

## The Development of Lan Na Ethnic Digital Museum : Phrae, Nan, Payoa, and Mae Hong Son province

การพัฒนาพิพิธภัณฑ์ดิจิทัลกลุ่มชาติพันธุ์ในล้านนา : แพร่ น่าน พะเยา และแม่ฮ่องสอน

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### Abstract

This research was a development research project by the survey, studies and collecting the identity data of Lan Na ethnic group, then developed by digital technology to the digital museum. The key informants were village philosopher, monk and community leaders in each ethnic group, and the target group was persons who visit the digital museum. Data collected by questionnaires, interviews, photographic equipment, scanners, 360° photographic equipment, laptop, fieldwork equipment and the digital museum in Lan Na ethnic. Data analyzed by content analysis, means, and standard deviation, the results were as follows:

The survey, studies and collecting the identity data of Lan Na ethnic group found that Phayao Province has the highest ethnic identity data, followed by the Mae Hong Son and Phrae were equal and Nan respective.

The 360 ° visual digitize process of Lan Na ethnic group identification found that Wiang Phayao Museum or Wat Lee has the most 360 ° visual data, the swirling 360 ° photo process of Lan Na ethnic group identification found that Ban Phra Kerd community museum

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has the most swirling 360 ° photo data and the ancient objects photo found that museum of Wat Phra Non has the most ancient objects photo data.

The development of Lan Na ethnic digital museum using Unity program and the C # language, for the publication and access to the Lan Na ethnic digital museum, a website developed called "Digital Lan Na Museum" (<http://www.lanna-e-museum.com>), e-books and application for Android. The results of the Lan Na ethnic digital museum evaluation found that overall of the design and layout were appropriate average at the high level: the high average issues were beautiful and interesting, overall of the contents were appropriate at the high level: the issues with the high average level were content classification process and continuous.

**Keywords:** 1. Digital Museum 2. Lan Na ethnic group 3. Phrae 4. Nan 5. Payoa 6. Mea Hong Son

#### บทคัดย่อ

การวิจัยนี้เป็นการวิจัยเชิงพัฒนาโดยการสำรวจ ศึกษา รวบรวมข้อมูลอัตลักษณ์ของกลุ่มชาติพันธุ์ในล้านนา แล้วจัดทำให้อยู่ในรูปแบบดิจิทัล เพื่อพัฒนาเป็นพิพิธภัณฑ์ดิจิทัลกลุ่มชาติพันธุ์ในล้านนา ผู้ให้ข้อมูลหลัก ได้แก่ ประชาชนชาวบ้าน พระสงฆ์ และผู้นำชุมชนในแต่ละกลุ่มชาติพันธุ์ กลุ่มเป้าหมายคือ บุคคลที่สนใจเข้าใช้งาน พิพิธภัณฑ์ดิจิทัลกลุ่มชาติพันธุ์ในล้านนา เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบสอบถาม แบบสัมภาษณ์ ชุดอุปกรณ์ถ่ายภาพ อุปกรณ์สแกนภาพ ชุดอุปกรณ์ถ่ายภาพมุมมอง 360° คอมพิวเตอร์ อุปกรณ์สำหรับการลงพื้นที่ภาพสนาม และพิพิธภัณฑ์ดิจิทัลกลุ่มชาติพันธุ์ในล้านนา วิเคราะห์ข้อมูลโดยการวิเคราะห์เนื้อหา การหาค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน ผลการวิจัยพบว่า การสำรวจ ศึกษา รวบรวมข้อมูลอัตลักษณ์ของกลุ่มชาติพันธุ์ในล้านนา พบว่า มีข้อมูลของจังหวัดพะเยามากที่สุด รองลงมาคือ จังหวัดแม่ฮ่องสอนและจังหวัดแพร่ มีเท่ากัน และจังหวัดน่าน ตามลำดับ

