

**THE EFFECTIVENESS OF AUGMENTED REALITY  
IN OUT-OF-HOME ADVERTISING TO  
GENERATION Z CONSUMERS'  
PURCHASE INTEREST**



**Pakatip Kitirattrakarn**

**A Thesis Submitted in Partial Fulfillment of the Requirements for the  
Degree of Master of Management  
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ประสิทธิผลของเทคโนโลยีความเป็นจริงเสริมในสื่อโฆษณาออนไลน์  
ต่อความสนใจซื้อของผู้บริโภคกลุ่มเจนเอเรชั่นแซด



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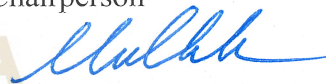
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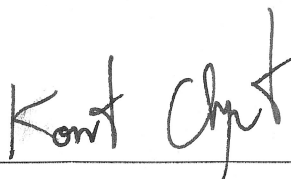
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OF AUGMENTED REALITY IN OUT-OF-HOME ADVERTISING TO  
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การศึกษานี้มีวัตถุประสงค์เพื่อเปรียบเทียบความแตกต่างระหว่างสื่อโฆษณานอกบ้านแบบ  
เทคโนโลยีความเป็นจริงเสริม และแบบดั้งเดิมใน 3 ด้าน ได้แก่ ด้านการรับรู้ ด้านทัศนคติ ด้าน  
ความสนใจซื้อของกลุ่มผู้บริโภค และเพื่อศึกษาประสิทธิภาพของเทคโนโลยีความเป็นจริงเสริมใน  
สื่อโฆษณานอกบ้านต่อความสนใจซื้อของผู้บริโภค โดยศึกษาในผู้บริโภคกลุ่มเจนเอเรชั่นแซด ซึ่ง  
มีอายุ 17 - 24 ปี ในเขตอำเภอเมือง จังหวัดนครราชสีมา การศึกษาใช้แบบสอบถามเป็นเครื่องมือใน  
การเก็บรวบรวมข้อมูลจำนวน 390 ชุด วิเคราะห์ข้อมูลด้วยวิธีการวิเคราะห์ค่า T-Test ค่าไคสแควร์  
และสหสัมพันธ์เพียร์สัน โดยใช้โปรแกรมคอมพิวเตอร์สำเร็จรูป SPSS

การศึกษาพบว่ารูปแบบสื่อโฆษณานอกบ้านแบบเทคโนโลยีความเป็นจริงเสริมและแบบ  
ดั้งเดิม มีความแตกต่างกันทางด้านการรับรู้ และด้านทัศนคติ อย่างมีนัยสำคัญทางสถิติ ผลการ  
วิเคราะห์ค่าสถิติ T-test พบว่ามีค่าความเชื่อมั่น เท่ากับ 0.000 ในด้านความสนใจซื้อของกลุ่ม  
ผู้บริโภคนั้น วิเคราะห์โดยใช้ค่าไคสแควร์ พบว่า มีค่าความเชื่อมั่นเท่ากับ 0.577 ซึ่งแสดงให้เห็น  
ถึงความไม่แตกต่างกันทางด้านความตั้งใจซื้อจากสื่อโฆษณาของทั้ง 2 ประเภท และการ  
ประยุกต์ใช้เทคโนโลยีความเป็นจริงเสริมในสื่อโฆษณานอกบ้านช่วยให้ผู้บริโภคเกิดการรับรู้และมี  
ทัศนคติต่อสินค้าที่มากกว่าการใช้สื่อโฆษณาแบบดั้งเดิม ซึ่งค่าสหสัมพันธ์เพียร์สัน มีค่าเท่ากับ 0.74  
และยังมีส่วนช่วยให้ผู้บริโภคเกิดความสนใจซื้อสินค้าและบริการ ร้อยละ 72.3 จากจำนวนทั้งหมด

สาขาวิชาเทคโนโลยีการจัดการ

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PAKATIP KITIRATTRAKARN : THE EFFECTIVENESS OF  
AUGMENTED REALITY IN OUT-OF-HOME ADVERTISING TO  
GENERATION Z CONSUMERS' PURCHASE INTEREST. THESIS  
ADVISOR : MULLIKA SUNGSANIT, Ph.D., 69 PP.

AUGMENT REALITY/ADVERTISING/GENERATION Z  
CONSUMER/PURCHASE INTEREST

The purpose of this study is to (1) compare consumer perceptions, attitudes toward media advertising and interest of purchasing between AR technology and traditional Out-Of-Home advertising. Also, (2) to study the effect of AR technology and Out-Of-Home advertising on consumer demands. Respondents are the Generation Z consumers who are 17 - 24 years old and live in Amphur Muang, Nakhon Ratchasima. The questionnaires were used to collect data from 390 respondents and analyzed by using T-Test, Chi-Square and Pearson Product-moment Correlation.

The T-Test results showed the differences between consumer perceptions of 3 perspectives (interactivity, novelty and creativity) and attitudes toward products between AR technology and the traditional Out-Of-Home advertising at a Significant level of 0.000. However, the test on customer demands showed no difference on interest between AR technology and the traditional Out-Of-Home advertising at a Significant in level of 0.577 in Chi-square test for Homogeneity. An advertisement using AR technology creates more awareness of customers than a traditional way of

advertisement at a level of 0.74 in Pearson product-moment correlation. The AR technology also attracts more interest on buying products at a level of 72.3 percent.



School of Management Technology

Academic Year 2019

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# TABLE OF CONTENTS

|   | <b>Page</b> |
|---|-------------|
| ABSTRACT (THAI) .....                             | I           |
| ABSTRACT (ENGLISH).....                           | II          |
| ACKNOWLEDGEMENTS.....                             | IV          |
| TABLE OF CONTENTS.....                            | V           |
| LIST OF TABLES .....                              | VIII        |
| LIST OF FIGURES .....                             | XI          |
| <b>CHAPTER</b>                                    |             |
| <b>I INTRODUCTION.....</b>                        | <b>1</b>    |
| 1.1 Introduction.....                             | 1           |
| 1.2 Objectives of the Study .....                 | 4           |
| 1.3 Research Hypothesis.....                      | 5           |
| 1.4 Expected Results.....                         | 5           |
| 1.5 Scope of the study.....                       | 5           |
| 1.6 Research Framework .....                      | 6           |
| 1.7 Definition of Terms.....                      | 7           |
| <b>II LITERATURE REVIEW .....</b>                 | <b>10</b>   |
| 2.1 Thailand Advertising Expenditure.....         | 10          |
| 2.2 O2O Commerce .....                            | 11          |
| 2.3 O2O Commerce Service Model and Framework..... | 13          |

## TABLE OF CONTENT (Continued)

|  | Page      |
|--|-----------|
| 2.4 Advertising creation with AR Technology .....                          | 16        |
| 2.5 Augmented Reality (AR) Technology .....                                | 17        |
| 2.6 Functional Mechanisms of AR .....                                      | 19        |
| 2.7 Motivation and Behavior Models .....                                   | 20        |
| 2.8 The Effective Tool for E-commerce .....                                | 22        |
| <b>III RESEARCH PROCEDURE .....</b>  | <b>26</b> |
| 3.1 Research Methodology .....   | 26        |
| 3.2 Population, Samplings and Location of research.....                    | 27        |
| 3.3 Research Instrumentation.....  | 29        |
| 3.4 Construction and Validation of the Instrument.....                     | 29        |
| 3.5 Data Collection .....  | 35        |
| 3.6 Data Analysis .....  | 36        |
| 3.7 Hypothesis testing.....  | 36        |
| <b>IV RESEARCH RESULTS .....</b>   | <b>37</b> |
| 4.1 Overview Data .....  | 38        |
| 4.2 Research Hypothesis .....  | 47        |
| 4.3 Relation between AR advertising and consumer purchase<br>interest..... | 50        |
| <b>V CONCLUSION DISCUSSION AND SUGGESTION<br/>FOR FURTHER WORK .....</b>   | <b>52</b> |
| 5.1 Conclusion .....   | 52        |

## TABLE OF CONTENT (Continued)

|  | <b>Page</b> |
|--|-------------|
| 5.2 Demographic Characteristic of Respondents.....                           | 53          |
| 5.3 Consumer perception towards advertising media .....                      | 53          |
| 5.4 Purchase Interest Percentage.....  | 54          |
| 5.5 The comparison of consumer perception towards<br>advertising media ..... | 54          |
| 5.6 The comparison of consumer attitude towards product<br>or service.....   | 55          |
| 5.7 The comparison of the consumer purchase interest.....                    | 55          |
| 5.8 Conclusion and Discussion.....   | 56          |
| 5.9 Limitations and Future Research .....                                    | 57          |
| REFERENCE.....   | 59          |
| APPENDIX.....  | 62          |
| CURRICULUM VITAE.....  | 69          |

## LIST OF TABLES

| Table  | Page |
|--|------|
| 3.1 The reliability of data in pre-test sampling group (n = 30) and post – test sampling group (n = 195) for traditional Out-Of-Home advertising.....  | 35   |
| 3.2 The reliability of data in pre-test sampling group (n = 30) and post – test sampling group (n = 195) for AR technology advertising.....  | 35   |
| 4.1 The frequencies and percentages of gender, age range, education, occupation, and income between the experiment group (AR media) and the control group (Tradition media).....                   | 39   |
| 4.2 The frequencies and percentages of hobbies, travel styles and tourism frequencies between experiment group (AR media) and control group (Tradition media).....                                 | 41   |
| 4.3 The frequencies and percentages resulted for Phimai Historical Park knowledge and a data of times visited between the experiment group (AR media) and the control group (Tradition media)..... | 42   |
| 4.4 The frequencies and percentages of information channel and receiving frequency between experiment group (AR media) and control group (Tradition media). ....                                   | 43   |



## LIST OF TABLES (Continued)

| <b>Table</b> |   | <b>Page</b> |
|--------------|---|-------------|
| 4.5          | The satisfaction level of 3 perceptions (interactivity, novelty and creativity) and attitudes toward product or service for the experiment group (AR media). The data shown in forms of average, standard deviation and satisfaction level. ....      | 45          |
| 4.6          | The satisfaction level of 3 perceptions (interactivity, novelty and creativity) and attitudes toward product or service for the control group (Tradition media). The results shown in forms of average, standard deviation and satisfaction level.... | 46          |
| 4.7          | The frequencies and percentages of the Purchase Interest between the experiment group (AR media) and the control group (Tradition media).....   | 47          |
| 4.8          | The comparison of consumer perception towards advertising media in 3 perspective (interactivity, novelty and creativity) between traditional OOH advertising and AR technology advertising.....   | 48          |
| 4.9          | The comparison of consumer attitude towards product or service between traditional OOH advertising and AR technology advertising....  | 48          |
| 4.10         | The comparison of the consumer purchase interest between traditional OOH advertising and AR technology advertising.....   | 49          |
| 4.11         | The correlation between customer perceptions and attitudes toward product/service to purchase interest for AR technology advertising. (N = 195).....  | 50          |

