacing it. Users can view the real world enhanced with 3D graphics or additional graphics overlaid with their perspective. The possibility of combining real and virtual objects allows access to complex data. And it is also convenient because AR applications can be used on smartphones with a wide range of service providers. Most importantly, smartphones are essential devices for communication in the modern era. This makes it easy to access information via AR technology that doesn't require accessories like VR. The internal process of Augmented Reality consists of 3 components: Image Analysis, the Pose Estimation of Marker relative to the camera, and the displayed results. (Output) The format or type of AR created this time is Marker-based, also known as AR-marker, based on image recognition or object recognition. It identifies defined images to perform AR tasks that use markers to enable AR. Markers are clear patterns that the camera can easily recognize and process and are visible regardless of the surrounding environment. It could be a paper object or an existing thing in the real world. Marker-based AR works by scanning a defined marker, then text, video, or animation will appear on the device usually, the software is required in the form of an app. This allows users to scan markers from their devices using the camera feed on the viewer's smartphone.

The concept of using media in Augmented Reality in AR media production to present the Poy Sang Long ceremony. In conclusion, media is a communication channel or tool used to store and deliver information, and the medium is the mediator between the source of the content and the recipient. A. J. Romiszowski (1992) *Augmented Reality or Augmented Reality*. AR: Augmented Reality

is a technology that combines reality. And the virtual world is created together through various software and connected devices, which is considered to create another piece of information that forms the virtual world, such as graphics, videos, 3D shapes and text, letters appending overlays to real-world images displayed on the camera. The semantic comparison of media in AR means collecting data and designing and developing it to bring the hidden data to the device's destination where AR is placed. The viewer understands the content through the Augmented Reality platform, obtains additional information from AR, applications, location markers, or publications designed by the researcher, to be used in conjunction with this material by allowing viewers to use devices with applications, and pointing the camera in the specified marker position to obtain digital media content from multimedia systems in various formats, including information, 2D and 3D animation, animation, and video. The researcher has done to create these media to use in learning about the Poy Sang Long ritual, which is the ordination ceremony with complex procedures and methods and takes many days to learners. Audiences who are people in the community or youth and general tourists will gain knowledge and understanding of the Poy Sang Long tradition. And can create a new experience in learning local practices that combine academic content with fun at the same time

Media types used in AR to showcase Poi Sang Long traditions include 2D Motion and 3D Animation and video. Animation and motion media are created as animated media in order to create more interest of communication, for entertainment, increasing the efficiency of data communication. **Animation** refers to how each frame of a movie is produced differently, frame by frame, and then put together by continuous projection, e.g. the method of using computer graphics, pictures, drawings or photographs of a simulated moment that slowly move when the image is projected at a speed of 16 frames per second or more. The researcher has chosen to use animation to simulate the activities and gestures of the ordained people and those who participated in the Poy Sang Long parade, and has presented in Animation. **Motion Graphic** is a combination of 2 words; "Motion" refers to motion, and "Graphic" refers only to images, but also cartoons, squares, triangles, and lines. All the aforementioned can be categorized as graphics. When these two

words come together to create an animation, it's the process of moving pictures. The researcher has applied this technique to the preparation of media to present the legend of Poy Sang Long with complex information or content to convert into digital painting techniques and make them animated while adding narration and music, making the legend of Poy Sang Long in motion graphic format interesting, which will create entertainment and fun for the graphic work and will be able to tell stories in easier and more lively manner. **Video** media means the presentation of moving media in video format by telling a story about Poy Sang Long tradition that involves complex rituals and takes about 5-7 days to complete. The presentation of this media in this format emphasizes the information, motion pictures, sound, and atmosphere of Poy Sang Long tradition. The duration of the media is approximately 3-5 minutes long. It is a medium for the audience to study learn academic information and need in-depth information because it will require concentration and continued interest in the media. **Mixed media** or the process of integrating different media together, the advantages are the media is diverse, which creates continuous and interesting viewing. There are following matters to be considered for the production of this type of media; media development requires quality planning, and media size, in case of large file size, it often causes a delay in downloading or processing. The researcher has produced the abovementioned media to be used with AR presenting Poy Sang Long tradition by experimenting with this mix of various media. It was found that using a variety of media can attract the attention of audiences of different ages as well, and they are suitable for the media consumption behavior of the audience in the present era. It can be summarized as a structure shown below.