การจัดทำข้อมูลอัตลักษณ์ของกลุ่มชาติพันธุ์ในล้านนาให้อยู่ในรูปแบบดิจิทัล ประกอบด้วย กระบวนการจัดทำข้อมูลภาพมุมมอง 360° พบว่า พิพิธภัณฑ์เวียงพาว วัดลี มีจำนวนมากที่สุด กระบวนการจัดทำภาพถ่ายข้อมูลอัตลักษณ์ของกลุ่มชาติพันธุ์ในล้านนา และการจัดทำข้อมูลอัตลักษณ์ของกลุ่มชาติพันธุ์ในล้านนาแบบหมุนได้ 360° พบว่า พิพิธภัณฑ์ชุมชนบ้านพระเกิด มีจำนวนมากที่สุด การจัดทำภาพถ่ายวัตถุโบราณ พบว่า พิพิธภัณฑ์วัดพระนอน มีจำนวนมากที่สุด

การพัฒนาพิพิธภัณฑ์ดิจิทัลกลุ่มชาติพันธุ์ในล้านนา ใช้โปรแกรม Unity เป็นเครื่องมือในการพัฒนา และใช้ภาษา C# ในการสื่อสารกับโปรแกรม มีการพัฒนาเว็บไซต์ ชื่อ “พิพิธภัณฑ์ดิจิทัลล้านนา” (<http://www.lanna-e-museum.com>) หนังสืออิเล็กทรอนิกส์ (e-book) และแอปพลิเคชัน (Application for Android) เพื่อเผยแพร่และเข้าถึงพิพิธภัณฑ์ดิจิทัล ผลการประเมินผลพิพิธภัณฑ์ดิจิทัล พบว่า ด้านการออกแบบ และจัดรูปแบบ โดยภาพรวมเหมาะสมในระดับมาก ประเด็นที่มีค่าเฉลี่ยมากที่สุด คือ ความสวยงามและน่าสนใจ

ส่วนด้านเนื้อหาโดยภาพรวมเหมาะสมในระดับมาก ประเด็นที่มีค่าเฉลี่ยมากที่สุดคือ การจัดลำดับเนื้อหาเป็นขั้นตอน มีความต่อเนื่อง

**คำสำคัญ:** พิพิธภัณฑ์ดิจิทัล กลุ่มชาติพันธุ์ในล้านนา แพร่ น่าน พะเยา แม่ฮ่องสอน

## Introduction

Lan Na (8 provinces of northern Thailand, including Chiang Mai, Lamphun, Lampang, Chiang Rai, Phayao, Phrae Nan and Mae Hong Son) composed of several ethnic groups such as Tai Yuan, Tai Lue, Tai Kheun, Tai Yai, Lua, Karen, etc. Each group has its own identity: arts, culture, traditions, lifestyle, faith, ritual, etc.

But in present, with factors various of society, some ethnic identities have changed, lack of integrity, distorted, lost, not transferring or inheritance, that is very deplorable. (Lan Na ethnic identities as show in Figure 1)

Bringing ethnic identity provided in digital format is another way to make that information accessible with using personal computers (PCs), notebooks, smartphones, or tablets with modern digital technologies such as the Internet, e-book or applications and by recording images, sound recordings, motion pictures (VDO) or animation.

So, if the information developed, collected and presented in the form of an interesting digital museum, it will help to create an atmosphere and environment conducive to education, the research was extensive and profound, quick and continuous learning, have fun, knowledge of ethnic identity understanding.



**Figure 1** Lan Na ethnic identities

### Scope of Research

The contents focused on the survey, study and collect identity data of Lan Na ethnic group and developed by digital technology to the digital museum. The key informants were village philosopher, monk and community leaders in each ethnic group, and the target group was persons who visit the Lan Na ethnic digital museum. The research areas were in Phayao, Phrae, Nan and Mae Hong Son province.

### Materials and Methods

#### Key Informants

The key informants were 2 village philosophers, 4 monks and 2 community leaders in each ethnic group, and the target group was 322 persons who visit the Lan Na ethnic digital museum.