## LIST OF TABLES (Continued)

| <b>Table</b> |  | <b>Page</b> |
|--------------|--|-------------|
| 4.12         | The correlation between customer perception and attitude toward product/service to purchase interest for traditional OOH advertising. (N = 195)..... | 50          |
| 5.1          | The satisfaction level consumer perception towards advertising media.....  | 54          |
| 5.2          | The frequencies and percentages of the Purchase Interest between the experiment group (AR media) and the control group (Tradition media).....        | 54          |
| 5.3          | T-Test of consumer perception towards advertising media.....   | 55          |
| 5.4          | T-Test of consumer attitude towards product or service .....   | 55          |
| 5.5          | Chi-Square of the consumer purchase interest .....   | 56          |

## LIST OF FIGURES

| Figure  | Page |
|---|------|
| 1.1 Framework: The Effectiveness of Augmented Reality in Out-Of-Home Advertising to Generation Z Consumers' Purchase Interest. (Develop from research of Yim, et al, 2017)..... | 6    |
| 2.1 Media Industry Spending in 2012 to 2018 (Nielsen, 2018).....  | 11   |
| 2.2 O2O Commerce Service Model. (Tsai et al., 2015)..   | 13   |
| 2.3 O2O Commerce Service Framework. (Tsai et al., 2015)   | 15   |
| 2.4 Correlation between Internet and OOH Advertising Expenditure. (data from Nielsen, 2018)   | 16   |
| 2.5 Real-world, VR, and AR. (Yim, et al., 2017)   | 18   |
| 2.6 Howard-Sheth model (Jisana, 2014).....  | 20   |
| 2.7 How media characteristics function to influence purchase intention. (Yim, et al., 2017).....  | 25   |
| 3.1 Zappar Software (AR visualization for presentation).....  | 26   |
| 3.2 AR visualize presentation   | 27   |

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

With the exponential growth of Internet and social community in the last decades, the Internet usage began to grow dramatically. Email became a common substitute for traditional forms of communication. The Internet is affecting a broad range of activities. The growth in the popularity of social media, online marketing, and blogging is changing the way people communicates and informs. These make the Internet access an increasingly ubiquitous convenience. The Internet is used virtually everywhere, enabling people from all over the world to communicate with each other instantaneously and inexpensively. The digital economy continues to grow in both size and scope.

Now, Thailand has approached the digital economy which digital networking and communication infrastructures provide a global platform for people and organizations. The economy has driven mainly to apply IT and digital technology to increase productivity and maximize cost efficiency. A digital technology and the Internet of Things (IoT) are transforming the way people do business and creating immense opportunities for companies to adopt digital innovations. (Digital Economy, 2014)

An impact of digital economy indicates a significant contribution to a business growth and cost optimization. The technology enables opportunities for businesses to increase market reach and maximize their advertising value in digital economies,

which are essential in manufacturing sectors. In service sectors, digital technology enables firms to generate more sales. The innovation combined adoption of platforms, broadband, and cloud computing. The results of developing new products and services are the whole new range of collaborative businesses that characterize the digital economy. The emergence of a large market of creating online contents and applications in native languages, which strengthens national cultural identities, reduces foreign trade imbalances and promotes demand for local Information and Communication Technology (ICT) infrastructure services (e.g., domestic Internet service providers and cloud services to support domestic content). The On-line B2B and B2C platforms allow domestic businesses to address international markets. Numerous new business services are created in the digital economy, which those services include advertising, platform maintenance, and management.

Thailand is rapidly growing in innovation due to an access to the Internet by 60 percent of the population, where primarily access through smart device. Thailand is one of the highest times spent on the Internet and mobile phone per day, as a consequence, there is a huge amount of consumption on social media and online videos. Thailand is also ranked on the 10<sup>th</sup> for social media usage, and the 4<sup>th</sup> ranking for the most time spent on social media, (“Hootsuite” social media management platform and “We Are Social” global agency, 2018). In addition, Thailand is in the top ten countries when looking especially on a number of Facebook users, where Bangkok has the most active Facebook accounts in the country.

The "Digital 2018 global overview", published in January 2018, said Thais registered the most time on the internet last year at 9.38 hours per day. Thais also spend the most time on the mobile internet at 4.56 hours (Bangkok Post, 2018). In

terms of mobile social, media penetration (active accounts on top social networks in each country per capita), whereas the global rate is 39%. With all this growth, the advertising services and marketers have to adjust the strategy to keep up with the customers behavior transformation.

Offline media in Thailand is affecting directly due to the changing of customer behaviors from the growth of the Internet. Expenditures on advertisement like newspapers, magazines, and radios have continuously declined, where newspapers have declined by 24.03 percent, magazines by 20.52 percent, and radios by 1.29 percent (Nielsen, 2019). Consequently, some newspapers and magazines producers have closed down their businesses, and some have developed business models to provide online contents to serve on digital platforms. Hence, the firms have adjusted and developed themselves to access digital technology that can reach the competitive advantages and overtake economy changes. For advertising services, the business improves their marketing and advertising approaches by using the Internet to deliver messages and reach out to their customers. In a fast-changing world with a variety of free and easily access media, traditional advertising companies have to be adaptive in order to survive.

Now, some large businesses in automotive manufacturers, fashion clothes industry and retail companies are beginning to implement the advertisement technology as part of their advertising strategy. That Augmented reality (AR) technology is used for their marketing to attract more customers. Augmented reality is defined as the integration of digitally created media within an existing actual environment. This combination of virtual three-dimensional images within tangible surroundings provides unique sensory capabilities and communication opportunities. That Augmented reality

advertising can improve consumers' understanding about products, provides them with the enjoyment of seeing themselves wearing the virtual reality item, and saves the transportation and shopping time, presumably resulting in its popular utilization in e-commerce (Faust et al., 2012).

This research is realized in the decline of offline media roles on the customer behavior. So, the research is studied on the way to adjust the media form by combine the offline media with the online media that use AR technology to link these media together and evaluate the result that focused on the effectiveness of AR in 3 perspectives, media perception to customer attitude towards product or service and purchase interest, that use quasi-experiment research in Nonequivalent Control Group Posttest Design to compare the Augmented Reality advertising with traditional Out-Of-Home media. The analysis result has attributed the knowledge in the disparity of both media that help the business to select the appropriate media to achieve the customer target at the right time.

## **1.2 Objectives of the Study**

2.1 To compare the consumer perception towards advertising media in 3 perspectives (interactivity, novelty and creativity) between traditional Out-Of-Home advertising and AR technology advertising.

2.2 To compare the consumer attitude toward product and service between traditional Out-Of-Home advertising and AR technology advertising.

2.3 To compare the consumer purchase interest between traditional Out-Of-Home advertising and AR technology advertising.



### **1.3 Research Hypothesis**

The hypothesis of Augmented Reality effective in Out-Of-Home advertising on generation Z consumers purchase interest in the case of interactivity, novelty and creativity perspective is stated.

H1: There is a difference of consumer perception toward advertising media in 3 perspectives (interactivity, novelty and creativity) between traditional Out-Of-Home advertising and AR technology advertising.

H2: There is a difference of consumer attitude toward product and service between traditional Out-Of-Home advertising and AR technology advertising.

H3: There is a difference of consumer purchase interest between traditional Out-Of-Home advertising and AR technology advertising.

### **1.4 Expected Results**

The results of this study will help the marketers and marketing managers to:

1.4.1 Understand the consumer perceptions toward AR technology in OOH advertising on 3 perspectives (interactivity, novelty and creativity).

1.4.2 Understand the consumer attitudes toward services between traditional OOH advertising and AR technology advertising.

1.4.3 Apply AR technology in marketing and advertising in order to create purchase interest.

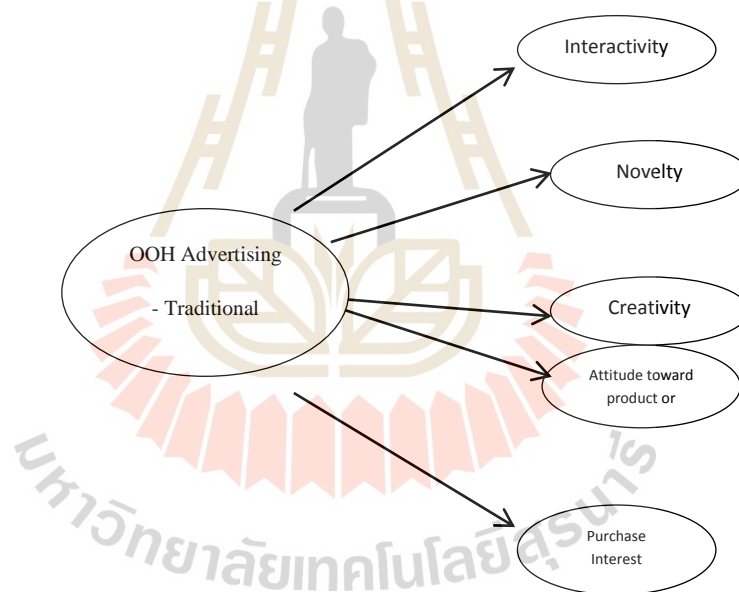
### **1.5 Scope of the study**

The effective measurement of AR technology in Out-Of-Home advertising to customer purchase interest is Quasi experiment research that uses Nonequivalent Control Group Posttest design. The population used was Generation Z Consumers in

Amphur Muang Nakhon Ratchasima and collected data by using questionnaires from 390 respondents. The sample group is divided into an experiment group and control group in the amount of 195 persons per group. The data has collected in May 2018 until November 2019.

## 1.6 Research Framework

The framework among consumer perceptions toward advertising media in 3 perspectives (interactivity, novelty and creativity), attitude toward product or service and purchase interest.



**Figure 1.1** Framework: The Effectiveness of Augmented Reality in Out-Of-Home Advertising to Generation Z Consumers' Purchase Interest. (Develop from research of Yim, et al, 2017)

## 1.7 Definition of Terms

**1.7.1 Augmented Reality (AR)** is a type of interactive, reality-based display environment that takes the capabilities of computer generated display, sound, text and effects to enhance the user's real-world experience. Augmented reality combines real and computer-based scenes and images to deliver a unified but enhanced view of the world. (Techopedia, 2018)

**1.7.2 Out-Of-Home Advertising (OOH)** is an advertising that reaches the consumers while they are outside their homes. Out-of-home media advertising is focused on marketing to consumers when they are "on the go" in public places, in transit, waiting (such as in a medical office), and/or in specific commercial locations (such as in a retail venue). Out-of-home advertising formats fall into six main categories: billboards, street, roads, highways, transit, and alternative (Outdoor Advertising Association of America, 2009).

**1.7.3 Generation Z** is the demographic cohort after the Millennials. Demographers and researchers typically use the mid- to late-1990s as starting birth years, while consensus has not been reached on the ending birth years. Members of Generation Z have used digital technology since a young age and are comfortable with the internet and social media. (USA Today, 2012)

**1.7.4 Interest** is the state of wanting something that the marketers have to create or convey information by using media. In other words, conveying the meaning of the product to attract or stimulate customers to buy. Most media providers are ignoring this point as they might think this irrelevant. The truth is customers are willing to spend their time on reading messages and details, especially when those

messages were meant to help and solve their problems. This is one of many ways of making people interested on what you are promoting.