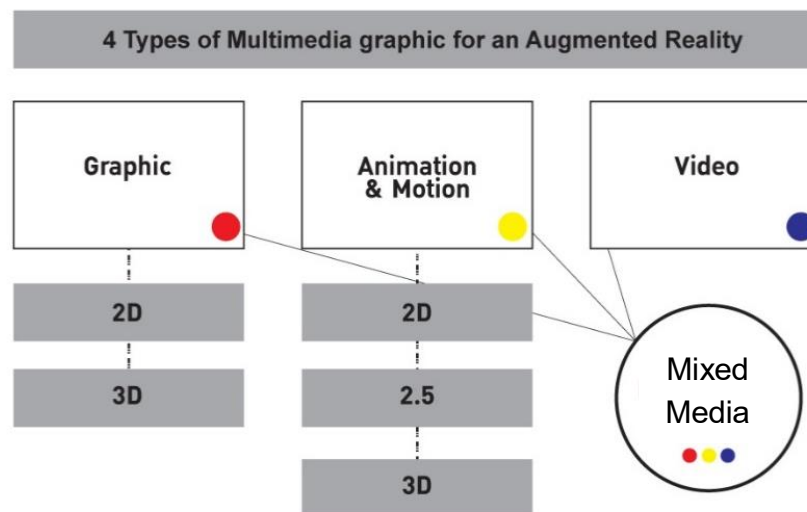


Diagram 16 Summary Types of Mixed Media for an Augmented Reality.

Designing a learning experience for AR media to showcase the Poy Sang Long tradition of the Tai Yai ethnicity in Mae Hong Son province (Experience and Phenomenology in Media's leaning of AR), AR media is now considered to play a huge role in learning, teaching, and providing historical knowledge because it is a medium that establishes communication between teachers and students, as well as creating knowledge for people in general who are interested to operate effectively, allowing the understanding of the learning content to match with the needs. The use of media to design needs the understanding of the perception process of the audience, which can be perceived through the 5 senses, starting from experiencing the stimulation from the 5 senses, namely; sight, smell, hear, taste and touch, therefore, allowing people to become interested in stimuli and ends with interpreting or figuring out what it means. Also, the audience must have different skills for media perception, namely skill to access information (Access Skill) in various channels; content analyzing skill (Analyze Skill) for news, information, designs, content structures, and chronology, content evaluating skill; (Evaluate Skill), a skill in which a person can relate information to an individual's experience and make an assessment of the correctness of the content, quality and relevance of content; creative skill (Create Skill) and participating skill (Participate Skill).

The researcher, therefore, designed a learning experience for AR media to present Poy Sang Long tradition of Tai Yai ethnicity in Mae Hong Son province by analyzing the behavior of media users who are the target groups and applying the results to design various media types in form of mixed media, adjusting the duration and media format to correspond with the content and reading methods. Then, the AR system is designed to have a user-friendly structure with easy-to-understand symbols. This includes the manual design for the use AR media to have a suitable size, portable, easy to use, and has a beautiful design layout, as well as the procedures of using the media to explain to the audience how to use it. For the critical issue in AR media production, the researcher has considered the behavior of using mobile phones or smartphones of Thai people who are the main target groups of this research, and was aware that Thai respondents watched media via mobile phones the most, followed by computers, television, radio, and lastly through print media. When it comes to viewing media via mobile phones, Thai people spend approximately 6.6 hours per day. According to the results of this research, it was found that when there is new technology in life, if such technology can create a positive attitude towards users, it will lead to acceptance of such technology. Therefore, it can be concluded that attitudes towards using technology are the total of feelings or thoughts. A person's views on a particular thing or technology occur when a person has perceived ease of use, perceived benefits, and perceived risks. Therefore, people have a good attitude towards using technology and intend to continue using the technology. It can be said that viewing media via smartphones is growing and becoming the primary device of internet usage among Thai people nowadays. In conclusion, designing a learning experience for AR media to showcase Poy Sang Long tradition of the Tai Yai ethnicity in Mae Hong Son province needs to learn via communication tools or smartphones which is most suitable due to the high demand for applications and accessibility without space, time, or circumstance restrictions. Most of the users have a very positive attitude towards using technology.