### Research Tools

The research tools were the questionnaire, interviews, photographic - video equipment and the Lan Na ethnic digital museum.

### Data collection

This research was collected the data from interviews and photographic - video equipment with 8 key informants in Phayao, Phrae, Nan and Mae Hong Son province by purposive sampling, and collected the data by questionnaire, interviews, and Lan Na ethnic digital museum with 322 target group persons who visit the Lan Na ethnic digital museum in 1 month by simple random sampling.

### Data Analysis

The data were content analysis by dividing into the categories and data of the Lan Na ethnic digital museum evaluation was descriptive analysis by means and standard deviation.

### Results

The survey, study and collects identity data of Lan Na ethnic group found that Phayao province has the most information (3 museums), followed by the Mae Hong Son and Phrae are equal (2 museums) and Nan (1 museum) respectively. (Table 1)

**Table 1** Identities of Lan Na ethnic groups (museum), classified by area

Province	Museum
Phrae	2
Nan	1
Phayao	3
Mae Hong Son	2
<b>Total</b>	<b>8</b>

The 360 ° visual data digitize process of Lan Na ethnic group identification found that Wiang Phayao Museum or Wat Lee has the most number (38), the swirling 360 ° photo process of Lan Na ethnic group identification found that Ban Phra Kerd community museum has the most number (819) and the ancient objects photo found that museum of Wat Phra Non has the most number (89) and the contents are shown in Table 2.

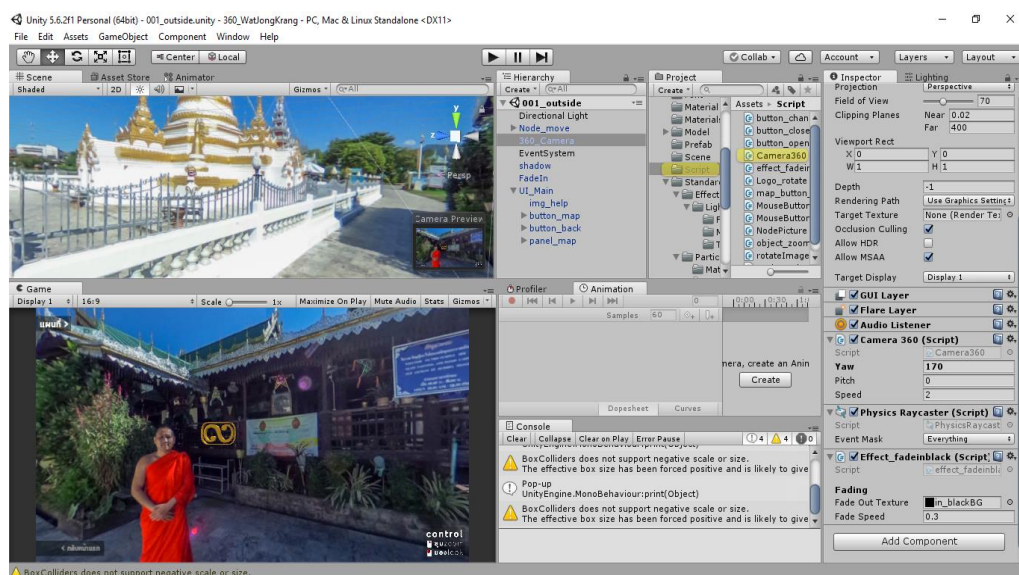
**Table 2** Identities of Lan Na ethnic groups, classified by museum

Museum	Frequency		
	The view 360 ° photo	The swirling 360 ° photo	The ancient objects photo
Ban Phra Kerd community museum	25	819	-
Wat Youn museum	19	360	-
Wiang Phayao Museum or Wat Lee	38	45	45
Wat Chiang Thong museum	25	360	-
Wat Baan Thin museum	5	257	5
Baan Prathubjai museum	20	324	-
Wat Phra Non museum	16	314	89
Wat jongklang	12	155	11
<b>Total</b>	<b>160</b>	<b>2,652</b>	<b>150</b>

The development of Lan Na ethnic digital museum using Unity program and the C # language, for the publication and access to the Lan Na ethnic digital museum, a website was developed called "Digital Lan Na Museum" (<http://www.lanna-e-museum.com>), e-books and application for Android.