The best way to build the readers' awareness is by explaining the feature and benefit to improve their interest. Assael (2002:60) states the interest as the emergence of purchase interest of consumers to the object, which is introduced by the marketer. (Li dan Yu, 2013)

**1.7.5 Purchase Intention** is a situation where consumer tends to buy a certain product in a certain condition. Customers purchase decision is a complex process. Purchase intention usually is related to the behavior, perceptions and attitudes of consumers. (Morinez et al., 2007)

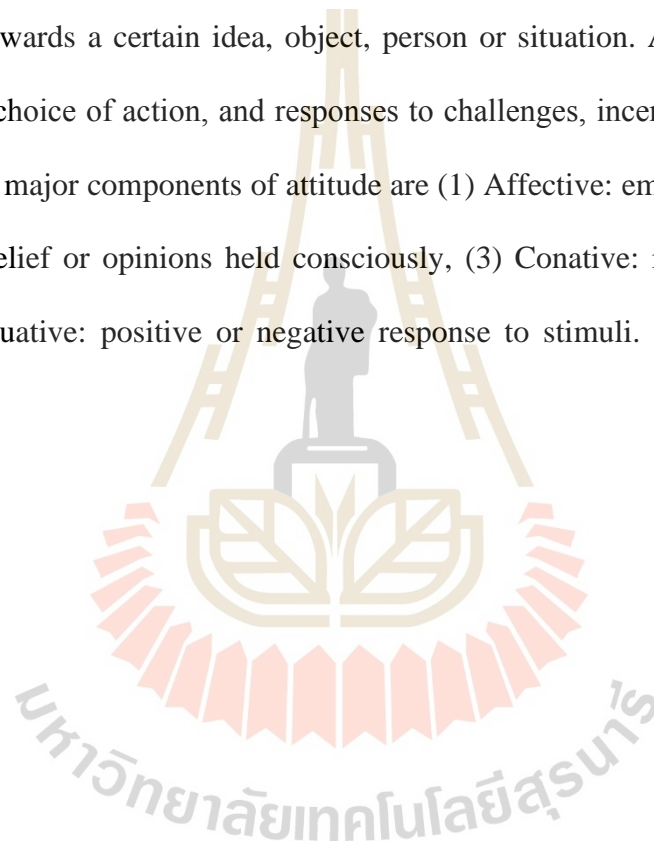
**1.7.6 Digital economy** refers to an economy that is based on digital computing technologies, although we increasingly perceive this as conducting business through markets based on the internet and the World Wide Web. The digital economy is also sometimes called the Internet Economy, New Economy, or Web Economy. Increasingly, the digital economy is intertwined with the traditional economy, making a clear delineation harder. (Tapscott, 1997)

**1.7.7 O2O Commerce** "Online to Offline" or "Offline to Online" to connect traditional business via online marketing. Via online platform, consumers can select product/service directly and do online transactions. O2O is connecting traditional business with a modern platform, advantages on both sides can be perfectly matched so consumers can enjoy good online price and the same quality offline service. (Duggan, 2015)

**1.7.8 Customer perception** refers to the process by which a customer selects, organizes, and interprets information/stimuli inputs to create a meaningful picture of the

brand or the product. It is a three-stage process that translates raw stimuli into meaningful information. Each individual interprets the meaning of stimulus in a manner consistent with his/her own unique biases, needs and expectations. Three stages of perception are exposure, attention and interpretation. (Marketing and Strategy Terms, 2018)

**1.7.9 Attitude** is a predisposition or a tendency to respond positively or negatively towards a certain idea, object, person or situation. Attitude influences an individual's choice of action, and responses to challenges, incentives, and rewards or stimuli. Four major components of attitude are (1) Affective: emotions or feelings, (2) Cognitive: belief or opinions held consciously, (3) Conative: inclination for action, and (4) Evaluative: positive or negative response to stimuli. (Business Dictionary, 2018)



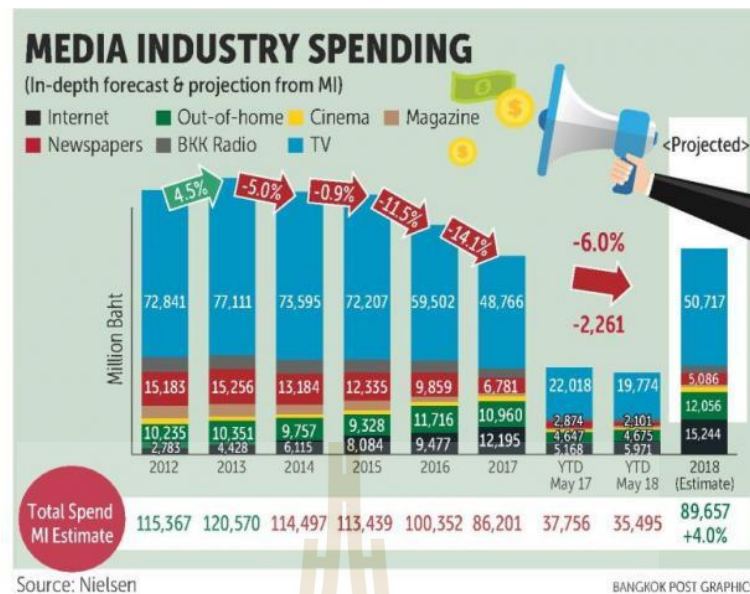
## **CHAPTER 2**

### **LITERATURE REVIEW**

This research studies the effectiveness of AR technology in OOH advertising on 3 perspectives (consumer perception, attitude toward advertising media and purchase interest) that compare AR technology media and Tradition media.

#### **2.1 Thailand Advertising Expenditure**

For Thailand, the advertising industry has been experiencing enormous movements as a result of rapid advances in media technology and the business cycle. The direct aim of new media technologies is facilitating alternative communication channels, but these advancements usually shake up the advertising industry in as much as changes in consumer behavior or economic conditions. The recent surge in online communities led many companies to spend substantially in social media advertising, resulting in 8 billion baht estimated total advertising expenditure in 2015 (Nielsen, 2015), induced by the widespread use of smart phones and high-tech mobile broadband technology. Likewise, total spending in the sector has steadily grown until 2017 reaching 12.2 billion baht, and expectations are for continuous growth, reaching 15.2 billion baht in 2018 (Nielsen, 2018) as in Fig. 2.1.



**Figure 2.1** Media Industry Spending in 2012 to 2018 (Nielsen, 2018)

## 2.2 O2O Commerce

The evolution of technology for commerce models has changed to other forms. In tradition, the bricks-and-mortar is the most common service model. With the digital economy, an enterprise created different kinds of web sites to service online user through the internet. Gulati and Garion (2000) proposed companies are recognizing that success in the new digital economy will go to those who can execute a clicks-and-mortar strategy that bridge the physical and the virtual worlds. The companies should mix the bricks-and-mortar and clicks-and-mortar and tailor strategy to their own particular market and competitive situation, dramatically increasing their odds of e-business success.

The linkage between online and physical commerce is becoming stronger for growth. Rampell (2014) explored the forces behind “Online2Offline (O2O)” commerce, which means finding consumers online and bringing them into physical

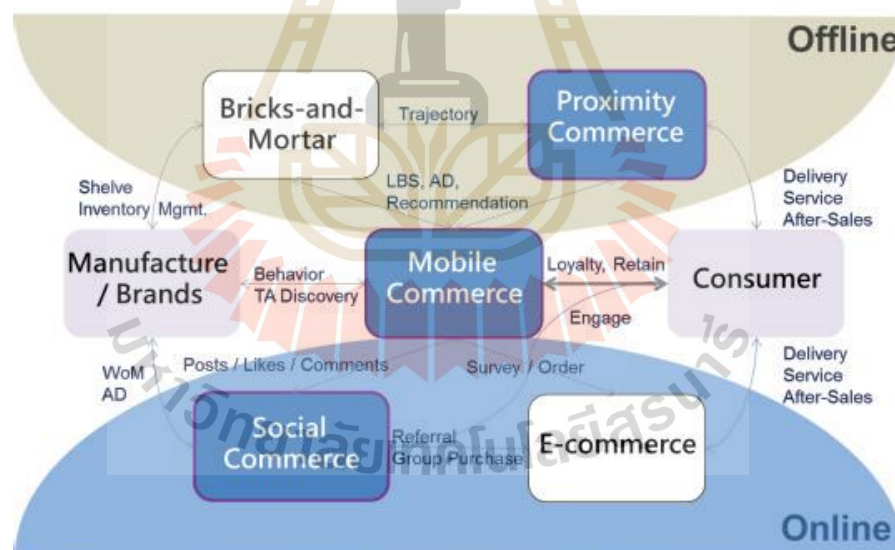


stores. Consumers can purchase products online, and at the same time receive the products or service at the real-world store. In the other way, O2O commerce can also be defined as “Offline2Online” commerce, which means consumers can visit a physical store and also get virtual service online. O2O Commerce services can be any composition of bricks-and-mortar, e-commerce, social commerce, location-based service and mobile commerce. Enterprises can design different marketing strategies according to different consuming situations such as: attracting nearby users before they enter the bricks-and-mortar, providing real-time promotion when users are in the store and retaining sales after users finish shopping and leave the store.

However, offline to online or online to offline, the core value of O2O commerce is to provide an integrated consuming experience. In the past, an enterprise can only apply a single shopping channel to contact consumers such as bricks-and-mortar, television, radio, direct mail, catalog, etc. In the early days of the web, the e-commerce store was also a single, standalone channel. Customers can only experience a single type of touch-point. Multichannel retailing means a variety of channels can be applied in a consumer shopping experience. Cross-channel is defined as the transmission of content through various media in marketing and interaction design. Omni-Channel Retailing is the evolution of multi-channel retailing and cross-channel retailing, which emphasized on providing real-time, seamless, consistent and personalized consumer experience through all available shopping channels such as social, mobile, store, online2offline, offline2online and so on. An integrated sales experience that melds the advantages of physical stores with the information-rich experience of online shopping (Rigby, 2011).

### 2.3 O2O Commerce Service Model and Framework

With the digital economy, companies are trying to mix the bricks-and-mortar and online commerce to tailor their strategies to their particular market. There are lots of papers providing related researches. With the changing commerce environment, it is very hard for the company to know how to apply mobile commerce, social commerce and proximity commerce with the traditional commerce via online or offline. Also, there are lots of online to offline and offline to online interactions which they are different from the traditional bricks-and-mortar. The O2O commerce service model can integrate mobile commerce, proximity commerce and social commerce to create the co-value strategy to achieve the customer target as in Fig. 2.2.