5.1.2 Conclusion of experiment with the technology advancement of Augmented Reality for Poy Sang Long ceremony.

The developed AR to present Poy Sang Long tradition the process is summarized as follows;

From collecting and analyzing the data of Augmented Reality technology presenting Tai Yai ethnic identity through the Poy Sang Long ceremony, Mae Hong Son province, the AR can be used via Android smartphones as a learning medium for users to study Poy Sang Long legends, rituals, and various details, the structure of AR media and contents can be summarized as follows;

5.1.2.1 Poy Sang Long AR Platform can be used with any Android-operated smartphone or tablet. The smartphone is a device that can be carried anywhere, flexible, fast wireless data connection, and there is a camera for capturing images or symbols to transmit information to the data processor which makes users convenient because most of them already have smartphones.

5.1.2.2 Vuforia Library or SDK (Software Development Kit) which is used as an AR media supporter for use with Android mobile devices, Vuforia application analyzes images using a marker detector and generates data; such as text, video, objects, virtual dimensions or animations in the camera from markers detected by Vuforia API.

5.1.2.3 In general, the system will use symbolic images installed at information points. When interested persons or tourists bring their smartphone and turn on the camera to capture a picture of the symbol, then, a 3D object will appear, together with an animation talking about the Poy Sang Long tradition ceremony along with background music. Also, it can display videos and animations of the ceremonies. Users can interact with the Poy Sang Long AR Platform by selecting an image on the touch screen; the data is shown as an auxiliary scene and can be seen through the smartphone screen. The information displayed as a 3D object or video depends on the content and symbols scanned in the guidebook.

5.1.2.4 Development of application design, it starts from the preparation of 2D Motion design presents the legend, 3D Animation presents ceremonies, Video presents the Poy Sang Long tradition in Mae Hong Son and the

process of ordination ceremony details. and figure model for souvenirs and providing information about the costume through the use of AR to present Poy Sang Long tradition. Then, the data is combined using Vuforia and displayed via smartphone.

5.1.2.5 The final process is to create a Poy Sang Long AR application by integrating each media type together in Unity 3D application. The data within the application consists of the Poy Sang Long AR application connecting access to the formal data of Poy Sang Long legend. Video presents various details associated with the marker that has been prepared.

The AR application is designed for Poy Sang Long tradition simulation. It presents a variety of rituals, legends, and details, along with sound effects for different situations and changing background music. The presence of information in the right place, especially the diverse stories presented stimulates learning as well.

5.1.3 Conclusion of Develop and Evaluate Using Augmented Reality (AR) for Poy Sang Long Buddhist Ordination, Tai Yai Identity in Mae Hong Son Province.

From the research objectives, it can be concluded that developing Augmented Reality technology to present stories, legends, and beliefs inherited from Poy Sang Long tradition, it was found that the use of AR by presenting mixed media consisting of 2D Motion presenting legends, 3D Animation presenting important ceremonies, Video presenting the atmosphere of Poy Sang Long tradition in Mae Hong Son province, and the details of the ordination ceremony and figure model to be used as souvenirs and information about the costumes through the use of AR to present the Poy Sang Long tradition of the Tai Yai ethnicity Mae Hong Son province. All media can be used anywhere, and it allows the access to complex contents and creates an exciting learning history for people of all ages due to the use of various presented media. Developing a learning model for Poy Sang Long tradition by using platform mixed media in Augmented Reality will be benefit researchers who can apply the research results to give legends, traditions, and other historical stories. Most importantly, this research will help promote the conservation of traditions and spread rare cultural traditions, allowing audiences who are interested to be able to

access anywhere, and anytime. In media experiments, users had a high level of cognitive performance, and are able to learn objectively and understand the content of the media. In addition, users have a high level of intellectual achievement, and are able know objectively and understand the range of the press. In addition, the use of AR techniques can also be a positive reinforcement in interactive learning with users (Interactive media, Vaughan. 1 9 9 3) and want to learn information by themselves and can also be easily accessed with a smartphone.