Mechanism of museum program, applications and surveys are as follows.

#### 360 ° directional control



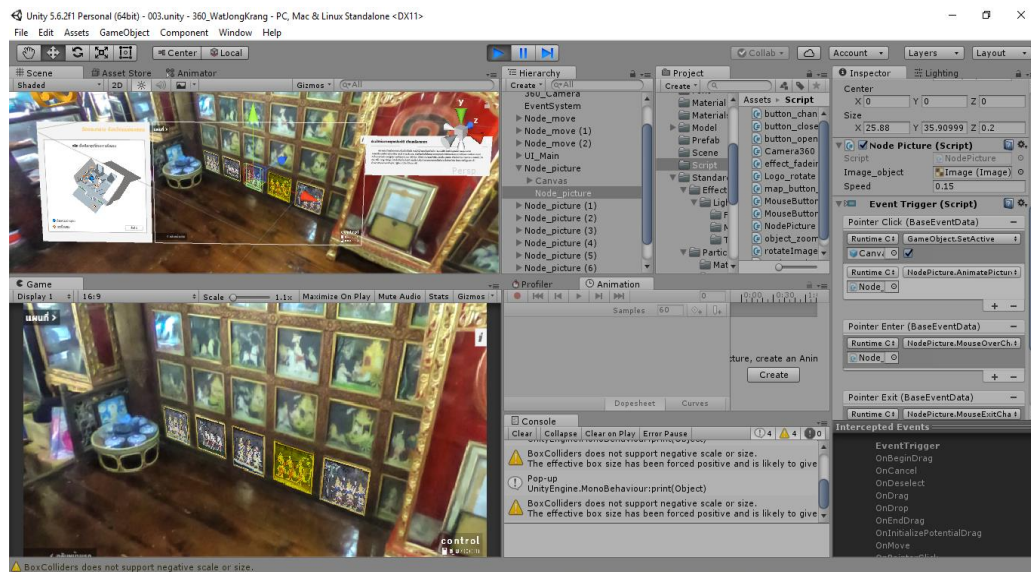
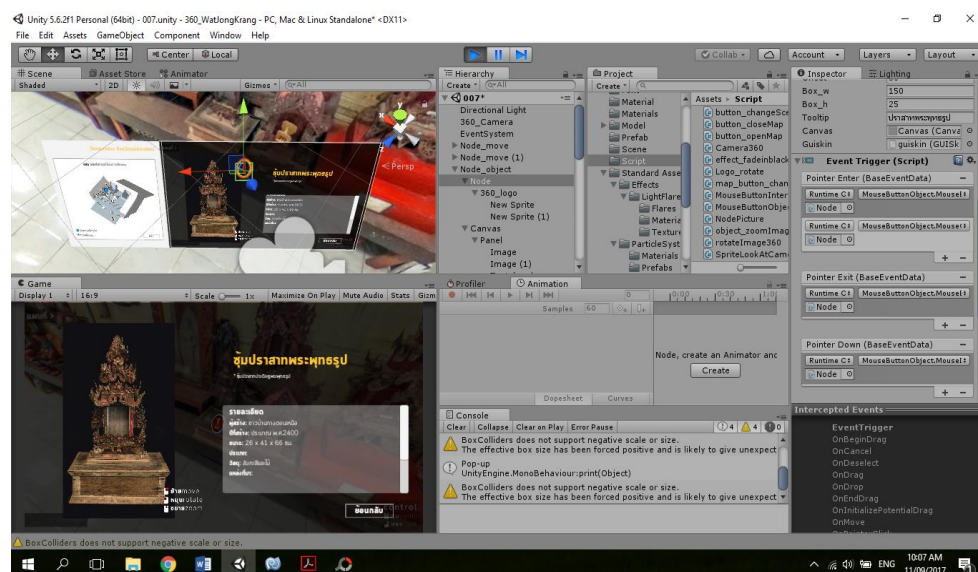


Figure 4 Interface of Unity program for the navigation symbol system

The program allows users to control 360 ° image scrolling and scaling (Figure 3), navigation symbol system (Figure 4), rotation (Figure 5) and navigation map (figure 6).