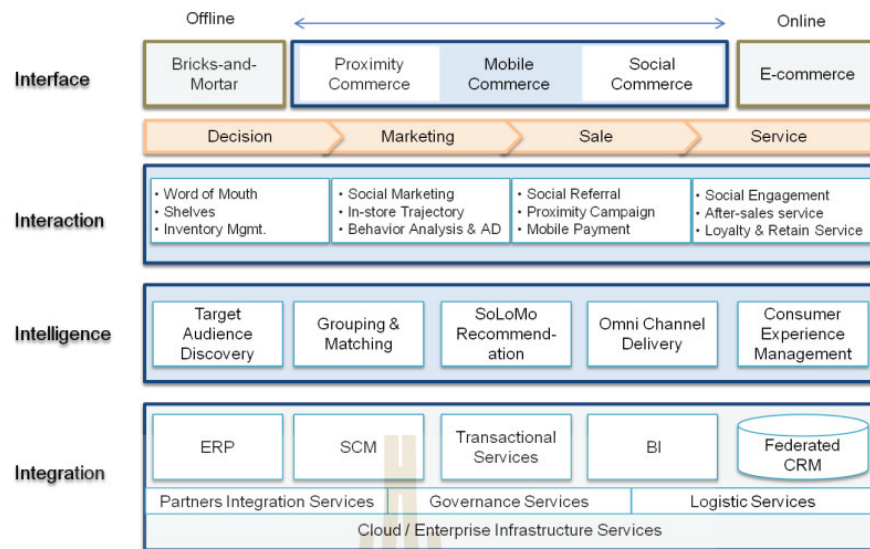


**Figure 2.2** O2O Commerce Service Model. (Tsai et al., 2015)

The top area represents the real-world marketing service model (Offline). Manufactures produce and send their products to channels or brick-and-mortar. According to the location-based service and proximity commerce marketing strategies,

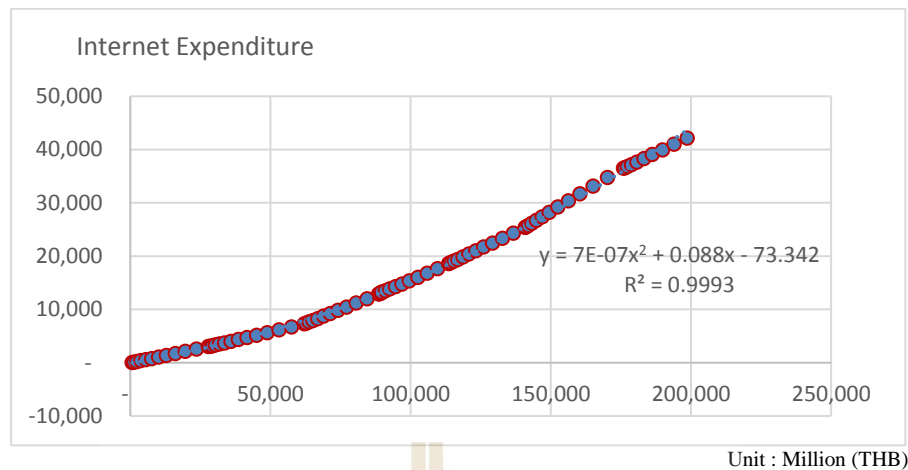
retailers can attract users to use their mobile devices to interact with OOH signage to get the insights for a buying consideration and then shops in the nearby physical store. Besides, some retailers propose mobile applications to their customers, in order to provide an impressive after service to retain their loyal customers. The bottom area represents the online marketing service model. Users tend to survey others' opinions online before making decisions. Users are willing to participate with the brands on a social network, such as Facebook fans group. They will click likes, shares and post comments on any social events. So the retailer can monitor the online word of mouth (WOM) to adjust their marketing strategies and sustain the relationship with their customers directly and instantly. Moreover, retailers can apply social events to influence and engage consumers' social network friends to participate and provide referral rewards or group purchasing discounts.

According to the lifecycle and related commerce solution structure, an O2O Service System Framework is shown in Fig. 2.3. This framework is separated from the interface, interaction, intelligence and integration layers. The first Interface layer represents different kinds of channels which include bricks-and-mortar (offline), proximity commerce, mobile commerce, social commerce and E-commerce (online) to provide different user interfaces. The second interaction layer represents the interaction services where user or retailer can access from the interface layer according to the commerce lifecycle proposed by IBM (2014) and different channels from the interface the layer. The third intelligence layer represents integrated analytics applied to single, multiple or Omni-channels. And the bottom integrated layer represents the Cloud / Enterprise Infrastructure Services, which can be applied to cooperate with the general Service-oriented architecture (SOA) of scalable systems.



**Figure 2.3** O2O Commerce Service Framework. (Tsai et al., 2015)

As a co-value strategy of the offline and online commerce integration, O2O commerce model has integrated Brick-and-mortar (offline) to Click-and-mortar (online) commerce by using the internet link from OOH advertising that can increase the possibility of customer achievement and have a positive correlation to each other from the polynomial graph as Fig. 2.4. That means both of media can support to apply efficiently together.



**Figure 2.4** Correlation between Internet and OOH Advertising Expenditure.

(data from Nielsen, 2018)

## 2.4 Advertising creation with Augmented Reality Technology

Due to the rapid advances in technology, a greater variety of marketing tools are currently available for presenting products more persuasively. Out-Of-Home Expenditure technology that has been receiving massive attention from many companies is augmented reality (AR). Cosmetic companies such as Sephora and L'Oréal introduced an AR mirror that enables customers to experience virtual facial makeup (Jaekel, 2016). Other large companies such as Snap, Nike, Adidas, Mini, and eBay have been eagerly adopting various forms of AR, allowing consumers to more vicariously and realistically experience their products (Archer, 2015). Perhaps more interesting is Pokémon Go, a mobile game in which AR digital graphics are overlaid onto gamers' real worlds through a mobile phone display which has had more than 500 million downloads in two months (Takahashi, 2016) and generated revenues of \$470 million in 82 days (Minotti, 2016). The market size for AR was 640.2 million in 2015 and is

expected to generate \$120 billion in revenue by 2020 (Merel, 2015). As such, AR is experiencing huge popularity among companies and consumers.

AR is defined as “the superposition of virtual objects (computer-generated images, texts, sounds etc.) on the real environment of the user” (Faust et al., 2012). AR is similar to virtual reality (VR) in aiming to enhance or enrich a viewer's experience. Unlike VR that electronically generates the image of the entire real-life setting, AR creates a superimposed overlay of the viewer in the electronically generated setting (Milgram et al., 1994). Thus, AR is more beneficial than VR to both retailers and consumers in that it allows consumers to view themselves wearing diverse virtual products without physically trying them on in a store (Verhagen et al., 2014). In this way AR improves consumers' understanding about products, provides them with the enjoyment of seeing themselves wearing the item, and saves them transportation and shopping time, presumably resulting in its popular utilization in e-commerce (Baek et al., 2012). In spite of its popularity and potential, no evidence has confirmed that AR is a more persuasive tool than the existing traditional way of online product presentations in providing consumers' shopping experiences.

## **2.5 Augmented Reality (AR) Technology**

The unique media features of AR are threefold. It “combines real and virtual”, is “interactive in real-time”, and is “registered in 3-D” (Azuma, 1997). The feature of AR that most distinguishes it from other existing forms of virtual reality (VR) technologies is the media power of generating a “mixed reality” wherein the surrounding environment is real but the objects portrayed in the environment are virtual (Cho and Schwarz 2010, 2012; Drascic and Milgram, 1996) (see Fig.2.5).





| Media type     | Photo  | Virtual reality technology<br>Image interactive technology                 | Augmented reality technology  |
|----------------|--|--|---|
| Image creation | Real images  | Virtual images   | Virtual images + Real images  |
| Description    | <b>Real me</b> wearing a <b>real</b> ring in the <b>real</b> world | <b>My avatar</b> wearing a <b>virtual</b> ring in the <b>virtual</b> world | <b>Real me</b> wearing a <b>virtual</b> ring in the <b>real</b> world |
| Tool           | Camera generated   | Computer generated   | Camera & computer generated   |

**Figure 2.5** Real-world, VR, and AR. (Yim, et al., 2017)

A web camera allows both physical (user's body part) and virtual objects (target product) to reside simultaneously in a user's video screen (Bell et al., 2001). In the online shopping context this enriches a consumer's shopping experience by displaying product visualizations on images of consumers' physical features (Ma and Choi, 2007). From this perspective, it appears that compared to previously adopted VR-based product presentations such as image interactivity technology (IIT), AR is a superior e-commerce tool. Specifically, IIT is fully dependent on VR in enabling consumers to experience products in a whole new world on a website as they vicariously experience virtual products through a customizable avatar (e.g., My Virtual Model™) (Fiore et al., 2005). Technological limitations exist, however, in that the virtual avatar generated by IIT cannot precisely replicate the actual physical details of IIT online shoppers (e.g., appearance) as Kim and Forsythe (2008) identified in their focus group interview



(“... the clothing didn't look like it would on the real me”, p. 51) (e.g., Merle et al., 2012).

## **2.6 Functional Mechanisms of AR**

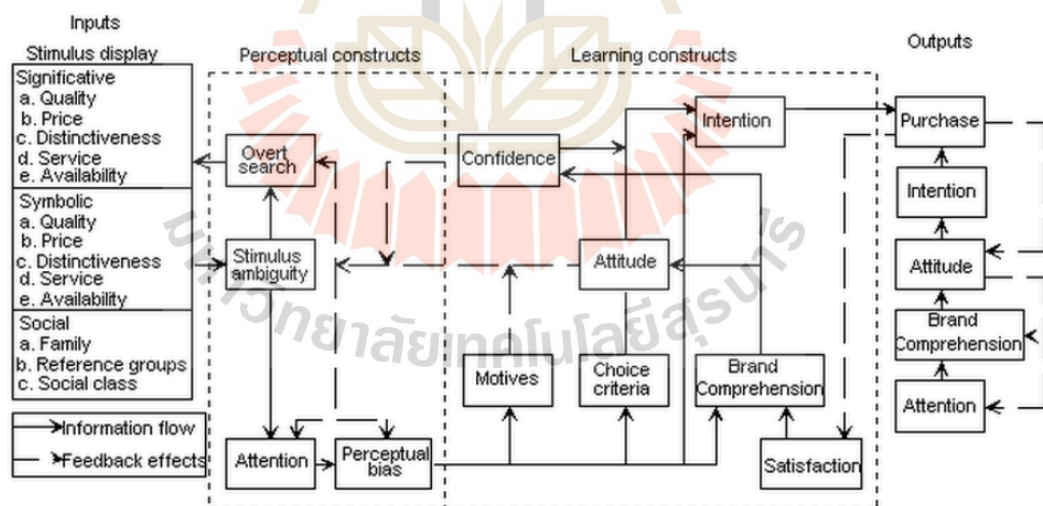
Since every human action potentially involves interactivity (Heeter, 2000), the concepts and definitions of interactivity vary widely (Kioussis, 2002). The two existing complementary perspectives provide a holistic definition of interactivity that facilitates an understanding of the role of interactivity in operationalizing AR effectiveness: as a technological outcome; and as user perception. Scholars highlighting the importance of technological features define interactivity as an outcome resulting from properties of the technology employed (Downes and McMillan, 2000; Steuer, 1992) or from the technology's ability to enable users to more easily interact with and be involved with content (Hoffman and Novak, 1996; Schneiderman, 1987). Scholars in this school accentuate the importance of enhancing sub-components of technology to increase interactivity, including speed, referring to how fast content in the mediated environment can be manipulated and mapping, referring to how similar the control used in the mediated environment is to the one in real-world; and range, referring to how broadly content in the mediated environment can be manipulated (Steuer, 1992). For example in using a touch screen phone, a media user who experiences a lagged response in a video game will sense a low level of interactivity because the feedback from the medium is delayed.