The research tools were the satisfaction questionnaire on using AR media in Poy Sang Long Tai Yai tradition, Mae Hong Son province, consisting of 3 parts: Part 1: Personal data of the respondents; Part 2: AR media use satisfaction of Tai Yai Poy Sang Long, tradition Mae Hong Son province, and Part 3: Benefits from using AR media of Tai Yai Poy Sang Long tradition, Mae Hong Son province. Online questionnaires were collected and survey site visits were conducted with a purposive sampling: students, community members, and the community leaders in Mae Hong Son province, a total of 100 people were used to analyze the data and process the questionnaire with a statistical program.

According to the result of using AR media Poy Sang Long tradition Mae Hong Son province, it showed that the satisfaction in using AR media in Tai Yai Poy Sang Long tradition, Mae Hong Son province, according to the questionnaire by a sample group, namely college students, experts, and people in the community, they were satisfied with AR in the form of mixed media presenting Poy Sang Long tradition at a high level ($\bar{x} = 4.26$ S.D = 0.68), assessing the quality of Poy Sang Long presentation media through AR. They can understand their local traditions and are proud of their local culture and traditions. In addition, this media helps preserve and carry on the cultural identity of the Tai Yai ethnic group of Mae Hong Son province to be passed on to the next generation.

For the statistical research result, it can be concluded that the sample group in Mae Hong Son province, students, and people in the community, community leaders, and experts earned benefits from using AR media of Tai Yai Poy Sang Long tradition, Mae Hong Son province at a high level. The most valuable item from the questionnaire response was that AR media of Tai Yai Poy Sang Long

tradition, Mae Hong Son province caused benefits in a good way, with access to important historical information of essential traditions of the Tai Yai people in Mae Hong Son province. It allow the integration with other presentation media, including 2D Motion, 3D Animation, Video, and Figure Models in order to create awareness among media users that they can easily access the content. It also creates an understanding of the content without complexity and helps promote knowledge and experience of Poy Sang Long tradition using AR media in mixed media style, Poy Sang Long tradition, Tai Yai, Mae Hong Son province. The aforementioned result showed that those who watch the media have adequate learning and access to information with a better experience through the use of modern media that are diversely resulting in pride in local culture and traditions. In addition, this media helps preserve and carry on the cultural identity of the Tai Yai ethnic group of Mae Hong Son province to be passed on to the next generation.

5.2 Recommendation

For suggestions, the development of experimental results from this research continued in the future. The researcher has acquired recommendations from analyzing all experimental results and recommendations from research experts in various processes. The issues can be summarized as follows;

5.2.1 Studying the technological factors which influence AR. The audience must access information easily, quickly, and effortlessly, and in uncomplicated manner.

5.2.2 This research's limited audience communication tools affected the interactive presentation with operating system limitations in the communication tools, including the speed of the Internet system that affects the data download.

5.2.3 In the COVID-19 situation, both in data storage and visiting the area for media preparation, researchers should be able to maintain distances in their work and strictly follow the rules of the agencies that supervise each area.

5.3 Contributions

5.3.1 New Knowledge of Multimedia in AR

From this research, it creates knowledge of the development of animation media, legends, beliefs of Poy Sang Long traditions of Tai Yai ethnicity, Mae Hong Son province An alternative media; such as AR (Augmented Reality) has been experimented, which is an intelligent and convenient access to information. According to the experiment, the content of Poy Sang Long legend, a myth that has been told, was simulated, and the research showed that media usage affects objective cognitive achievement in positive and encouraging manners. Users have positive interaction and wish to learn information on their own. It is also a continuation of the model for developing content learning in other cultural traditions. It can be summarized as the **AAPI+L** model, as shown in the diagram.

Alternative Media. The use of new and alternative media that is suitable for the era and the technology that helps more intelligently, which mixed media in AR is considered a part of the simulation for accessing information. This will add a new experience to the audience. It is also a model for developers to use this model to create other cultural and historical learning styles.

Audience. Audiences are satisfied with AR mixed media, resulting in better tracking of different content segments.