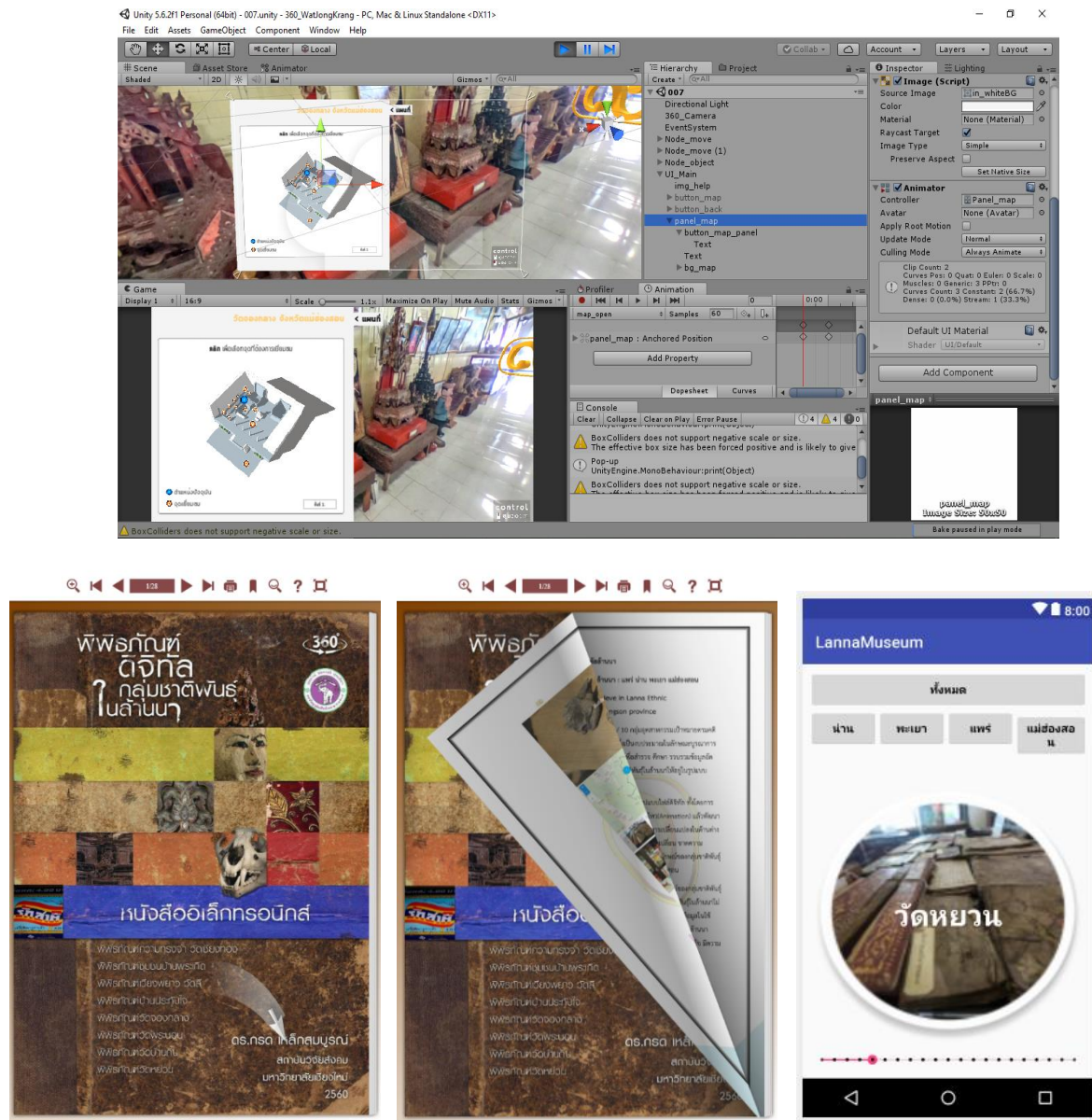


Figure 7 e-Book and Application of the Lan Na ethnic digital museum

The development of the program allows users to visit each museum in a virtual reality and can visit different areas of the museum, use application and e-Book (Figure 7) as well as required by the connected device such as a PC, laptop or smartphone.

The results of the Lan Na ethnic digital museum evaluation found that overall of the design and layout were appropriate at the high level with an average of 4.36, items in the top three were the beauty and interest of the Lan Na ethnic digital museum (4.54), the multimedia

(video, animation, audio) were appropriate for content (4.52) and the Illustrations using well communication (4.50), respectively.

Overall of the contents were appropriate at the high level with an average of 4.27, items in the top three were content classification process and continuous (4.44), the reliability of the information/content (4.40), content categorization easy for searching and learning (4.38), respectively. The contents are shown in Table 3.

**Table 3** Mean and standard deviation of the Lan Na ethnic digital museum evaluation

<b>Design and Formatting</b>	<b><math>\bar{X}</math></b>	<b>S.D.</b>
Beauty and interest of the Lan Na ethnic digital museum	4.54	.89
Beauty and appropriate of alphabet using (pattern letters color size)	4.20	.86
Color and tone design were beautiful and appropriate for contents	4.25	.88
Design and positioning of menu, tools easy to use	4.30	.95
Proportion of content and illustrations were appropriate	4.10	.79
Illustrations using were well communication	4.50	.85
Multimedia (video, animation, audio) were appropriate for content	4.52	.92
Pattern design is easy to read and use	4.45	.84
<b><i>Mean Total</i></b>	<b><i>4.36</i></b>	<b><i>.87</i></b>
<b>Contents</b>	<b><math>\bar{X}</math></b>	<b>S.D.</b>
Easy to data linking within the data archive	4.10	.80
Ease to data linking outside the archives	4.18	.78