Another popularly accepted view is that interactivity involves users' subjective perceptions with a focus on individual traits that induce a sense of interactivity (e.g., Downes and McMillan, 2000; Newhagen et al., 1995). For example, Newhagen et al. (1995) insist that a sense of interactivity cannot be experienced without an

individual's motivation to participate in interactive media. In spite of highly advanced technology with the potential to create a high level of interactivity, the users may not experience interactivity if not motivated to participate. Thus, a user's perception of interactivity is most effectively generated by creating a technologically effective delivery process in such a way as to readily enhance a user's subjective decision to participate.

## 2.7 Motivation and Behavior Models

Howard-Sheth model is the model that represents consumer behaviors in the market. It attempts to explain the rationality of product chosen by the consumer under conditions of incomplete information and reduced processing capability. It analyses the behaviors, reactions and thinking processes that cannot be directly observed.



**Figure 2.6** Howard-Sheth model (Jisana, 2014).

The four major components of the model are input variables, output variables, hypothetical perceptual constructs and learning constructs, and exogenous variables.

**2.7.1 Input variables:** The input variables are the stimuli come from the environment. The input variables consist of informational cues about the attributes of a product or brand such as quality, price, distinctiveness, service and availability. Significant stimuli are the actual elements constituting a brand that the buyer confronts such as price, quality, service, availability. They influence the consumer directly through the brand's attributes. Symbolic stimuli are created by manufacturer representation of their products in symbolic form. Such as advertisement and publicity. They derive from the same factors as they are portrayed in the mass media and by salespeople, indirectly influencing the consumer. Social stimuli are created by the social environment such as reference group, social classes. These are influences that are internalized by the consumer before they can affect the decision process.

**2.7.2 Output variables:** The five output variables in the right-hand portion of the model are buyer's observable responses to stimulus inputs. They are arranged in order from Attention to Actual Purchase. The purchase is the actual, overt act of buying and is the sequential result of the attention (buyers' total response to information intake), the brand comprehension, brand attitude (referring to the evaluation of satisfying potential of the brand) and the buyer intention (a verbal statement made in the light of the above externalizing factors) that the preferred brand will be bought the next time the buying is necessitated.

**2.7.3 Hypothetical constructs:** Hypothetical constructs have been classified into two groups - perceptual constructs and learning constructs. The first deals with the way the individual perceives and responds to the information from the input variables, accounting for stimulus ambiguity and perceptual bias. The second deals with the stages from the buyer motives to his satisfaction in a buying situation. The

purchase intention is an outcome of the interplay of buyer motives, choice criteria, brand comprehension, resultant brand attitude and the confidence associated with the purchase decision. The motives are general or specific goals impelling to action, impinging upon the buyer intention are also the attitudes about the existing brand alternatives in the buyer's evoked set, which result in an arrangement of an order of preference regarding brands. Brand comprehension and the degree of confidence that the buyer has about it, choice criteria and buying intentions, converge upon the intention to buy.

**2.7.4 Exogenous variables:** The model also includes some exogenous variables which are not defined but are taken as constant. They can significantly affect buying decisions. Some major exogenous variables included in the model are the importance of the purchase, personal variables, culture, social class, financial status.

## **2.8 The Effective Tool for E-commerce**

The research evaluates the effectiveness of augmented reality (AR) as an e-commerce tool using two products. This study explores the effectiveness of AR by comparing it to a conventional website. The results show that AR provides effective communication benefits by generating greater novelty, immersion, enjoyment, and usefulness, resulting in positive attitudes toward medium and purchase intention, compared to the web-based product presentations. And the research compares the paths by which consumers evaluate products through AR versus web with a focus on interactivity and vividness. It is revealed that immersion mediates the relationship between interactivity, vividness and two outcome variables (usefulness and enjoyment) in the AR condition compared to the web condition where no significant

paths between interactivity and immersion and between previous media experience and media novelty are found. Participants' subjective opinions about AR are examined through opinion mining to better understand consumer responses to AR. (Yim, et al., 2017)

The research extensively investigated the potential of AR as a tool for e-commerce through two studies with a focus on the effect of the two functional mechanisms of interactivity and vividness. Study 1 compared the consumer evaluations of AR-based product presentations to traditional web-based product presentations with respect to diverse consumer evaluations. A structural equation model in Study 2 detailed the process of how interactivity and vividness in AR and web contexts differently and similarly result in consumer evaluations of products. Study 2 also solicited participants' subjective opinions about AR in an open-ended format item. The text mining technique was then used in analyzing their opinions to provide a supplement to our other findings in these two studies.

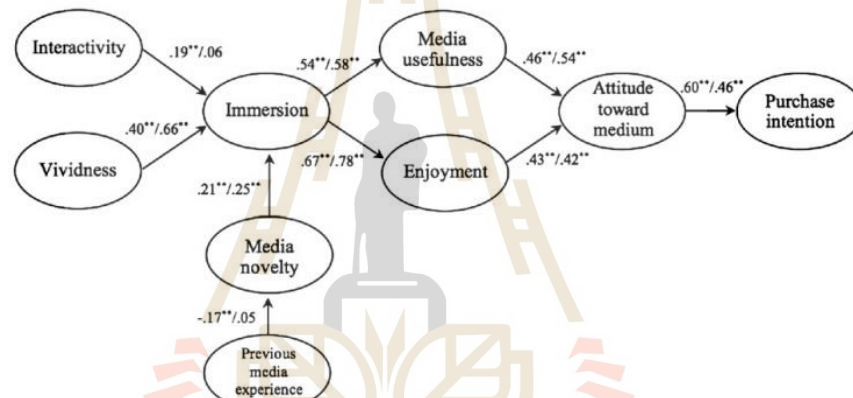
Study 1 results revealed that AR-based product presentations are generally superior to traditional web-based product presentations in the effect on media novelty, immersion, media enjoyment, usefulness, attitude toward medium, and purchase intention as consistently shown for the two different product categories. As for the mixed influence of previous media experience on consumer evaluations across two different product categories.

Study 2 results confirmed the structural path of constructs that explain how AR works in generating consumer evaluations. The model tested in Study 2 details the process by which media features of interactivity, vividness, and media novelty in AR influence consumer evaluations, compared to web-based promotions. Prior studies

empirically demonstrated that a user's immersive experience within various media is likely to generate a variety of positive consumer evaluations from both affective (e.g., enjoyment) and cognitive perspectives (e.g., product knowledge) (Coyle and Thorson 2001; Li, Daugherty, and Biocca 2002; Yim, Cicchirillo, and Drumwright 2012). This model confirms that the success of the medium as an information source for persuading consumers can be warranted when the technological features of the medium are able to generate high levels of interactivity and vividness without expecting much influence from the novelty effects. Another important contribution of this study is the finding that the significant negative impact of previous media experience on media novelty only occurred in the AR condition. This has interesting mixed implications but is consistent with what the habituation–tedium theory (Sawyer 1981) asserts. That is, greater previous media experience has both positive and negative impacts on a sense of immersion in that it reduces novelty, resulting in decreased immersion, but alleviates the potential negative impact of irritation on immersion. Consistent with what the theory asserts, the results revealed that the negative impact caused by a high level of media familiarity is still more critical in reducing the sense of immersion in the AR condition. In summary, the findings from Study 2 indicated that AR benefits from the mechanical features of interactivity and vividness but if AR loses its newness, innovativeness and uniqueness, the essence of media novelty, its overall effectiveness would be weakened.

Finally, the unique and important effort was to directly listen to consumers' opinions through the text mining technique. In that AR is still unknown to many consumers and little is known about AR from a consumer standpoint, the findings are believed to be important in enriching the understanding about AR. Consistent with the

findings in Study 2, many participants were interested in AR and willing to utilize it, but in part because AR is a new, innovative technology that attracted their attention. At the same time, some other participants pointed out technological limitations often found in new, innovative technologies, such as difficulty in installing the related software, lack of computer literacy, and malfunctioning of the AR programs (e.g., slow response speed, cartoony product images). Thus, AR is believed to be at the infant stage, needing more room to improve to be loved and used by more consumers.



**Figure 2.7** How media characteristics function to influence purchase intention. (Yim, et al., 2017)



## CHAPTER 3

### RESEARCH PROCEDURE

#### 3.1 Research Methodology

This Quasi-experiment research uses Nonequivalent Control Group Posttest Design that focuses on the effectiveness of AR technology in Out-Of-Home advertising to customer purchase interest by using quantitative research. The questionnaire, interview and observation are the instruments to gather data from the sample group.

##### 3.1.1 3D Graphic design for AR technology

Three-dimension graphic design for Phimai Historical Park will be developed using MAYA software (Autodesk Inc.), After effect (Adobe) and the AR visualization for presentation will be developed using Zappar software (Zappar Ltd.).

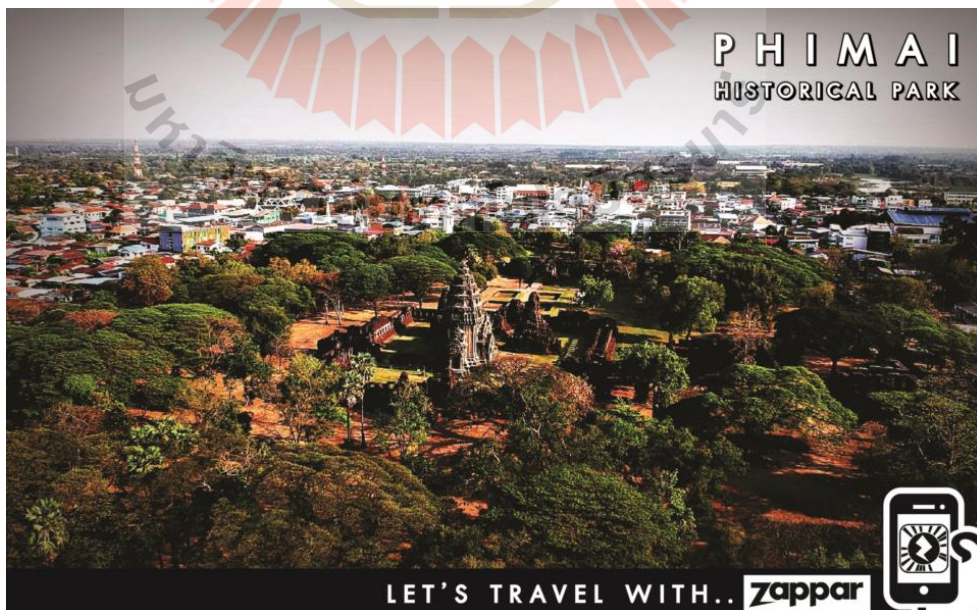


Figure 3.1 Zappar Software (AR visualization for presentation)



**Figure 3.2** AR visualize presentation

## **3.2 Population, Samplings and Location of research**

### **3.2.1 Population**

This research is designed to reveal the general effectiveness of AR on products presentation in an exploratory manner and more specifically, how AR-based presentation work in influencing consumer evaluations. That focus on Generation Z

consumers who were born between the late 1990s to early 2000s (Merriam-Webster, 2019) and live in Amphur Muang Nakhon Ratchasima. Generation Z consumers are within the typical age range of those who are more proactive in online marketing for consumer products. They are more open to innovative technologies compared to other age groups of people (Wang, 2013). The AR technology must use product technology that concordant with these customers age range. For these reasons, they are included in the potential groups of consumers who are among the most willing to use AR technology in the future (Lytle, 2012; Owyang, 2010).