Perception is an essential basis for a person's learning because any behavioral response depends on their perception of their environment and their ability to interpret that condition. Therefore, learning mixed media presents content aesthetics and the appropriate length and content viewing through virtual reality. It allows the audiences in the community or the environment to be stimulated for their perception of information effectively.

Interactive Media that creates interaction influences learning or accessing the content in stimulating and challenging ways to access information. User interaction from AR trials via a smartphone with a planned user interface design that is simple and easy to use for users is another strategy that will create the charm of historical learning data in interesting manner.

Learning Everywhere. Social distancing is important due to the COVID-19 situation. AR media promotes learning, accessing to information and enjoying with knowledge anywhere safely.



Diagram 17 AAPI + L Model.

AR developers can apply this research knowledge of the **Poy Sang Long** through mixed media in AR format to use other historical presentations.

5.3.2 To Enhance the Quality of Community Products by Using Character Design of Poy Sang Long Figure Model as a Souvenir.

The identity of Poy Sang Long tradition of Mae Hong Son province, can be analyzed from the Tai Yai ethnic clothing and Sang Long's attire by comparing the Tai Yai people's settlements who reside nearby, allowing researchers to bring these features to create a figure model to be used as souvenirs and can be collected as a collection. It can also promote learning through AR technology to provide important information in the field of clothing and inside the box, there is also a Guidebook to be used as the primary medium for learning Poy Sang Long tradition.

Integrating the ethnic identity or traditions with modern technology can be applied as a guideline for the development of souvenir products by utilizing the production labor from the people in the community can reduce migrant migration to work in other provinces of local people, and to promote the development of local potential, establishing a strong and self-reliant community, causing the community to participate and create unity within the locality by using local wisdom resources that are inherited cultural heritage to develop souvenir products that reflect the identity of the locality. In addition to generating income for the country and locals, it also resulted in Mae Hong Son province it is famous for being another area of tourism in Thailand. According to this reason, the researcher places importance on being a local community by focusing on the identity created in the local culture of Mae Hong Son province, which will lead to the development of souvenir products in various forms to be attractive in demand in the tourism market, as well as being a product of memory that responds to marketing creatively which determines cultural heritage in terms of form and traditional symbolism that is endemic to enhance economic value creation further.

5.3.3 The Original Knowledge of AR Poy Sang long to Preserve culture and Promote Tourism

This study has brought Augmented Reality (AR) technology to improve the potential in order to preserve the culture; to promote tourism; to create an easy understanding for local youths, new generations, and tourists; to transfer knowledge and publicize Poy Sang Long tradition of Mae Hong Son province to be well known; to organize the information system on the understanding of rituals to be able to be understood clearly; and to publicize Poy Sang Long tradition and continue to attract tourists to be more well-known and accessible by combining the technology to create Augmented Reality through mixed media that combines formats of 2D motion, 3D animation, video, and figure model to help create clear understanding and make imagination come true. Viewers can look through Augmented Reality (AR) on smartphone display to learn about the legends, traditions, ceremonies, and important sequences of the Poy Sang Long tradition in multimedia by learning

through AR technology and guidebook to be used as the main medium for learning Poy Sang Long tradition to increase interest and reduce the limitation of perception. This research is therefore considered to be of the highest value and to focus on facilitating users and creating an impression and helping stimulate the tourism economy of the community to be sustainable.