Quick download	4.18	.88
Data appropriate (quantity and quantity is on demand)	4.20	.90
Accuracy and completeness of information	4.20	.82
Content classification was a process and continuous	4.44	.78
Content categorization easy for searching and learning	4.38	.80
Language grammatical using	4.28	.82
Validity of data and content	4.40	.86
Application and use of data and content	4.35	.90
<b><i>Mean Total</i></b>	<b><i>4.27</i></b>	<b><i>.83</i></b>

n= 322

## Discussion

The research results found that the Lan Na ethnic digital museum is developed to present local identities (local museum) by new digital technology using (Government Electronic Office (Public Organization), 2017) and most of the local identities were Tai Yaun, Tai Kheun, Tai Lue and Tai Yai (Shan) (Digitized Lan Na Project, 2012).

Lan Na ethnic digital museum developed as a combine's museum: art, culture, archeology, history or ethnology, it is a collection of various objects (Karnrawee Chomchoei, 2014) and easily to transmitted or told contents and visitors can download program through website (Siriluk Kanlaya, 2010; Panita Sravasee, 2011; Kamolwan Chantaworn, 2013). The design and layout of Lan Na ethnic digital museum were the beauty and interest, the multimedia was appropriate for the content, the Illustrations using were good communication, content classification process and continuous, the reliability of the information/content and content categorization easy for searching and learning (Karnrawee Chomchoei, 2014). In conclusion, the Lan Na ethnic digital museum can be used effectively, because the development process is systematically planned, analysis design based on academic principles, quality content collection, and interesting presentations. Therefore, Lan Na ethnic digital museum was great for learning, the local history, folk arts, crafts, culture and the way of life of the people in the community (Siriwat Sanserm, 2000).

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