### 3.2.2 Samplings

The students at Suranaree University of Technology at Nakhon Ratchasima for a total of 14,501 people in 2017 (Division of personnel at SUT, 2019). The sampling group using 390 people as the Yamane sample group method with confidence level of 95% and a significance level of 5%. The sample group is divided into an experiment group and a control group with 195 people per group. The data collected use simple random sampling process to sample the selected group.

Yamane's formula (Yamane, 1967).

$$\begin{aligned}
 n &= \frac{N}{1 + N e^2} \\
 &= \frac{14,501}{1 + ((14,501) (0.05^2))} \\
 &= 390
 \end{aligned}$$

### 3.3 Research Instrumentation

After the AR-base presentation, a questionnaire was administered asking participants about creativity, interactivity (Wu, 2005) and novelty (Yim et al., 2012). Additional items measuring general attitudes toward the AR-base presentation and purchase interest were included. All the measures are taken on a five-point Likert or semantic differential scale. Finally, to gain insights into participants' questionnaire responses, they were asked to provide their opinions about AR-based product presentations in an open-ended format.

### 3.4 Construction and Validation of the Instrument

The instrument of this study is Questionnaire in an open and closed-ended format which has 4 parts are composed of various answer questionnaire, a five-point Likert scale (Likert, 1932) and the opinion description.

**Part 1:** The demographic profile of participant which has 7 topics in closed-end format with various choice.

Topic 1: Gender (Male or Female) that the measurement scales is a nominal scale.

Topic 2: Age that the measurement scales is Ordinal Scale in 6 age ranges.

- 2.1) Less than 20 years old
- 2.2) 21 – 25 years old
- 2.3) 26 – 30 years old
- 2.4) 31 – 35 years old
- 2.5) 36 – 40 years old
- 2.6) More than 40 years old

Topic 3: Education that the measurement scales is Ordinal Scale in 6 levels.

- 3.1) Dip./High Voc. Cert.
- 3.2) Voc. Cert.
- 3.3) Bachelor Degrees
- 3.4) Master Degree
- 3.5) Doctor Degree
- 3.6) Etc.

Topic 4: Occupation that the measurement scales is ordinal scale in 6 types.

- 4.1) Student
- 4.2) Government officer
- 4.3) Company officer
- 4.4) State enterprise officer
- 4.5) Own business
- 4.6) Etc.

Topic 5: Monthly Revenue that the measurement scales is ordinal scale in 6 ranges.

- 5.1) Less than 10,000 baht/month
- 5.2) 10,001 – 20,000 baht/month
- 5.3) 20,001 – 30,000 baht/month
- 5.4) 30,001 – 40,000 baht/month
- 5.5) 40,001 – 50,000 baht/month
- 5.6) More than 50,000 baht/month

Topic 6: Present address that the measurement scales is a nominal scale.

Topic 7: Domicile that the measurement scales is a nominal scale.



**Part 2:** The Questionnaire about tourism behavior data which has 5 topics in closed-end format with various choice.

Topic 1: Hobby that the measurement scales is ordinal scale in 6 types.

- 1.1) Reading book
- 1.2) Watching/ Listening TV
- 1.3) Internet
- 1.4) Play music/ Exercise
- 1.5) Travel
- 1.6) Etc.

Topic 2: Travel style that the measurement scales is ordinal scale in 6 types.

- 2.1) Nature
- 2.2) Agriculture
- 2.3) Culture
- 2.4) Historical
- 2.5) Special interest
- 2.6) Etc.

Topic 3: Tourism frequency that the measurement scales is ordinal scale in 6 types.

- 3.1) Weekly
- 3.2) Monthly
- 3.3) every 3 months
- 3.4) every 6 months
- 3.5) Yearly
- 3.6) Seldom

Topic 4: Knowledge about Phimai Historical Park that the measurement scales is ordinal scale in 5 levels.

- 4.1) excellent
- 4.2) very good
- 4.3) good
- 4.4) fair
- 4.5) poor

Topic 5: Phimai Historical Park Visitation that the measurement scales is nominal scale in 2 choices.

- 5.1) ever
- 5.2) never

**Part 3:** The Questionnaire about advertising media receiving which has 2 topics in closed-end format with a various choice.

Topic 1: Information Receiving Channel that the measurement scale is ordinal scale in 7 channels.

- 1.1) Radio
- 1.2) Television
- 1.3) Internet
- 1.4) out-of-home media
- 1.5) newspaper/ magazine
- 1.6) family/ friend
- 1.7) Etc.

Topic 2: Information Receiving frequency that the measurement scale is ordinal scale in 6 levels.



- 2.1) daily
- 2.2) weekly
- 2.3) monthly
- 2.4) every 6 months
- 2.5) yearly
- 2.6) Etc.

**Part 4:** The Questionnaire about consumers perception of advertising, attitude toward product or service and purchase interest. The measures are taken at nominal scale which 2 choices and interval scale which five-point Likert that measurement criteria are

Level 5: Strongly Agree

Level 4: Agree

Level 3: Neither

Level 2: Disagree

Level 1: Strongly Disagree

The measurement scales in Part 4 is an interval scale that uses this calculation formula. (Kulaya, 2001)

$$\begin{aligned}
 \text{Class Interval} &= \frac{\text{Upper Class Limit} - \text{Lower Class Limit}}{\text{Amount of Class Interval}} \\
 &= \frac{5 - 1}{5} \\
 &= 0.8
 \end{aligned}$$

| Average Point | Perception Level |
|---------------|------------------|
| 4.21 – 5.00   | Excellent        |
| 3.41 – 4.20   | Very Good        |
| 2.61 – 3.40   | Good             |
| 1.81 – 2.60   | Fair             |
| 1.00 – 1.80   | Poor             |

**Part 5:** The Questionnaire about the recommendation that use the open-end questionnaire to achieve the customer's opinion.

### 3.4.1 The efficiency of the instrument

The questionnaire is passing the thorough verify process by pre-test with 30 participants and adopt the Cronbach's Alpha to analyze the reliability of the data that coefficient of reliability should equal or more than 0.7 as standard criteria (Wichean, 1994).

$$\alpha = \frac{k}{k - 1} \left\{ 1 - \frac{\sum s_i^2}{s_t^2} \right\}$$

where k = total number of test item

$s_i^2$  = the variance of each test item

$s_t^2$  = the variance of total test item

**Table 3.1** The reliability of data in pre-test sampling group (n = 30) and post – test sampling group (n = 195) for traditional Out-Of-Home advertising.

| Data             | Number of question | Cronbach's Alpha |            |
|------------------|--------------------|------------------|------------|
|                  |                    | Pre - test       | Actual Use |
| 1. Interactivity | 3                  | 0.83             | 0.76       |
| 2. Novelty       | 2                  | 0.91             | 0.74       |
| 3. Creativity    | 2                  | 0.83             | 0.75       |
| 4. Perception    | 3                  | 0.88             | 0.87       |
| 5. Attitude      | 2                  | 0.88             | 0.81       |

**Table 3.2** The reliability of data in pre-test sampling group (n = 30) and post – test sampling group (n = 195) for AR technology advertising.

| Data             | Number of question | Cronbach's Alpha |            |
|------------------|--------------------|------------------|------------|
|                  |                    | Pre - test       | Actual Use |
| 1. Interactivity | 3                  | 0.87             | 0.81       |
| 2. Novelty       | 2                  | 0.80             | 0.78       |
| 3. Creativity    | 2                  | 0.67             | 0.71       |
| 4. Perception    | 3                  | 0.81             | 0.87       |
| 5. Attitude      | 2                  | 0.82             | 0.87       |

### 3.5 Data Collection

This study uses primary data from 390 respondents by using the questionnaire and interviewing to validate the customer perception in AR technology adaptive. That AR media condition is guided by the detailed instruction as a process to set up and use AR technology on the smart phone. Specifically, participants are asked to download

the required software and prepared their smart phones. Once everything is all set, participants mobile screens will appear 3D animation product designs. This process enabled them to obtain product descriptions in details via an online platform. This platform can collect the user data in 3 buyer stages which are exploration, decision making, and purchase interest. That is resulting on tracking and analyzing in page views, inactions, unique users, users per country, and page static.

### **3.6 Data Analysis**

The data is analyzed using the Program of statistical analysis of sample data (PSPP for Windows) to analyze descriptive statistic and inferential statistic.

#### **3.6.1 Descriptive statistic analysis**

To analyze the demographic profile on age, gender and revenue by frequency distribution and percentage. And the results of perception, attitude and purchase interest by the mean and standard deviation.

#### **3.6.2 Inferential statistic analysis**

To analyze the correlation of AR-base presentation effective on perception, attitude and purchase interest by utilizing T-Test analysis and Chi-square test for Homogeneity.

### **3.7 Hypothesis testing**

The hypothesis is tested at a 5% level of significance that Pearson product-moment correlation efficiency is used to test the Interval Scale in customer perception, attitude and purchase interest.

# CHAPTER 4

## RESEARCH RESULTS

The effective measurement of AR technology in OOH advertising to customer purchase interest is Quasi experiment research that uses Nonequivalent Control Group Posttest design. The population is Generation Z Consumers in Amphur Muang Nakhon Ratchasima and collect data by use questionnaire from 390 respondents. The sample group is divided into experiment group and control group which included 195 people per group. The data are evaluated using the Program of statistical analysis of sample data (PSPP) to analyze descriptive statistic and inferential statistic.

### 4.1 Overview Data

4.1.1 Demographic data

4.1.2 Tourism behavior data

4.1.3 Phimai Historical Park traveling

4.1.4 Advertising media receiving

4.1.5 Perception and attitude toward advertising media

4.1.6 Purchase interest

4.2 Research Hypothesis is the hypothesis testing that defines from the research objective.

4.2.1 H1: There is a difference of consumer perception toward advertising media in 3 perspectives (interactivity, novelty and creativity) between traditional Out-Of-Home advertising and AR technology advertising.