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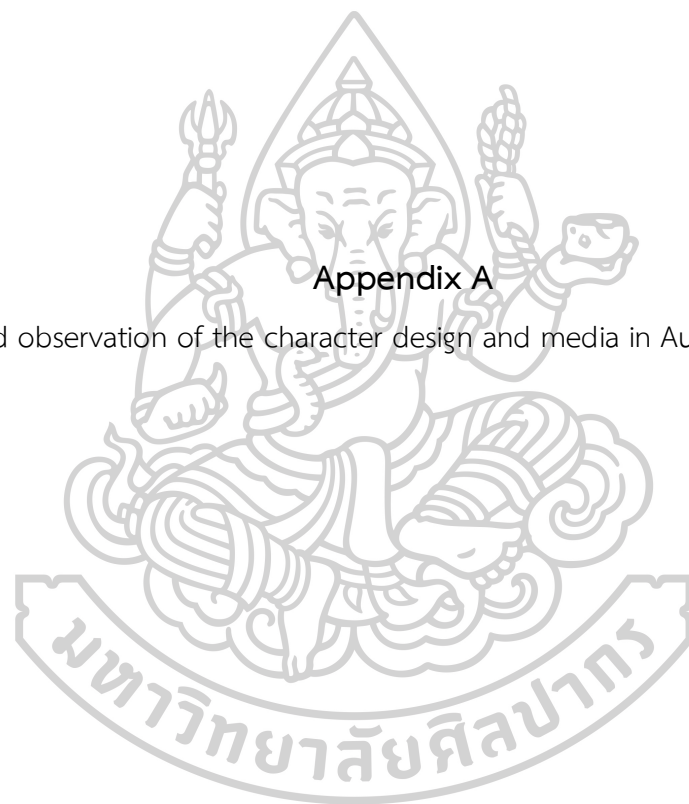
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The field observation of the character design and media in Augmented Reality.

15/65 23.38 Pre-Production Questionnaire และแบบสอบถามเชิงจิตวิทยาในขั้นตอนการผลิตสำหรับ AR Application

Sketch Design



15/65 23.38 Pre-Production Questionnaire และแบบสอบถามเชิงจิตวิทยาในขั้นตอนการผลิตสำหรับ AR Application

การใช้สื่อ 3D เพื่อการเรียนรู้ประเพณีปอยส่างลอง



การใช้สื่อ 2D เพื่อการเรียนรู้ประเพณีปอยส่างลอง



https://doi.org/10.1007/978-1-4939-9702-9_15

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https://doi.org/10.1007/978-1-4939-9702-9_15

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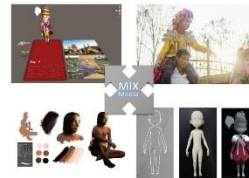
15/65 23.38 Pre-Production Questionnaire และแบบสอบถามเชิงจิตวิทยาในขั้นตอนการผลิตสำหรับ AR Application

การใช้สื่อ Video เพื่อการเรียนรู้ประเพณีปอยส่างลอง



15/65 23.38 Pre-Production Questionnaire และแบบสอบถามเชิงจิตวิทยาในขั้นตอนการผลิตสำหรับ AR Application

การใช้สื่อ Mix Media เพื่อการเรียนรู้ประเพณีปอยส่างลอง

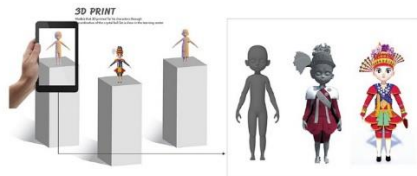


3 คีย์แรง ไม่เห็นสิ่งทั้งหมด ลงใจของที่สุดกับความแข็งของงานเพียงอันเดียวและแรง *
กับความยุติ / ความศรัทธาต่อความมากที่สุด

ส่วนเรื่องความละเอียดของสื่อ

	ฉาก ที่สุด	ฉาก มาก	บ้าง กลาง	น้อย	น้อย ที่สุด
ความพึงพอใจในการใช้สื่อ 3D เพื่อการเรียนรู้ประเพณีปอยส่างลอง	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจในการใช้สื่อ 2D เพื่อการเรียนรู้ประเพณีปอยส่างลอง	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจในการใช้ Video เพื่อการเรียนรู้ประเพณีปอยส่างลอง	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจในการใช้ Model Figure เพื่อการเรียนรู้ประเพณีปอยส่างลอง	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจในการใช้ Mix Media เพื่อการเรียนรู้ประเพณีปอยส่างลอง	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

การใช้ Model Figure เพื่อการเรียนรู้ประเพณีปอยส่างลอง



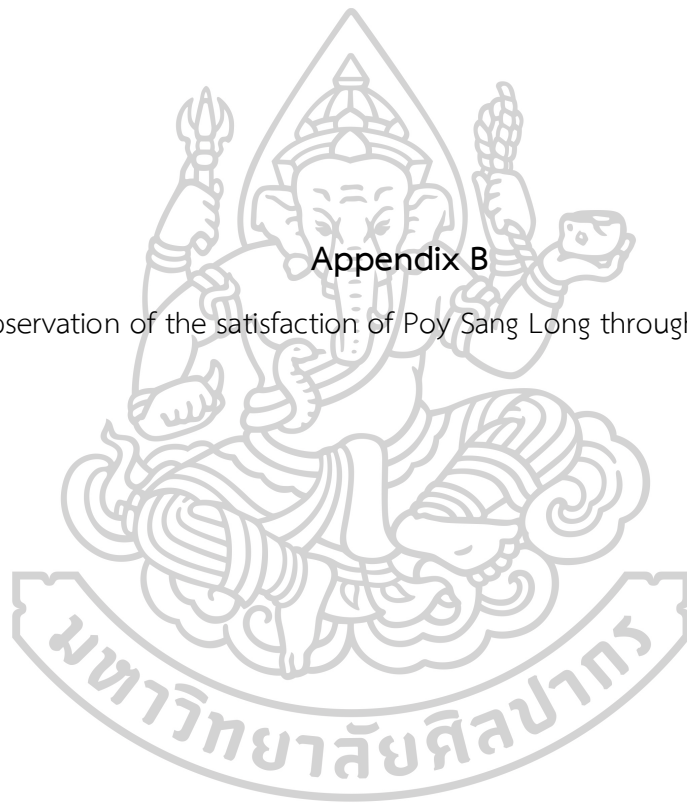
ส่วนที่ 3 ข้อเสนอแนะสำหรับประเพณีปอยส่างลอง AR Application

https://doi.org/10.1007/978-1-4939-9702-9_15

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Appendix B

The field observation of the satisfaction of Poy Sang Long through Augmented Reality



Post-Production แบบสอบถามความพึงพอใจในการใช้ Poi Sang Long AR Application

แบบสอบถามนี้ใช้สำหรับวัดผลความพึงพอใจในการใช้ Poi Sang Long AR Application ภายใต้โครงการวิจัย เรื่อง Using Augmented Reality (AR) for Poy Sang Long Buddhist Ordination, Thai Yai Identity in Mae Hong Son province มีวัตถุประสงค์ของโครงการวิจัย คือ เพื่อสืบสานวัฒนธรรมประเพณีปอยสาบลอง ของชาติพันธุ์ไทใหญ่ ในจังหวัดแม่ฮ่องสอน เพื่อพัฒนาสื่อที่แสดงเอกลักษณ์ของกลุ่มชาติพันธุ์ไทใหญ่ในจังหวัดแม่ฮ่องสอน ผ่านประเพณีปอยสาบลอง โดยใช้เทคโนโลยี Augmented Reality และเพื่อศึกษาผลการใช้สื่อ Poi Sang Long AR Application

แบบสอบถามนี้แบ่งเป็นสามส่วน ได้แก่ ส่วนที่ 1 ข้อมูลส่วนตัวของผู้สอบถาม ส่วนที่ 2 การวัดผลความพึงพอใจในการใช้สื่อ Poi Sang Long AR Application ส่วนที่ 3 ข้อเสนอแนะ

ข้อมูลส่วนตัวของท่าน และการแสดงความคิดเห็นในแบบสอบถามจะถูกเก็บไว้เป็นความลับ ผู้วิจัยขอขอบพระคุณทุกท่านที่ให้ความกรุณา สละเวลาในการตอบแบบสอบถาม มา ณ ที่นี้

*จำเป็น

ส่วนที่ 1
ข้อมูล
ทั่วไป

คำชี้แจง โปรดใส่เครื่องหมาย ลงในช่องที่ตรงกับความเป็นจริงของท่านเพียงข้อเดียวและตรงกับความรู้สึก / ความคิดเห็นของท่านมากที่สุด



1/5/65 23:15

Post-Production แบบสอบถามความพึงพอใจในการใช้ Poi Sang Long AR Application

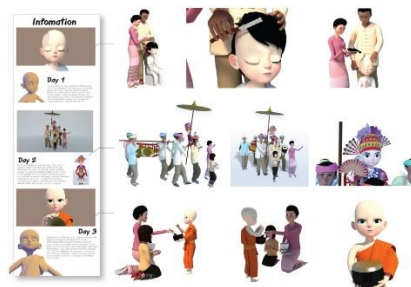
3D Animation Poi Sang Long



1/5/65 23:15

Post-Production แบบสอบถามความพึงพอใจในการใช้ Poi Sang Long AR Application

3D Animation Poi Sang Long



2D Motion Legend



15/65 23:15 Post-Production แอนิเมชันและการพิมพ์โปสเตอร์ Poi Sang Long AR Application