4.2.2 H2: There is a difference of consumer attitude toward product and services between traditional Out-Of-Home advertising and AR technology advertising.

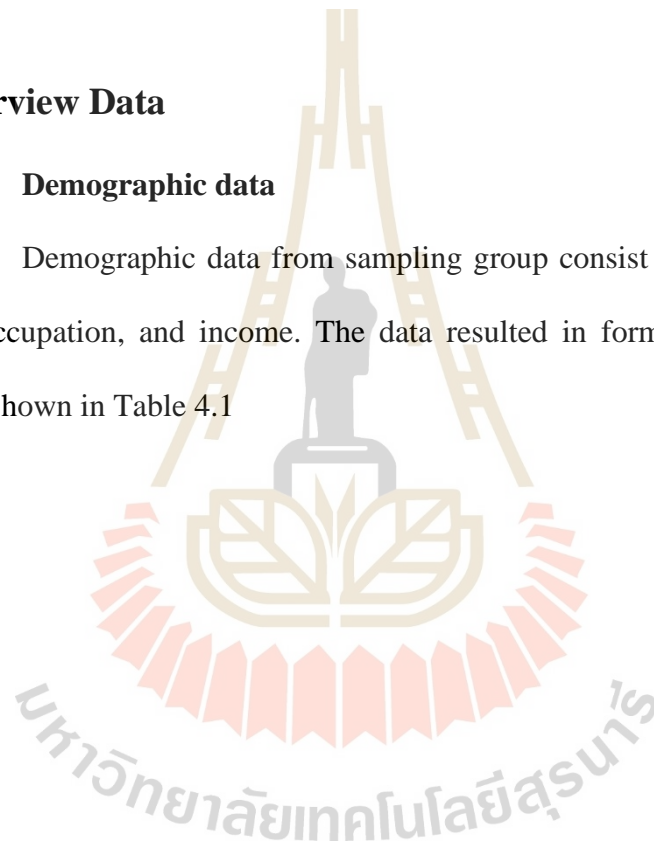
4.2.3 H3: There is a difference of consumer purchase interest between traditional Out-Of-Home advertising and AR technology advertising.

4.3 Relation between AR advertising and consumer purchase interest

## **4.1 Overview Data**

### **4.1.1 Demographic data**

Demographic data from sampling group consist of gender, age range, education, occupation, and income. The data resulted in forms of frequencies and percentages shown in Table 4.1



**Table 4.1** The frequencies and percentages of gender, age range, education, occupation, and income between the experiment group (AR media) and the control group (Tradition media).

| Data                 | Experiment Group (AR media) |            | Control Group (Tradition media) |            |
|----------------------|-----------------------------|------------|---------------------------------|------------|
|                      | Frequency                   | Percentage | Frequency                       | Percentage |
| 1. Gender            |                             |            |                                 |            |
| Male                 | 49                          | 25.1       | 93                              | 47.7       |
| Female               | 146                         | 74.9       | 102                             | 52.3       |
| 2. Age range         |                             |            |                                 |            |
| Less than 20 years   | 18                          | 9.2        | 30                              | 15.4       |
| 21 - 25 years        | 177                         | 90.8       | 165                             | 84.6       |
| 3. Education         |                             |            |                                 |            |
| Dip./High Voc. Cert. | 8                           | 4.1        | 0                               | 0.0        |
| Voc. Cert.           | 2                           | 1.0        | 1                               | 0.5        |
| Bachelor Degrees     | 184                         | 94.4       | 193                             | 99.0       |
| Master Degrees       | 1                           | 0.5        | 0                               | 0.0        |
| High School          | 0                           | 0.0        | 1                               | 0.5        |



**Table 4.1** The frequencies and percentages of gender, age range, education, occupation, and income between the experiment group (AR media) and the control group (Tradition media). (Continued)

| Data                  | Experiment Group (AR media) |            | Control Group (Tradition media) |            |
|-----------------------|-----------------------------|------------|---------------------------------|------------|
|                       | Frequency                   | Percentage | Frequency                       | Percentage |
| 4. Occupation         |                             |            |                                 |            |
| Student               | 192                         | 98.5       | 191                             | 97.9       |
| Government officer    | 1                           | 0.5        | 1                               | 0.5        |
| Company officer       | 2                           | 1.0        | 0                               | 0.0        |
| Own business          | 0                           | 0.0        | 3                               | 1.5        |
| 5. Income             |                             |            |                                 |            |
| Less than 10,000 baht | 167                         | 85.6       | 182                             | 93.3       |
| 10,001 - 20,000 baht  | 26                          | 13.3       | 13                              | 6.7        |
| 20,001 - 30,000 baht  | 2                           | 1.0        | 0                               | 0.0        |
| Total                 | n = 195                     | 100        | n = 195                         | 100        |

As a result, both the experiment group (AR media) and the control group (Tradition media) have female more than male, and with the age range from 21 – 25 years old. Most sampling groups are Bachelor degree students that have income less than 10,000 baht per month.

#### 4.1.2 Tourism behavior data

The tourism behavior data from the sampling group consists of hobbies, travel styles and tourism frequencies. The data resulted in forms of frequencies and percentages shown in Table 4.2.

**Table 4.2** The frequencies and percentages of hobbies, travel styles and tourism frequencies between experiment group (AR media) and control group (Tradition media).

| Data                   | Experiment Group (AR media) |            | Control Group (Tradition media) |            |
|------------------------|-----------------------------|------------|---------------------------------|------------|
|                        | Frequency                   | Percentage | Frequency                       | Percentage |
| 1. Hobby               |                             |            |                                 |            |
| Reading book           | 58                          | 11.8       | 67                              | 13.0       |
| Watching/ Listening TV | 149                         | 30.2       | 144                             | 27.9       |
| Internet               | 165                         | 33.5       | 169                             | 32.7       |
| Play music/ Exercise   | 47                          | 9.5        | 61                              | 11.8       |
| Travel                 | 71                          | 14.4       | 70                              | 13.5       |
| Play online game       | 3                           | 0.6        | 6                               | 1.2        |
| 2. Travel style        |                             |            |                                 |            |
| Nature                 | 167                         | 46.0       | 175                             | 47.7       |
| Agriculture            | 30                          | 8.3        | 22                              | 6.0        |
| Culture                | 32                          | 8.8        | 32                              | 8.7        |
| Historical             | 54                          | 14.9       | 49                              | 13.4       |
| Special interest       | 77                          | 21.2       | 85                              | 23.2       |
| Innovation             | 3                           | 0.8        | 4                               | 1.1        |
| 3. Tourism frequency   |                             |            |                                 |            |
| Weekly                 | 16                          | 8.2        | 14                              | 7.2        |
| Monthly                | 56                          | 28.7       | 45                              | 23.1       |
| every 3 months         | 44                          | 22.6       | 52                              | 26.7       |
| every 6 months         | 40                          | 20.5       | 41                              | 21.0       |
| Yearly                 | 37                          | 19.0       | 39                              | 20.0       |
| Seldom                 | 2                           | 1.0        | 4                               | 2.1        |
| Total                  | n = 195                     | 100        | n = 195                         | 100        |

The results show that both groups choose to go on the Internet during their free times, and prefer to choose nature travel rather than other traveling styles. However, there is a difference in traveling frequency, the experiment group prefer to

travel once a month whereas the control group likes to travel once in every three months.

#### 4.1.3 Phimai Historical Park traveling

Phimai Historical Park traveling data from a sampling group consisted of knowledge of respondents on Phimai Historical park, and times they have visited. The data resulted in forms of frequencies and percentages as shown in Table 4.3

**Table 4.3** The frequencies and percentages resulted for Phimai Historical Park knowledge and a data of times visited between the experiment group (AR media) and the control group (Tradition media).

| Data                | Experiment Group (AR media) |            | Control Group (Tradition media) |            |
|---------------------|-----------------------------|------------|---------------------------------|------------|
|                     | Frequency                   | Percentage | Frequency                       | Percentage |
| 1. Phimai knowledge |                             |            |                                 |            |
| excellent           | 6                           | 3.1        | 5                               | 2.6        |
| very good           | 19                          | 9.7        | 14                              | 7.2        |
| good                | 68                          | 34.9       | 61                              | 31.3       |
| fair                | 63                          | 32.3       | 67                              | 34.4       |
| poor                | 39                          | 20.0       | 48                              | 24.6       |
| 2. Visited          |                             |            |                                 |            |
| ever                | 91                          | 46.7       | 98                              | 50.3       |
| never               | 104                         | 53.3       | 97                              | 49.7       |
| Total               | n = 195                     | 100        | n = 195                         | 100        |

As a result, there is a difference in the knowledge of Phimai Historical Park between the experiment group (AR media) and the control group (Tradition media) where one knows a lot and the other one knows impartially about the park, respectively. In addition, most of the experiment group (AR media) have never been to Phimai Historical Park whereas a half of the control group (Tradition media) has already visited park.

#### 4.1.4 Advertising media receiving

Advertising media receiving from sampling group consist of information channel and receiving frequency. The data resulted in forms of frequencies and percentages shown in Table 4.4.

**Table 4.4** The frequencies and percentages of information channel and receiving frequency between experiment group (AR media) and control group (Tradition media).

| Data                   | Experiment Group (AR media) |            | Control Group (Tradition media) |            |
|------------------------|-----------------------------|------------|---------------------------------|------------|
|                        | Frequency                   | Percentage | Frequency                       | Percentage |
| 1. Information Channel |                             |            |                                 |            |
| radio                  | 4                           | 1.0        | 6                               | 1.5        |
| television             | 69                          | 17.3       | 72                              | 17.7       |
| internet               | 180                         | 45.1       | 180                             | 44.3       |
| out-of-home media      | 36                          | 9.0        | 21                              | 5.2        |
| newspaper/ magazine    | 15                          | 3.8        | 33                              | 8.1        |
| family/ friend         | 95                          | 23.8       | 94                              | 23.2       |
| 2. Recieving frequency |                             |            |                                 |            |
| daily                  | 47                          | 24.1       | 78                              | 40.0       |
| weekly                 | 74                          | 37.9       | 73                              | 37.4       |
| monthly                | 47                          | 24.1       | 29                              | 14.9       |
| every 6 months         | 16                          | 8.2        | 10                              | 5.1        |
| yearly                 | 11                          | 5.6        | 4                               | 2.1        |
| every 3 months         | 0                           | 0.0        | 1                               | 0.5        |
| Total                  | n = 195                     | 100.0      | n = 195                         | 100        |

The research shown that both groups are mostly received information from the Internet. However, the receiving frequency is different as the experiment group (AR media) receiving information every week, but the control group (Tradition media) is receiving everyday.