2D Motion Legend



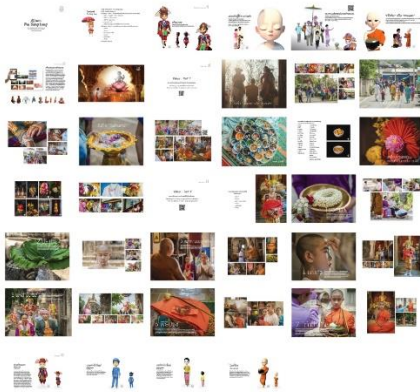
Videos Production



https://docs.google.com/forms/d/1KxSK4-Cg6tWVRP_8RiOCh_5TVEj10L88-818/edit

15/65 23:15 Post-Production แอนิเมชันและการพิมพ์โปสเตอร์ Poi Sang Long AR Application

Poi Sang Long AR Application Guidebook



https://docs.google.com/forms/d/1KxSK4-Cg6tWVRP_8RiOCh_5TVEj10L88-818/edit

8/11

15/65 23:15 Post-Production แอนิเมชันและการพิมพ์โปสเตอร์ Poi Sang Long AR Application

Poi Sang Long AR Application Guidebook



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https://docs.google.com/forms/d/1KxSK4-Cg6tWVRP_8RiOCh_5TVEj10L88-818/edit

15/65 23:15 Post-Production แอนิเมชันและการพิมพ์โปสเตอร์ Poi Sang Long AR Application

Model Figure / souvenir



1 เพศ *

(เลือกได้มากกว่าหนึ่งข้อ)

- ชาย
- หญิง

2 สถานะ / อาชีพ *

(เลือกได้มากกว่าหนึ่งข้อ)

- นักเรียน / นักศึกษา
- คนในชุมชน
- ผู้นำชุมชน
- ญาติชุมชน
- อื่นๆ: _____

1 คะแนน

ส่วนที่ 2 ความพึงพอใจในการใช้
แอป Poi Sang Long AR
Application

คำถามนี้ ไม่ขอเก็บข้อมูลนามสกุล และข้อมูลที่อยู่หากท่านต้องการ
ท่านสามารถส่งข้อมูลส่วนตัวของท่านได้ / ความพึงพอใจของท่านมากที่สุด

https://docs.google.com/forms/d/1KxSK4-Cg6tWVRP_8RiOCh_5TVEj10L88-818/edit

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https://docs.google.com/forms/d/1KxSK4-Cg6tWVRP_8RiOCh_5TVEj10L88-818/edit

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3 ความพึงพอใจในการใช้สื่อ Poi Sang Long AR Application *

ทำเครื่องหมายแถวละหนึ่งช่องเท่านั้น

	มากที่สุด	มาก	ปานกลาง	น้อย	น้อยที่สุด
ความพึงพอใจด้านเนื้อหาเชิงประวัติศาสตร์	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจด้านการออกแบบภาพประกอบ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจด้านการเคลื่อนไหวของภาพและความสัมพันธ์ของแต่ละฉาก	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจด้านเทคนิคคอมพิวเตอร์กราฟิก	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจด้านเสียงดนตรีประกอบ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจด้านเสียงบรรยายประกอบ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจด้านความเข้าใจเนื้อเรื่องและการได้รับประโยชน์สาระ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจด้านการชักจูงและสร้างแรงจูงใจในการรับชม	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ความพึงพอใจด้านการเข้าถึงสื่อด้วยการใช้เทคโนโลยี AR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Poi Sang Long AR Application



ส่วนที่ 3 ชิ้นงานและส่วนประกอบ Poi Sang Long AR Application

Poi Sang Long AR Application Guidebook



4 ชิ้นงานและส่วนประกอบ Poi Sang Long AR Application

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