#### 4.1.5 Perception and attitude toward advertising media

Perceptions and attitudes toward advertising media from the sampling group consist of three perceptions (interactivity, novelty and creativity) and attitudes toward product or service. This data set is analyzed by using interval scale with five-point likert. The level measurement criteria are shown in details as below.

| Average Point | Perception Level |
|---------------|------------------|
| 4.21 – 5.00   | Excellent        |
| 3.41 – 4.20   | Very Good        |
| 2.61 – 3.40   | Good             |
| 1.81 – 2.60   | Fair             |
| 1.00 – 1.80   | Poor             |

The data shown for experiment group (AR media) and control group (Tradition media) is in forms of satisfaction level that will be separately shown in Table 4.5 and Table 4.6

**Table 4.5** The satisfaction level of 3 perceptions (interactivity, novelty and creativity) and attitudes toward product or service for the experiment group (AR media). The data shown in forms of average, standard deviation and satisfaction level.

| Data                      | Experiment Group (AR media) |      |           |
|---------------------------|-----------------------------|------|-----------|
|                           | Average                     | SD   | Level     |
| <b>Perception</b>         |                             |      |           |
| 1. Interactivity          |                             |      |           |
| Data clarification        | 3.76                        | 0.84 | Very Good |
| Interesting content       | 3.72                        | 1.02 | Very Good |
| Virtual reality           | 3.8                         | 0.97 | Very Good |
| 2. Novelty                |                             |      |           |
| Novelty media             | 3.84                        | 0.99 | Very Good |
| Technology application    | 4.11                        | 0.87 | Very Good |
| 3. Creativity             |                             |      |           |
| Creativity media          | 3.99                        | 0.84 | Very Good |
| Knowledge creation        | 3.91                        | 0.85 | Very Good |
| 4. Perception             |                             |      |           |
| Perception responsiveness | 3.75                        | 0.85 | Very Good |
| Effectively access data   | 3.88                        | 0.83 | Very Good |
| Knowledge achievement     | 3.88                        | 0.85 | Very Good |
| 5. Attitude               |                             |      |           |
| Media attractive          | 3.82                        | 1.01 | Very Good |
| Media impression          | 3.8                         | 0.93 | Very Good |

**Table 4.6** The satisfaction level of 3 perceptions (interactivity, novelty and creativity) and attitudes toward product or service for the control group (Tradition media). The results shown in forms of average, standard deviation and satisfaction level.

| Data                      | Control Group (Tradition media) |      |           |
|---------------------------|---------------------------------|------|-----------|
|                           | Average                         | SD   | Level     |
| <b>Perception</b>         |                                 |      |           |
| 1. Interactivity          |                                 |      |           |
| Data clarification        | 3.47                            | 0.73 | Very Good |
| Interesting content       | 3.51                            | 0.81 | Very Good |
| Virtual reality           | 3.36                            | 0.81 | Good      |
| 2. Novelty                |                                 |      |           |
| Novelty media             | 3.19                            | 0.86 | Good      |
| Technology application    | 3.46                            | 0.83 | Very Good |
| 3. Creativity             |                                 |      |           |
| Creativity media          | 3.37                            | 0.79 | Good      |
| Knowledge creation        | 3.31                            | 0.85 | Good      |
| 4. Perception             |                                 |      |           |
| Perception responsiveness | 3.29                            | 0.82 | Good      |
| Effectively access data   | 3.25                            | 0.88 | Good      |
| Knowledge achievement     | 3.23                            | 0.91 | Good      |
| 5. Attitude               |                                 |      |           |
| Media attractive          | 3.51                            | 0.91 | Very Good |
| Media impression          | 3.51                            | 0.90 | Very Good |

#### 4.1.6 Purchase Interest

Purchase Interest from the sampling group has resulted in forms of frequencies and percentages shown in Table 4.7.



**Table 4.7** The frequencies and percentages of the Purchase Interest between the experiment group (AR media) and the control group (Tradition media).

| Data               | Experiment Group (AR media) |            | Control Group (Tradition media) |            |
|--------------------|-----------------------------|------------|---------------------------------|------------|
|                    | Frequency                   | Percentage | Frequency                       | Percentage |
| Purchase Intention |                             |            |                                 |            |
| Travel             | 141                         | 72.3       | 136                             | 69.7       |
| Not travel         | 54                          | 27.7       | 59                              | 30.3       |
| Total              | n = 195                     | 100        | n = 195                         | 100        |

The experiment group (AR media) is resulted to have more interested in traveling at Phimai Historical Park than the control group (Tradition media) with a result of 72.3 percent comparing to 69.7 percent.

## 4.2 Research Hypothesis

4.2.1 To compare the consumer perception toward advertising media in 3 perspective (interactivity, novelty and creativity) between traditional OOH advertising and AR technology advertising by utilizing T-Test Analysis. The result as followed in the H1.

1) H0: There is no difference in consumer perception towards advertising media in 3 perspectives (interactivity, novelty and creativity) between traditional OOH advertising and AR technology advertising.

2) H1: There is a difference in consumer perception towards advertising media in 3 perspectives (interactivity, novelty and creativity) between traditional OOH advertising and AR technology advertising.

**Table 4.8** The comparison of consumer perception towards advertising media in 3 perspective (interactivity, novelty and creativity) between traditional OOH advertising and AR technology advertising.

| Data              | Experiment Group (AR media) |      | Control Group (Tradition media) |      | t     | Sig.  |
|-------------------|-----------------------------|------|---------------------------------|------|-------|-------|
|                   | Average                     | SD   | Average                         | SD   |       |       |
| <b>Perception</b> |                             |      |                                 |      |       |       |
| Interactivity     | 3.76                        | 0.81 | 3.45                            | 0.64 | -4.24 | 0.000 |
| Novelty           | 3.97                        | 0.84 | 3.33                            | 0.75 | -7.98 | 0.000 |
| Creativity        | 3.95                        | 0.75 | 3.34                            | 0.73 | -8.11 | 0.000 |

\* Statistical significance 0.05

The analysis resulted that there is a difference in consumer perception towards advertising media in 3 perspectives (interactivity, novelty and creativity) between traditional OOH advertising and AR technology advertising at Statistical significance of 0.05.

4.2.2 To compare the consumer attitude towards product or service between traditional OOH advertising and AR technology advertising by utilizing T-Test Analysis. The result as followed in the H2.

- 1) H0: There is no difference in consumer attitude towards product or service between traditional Out-Of-Home advertising and AR technology advertising.
- 2) H2: There is a difference in consumer attitude towards product or service between traditional OOH advertising and AR technology advertising.

**Table 4.9** The comparison of consumer attitude towards product or service between traditional OOH advertising and AR technology advertising.

| Data     | Experiment Group (AR media) |      | Control Group (Tradition media) |      | t     | Sig.  |
|----------|-----------------------------|------|---------------------------------|------|-------|-------|
|          | Average                     | SD   | Average                         | SD   |       |       |
| Attitude | 3.81                        | 0.92 | 3.51                            | 0.83 | -3.36 | 0.001 |

\* Statistical significance 0.05

The analysis shown that there is a difference in consumer attitude towards product or service between traditional OOH advertising and AR technology advertising at Statistical significance of 0.05.

4.2.3 To compare the consumer purchase interest between traditional OOH advertising and AR technology advertising by utilizing Chi-square test for Homogeneity. The result as followed in the H0.

1) H0: There is no difference in consumer purchase interest between traditional OOH advertising and AR technology advertising.

2) H3: There is a difference in consumer purchase interest between traditional OOH advertising and AR technology advertising.

**Table 4.10** The comparison of the consumer purchase interest between traditional OOH advertising and AR technology advertising.

| Media Type | Purchase Interest |             | d.f | $\chi^2$ | Sig.  | Total |
|------------|-------------------|-------------|-----|----------|-------|-------|
|            | Interest          | No interest |     |          |       |       |
| AR         | 141               | 54          | 1   | 0.31     | 0.577 | 195   |
| Tradition  | 136               | 59          |     |          |       | 195   |

The analysis resulted that there is no difference in consumer purchase interest between traditional OOH advertising and AR technology advertising.

### 4.3 Relation between AR advertising and consumer purchase interest

4.3.1 To study the relationship of AR technology and Out-Of-Home advertising on consumer purchase interest by utilizing Pearson Correlation Coefficient.

**Table 4.11** The correlation between customer perceptions and attitudes toward product/service to purchase interest for AR technology advertising. (N = 195)

| Factor            | Interactivity | Novelty | Creativity | Attitude | Purchase Interest |
|-------------------|---------------|---------|------------|----------|-------------------|
| Interactivity     | 1             |         |            |          |                   |
| Novelty           | 0.61          | 1       |            |          |                   |
| Creativity        | 0.66          | 0.62    | 1          |          |                   |
| Attitude          | 0.66          | 0.65    | 0.74       | 1        |                   |
| Purchase Interest | -0.39         | -0.32   | -0.33      | -0.48    | 1                 |

\* Statistical significance 0.05

The analysis resulted that there is a correlation between consumer perceptions (in 3 perspectives) and attitudes in a positive direction. The Creativity is the most relational factor to the customer perception which has correlation value of 0.74.

**Table 4.12** The correlation between customer perception and attitude toward product/service to purchase interest for traditional OOH advertising. (N = 195)

| Factor            | Interactivity | Novelty | Creativity | Attitude | Purchase Interest |
|-------------------|---------------|---------|------------|----------|-------------------|
| Interactivity     | 1             |         |            |          |                   |
| Novelty           | 0.58          | 1       |            |          |                   |
| Creativity        | 0.53          | 0.63    | 1          |          |                   |
| Attitude          | 0.63          | 0.62    | 0.68       | 1        |                   |
| Purchase Interest | -0.37         | -0.30   | -0.31      | -0.44    | 1                 |

\* Statistical significance 0.05

The analysis resulted that there is a correlation between consumer perceptions (in 3 perspectives) and attitudes in a positive direction. The Creativity is the most relational factor to the customer perception which has correlation value of 0.68.



# **CHAPTER 5**

## **CONCLUSION DISCUSSION AND SUGGESTION FOR FURTHER WORK**

### **5.1 Conclusion**

The Effectiveness of Augmented Reality in OOH Advertising to Generation Z consumers purchase interest has objectives (1) To compare the consumer perception toward advertising media in 3 perspectives (interactivity, novelty and creativity) between traditional OOH advertising and AR technology advertising. (2) To compare the consumer attitude towards product or service between traditional OOH advertising and AR technology advertising. (3) To compare the consumer purchase interest between traditional OOH advertising and AR technology advertising. (4) To study the relation of AR technology in Out-Of-Home advertising on consumer purchase interest.

This Quasi-experiment research uses Nonequivalent Control Group Posttest Design that focuses on the effectiveness of AR technology in Out-Of-Home advertising to customer purchase interest by using quantitative research. The questionnaire, interview and observation are the instruments to gather data from the sample group. The population is Generation Z Consumers who were born between the mid-1990s to the early 2000s. That live in Amphur Muang Nakhonratchasima. The sampling group includes 390 people which is used in the Yamane sample group method with confidence level 95% and a level of significant 5%. The sample group is divided into

the experiment group and the control group with 195 people per group. The data collection use simple random sampling process to sample the group selected.

The instrument of this study is Questionnaire with an open and closed-ended format. There are four parts of questions including composed of various answer questionnaire, a five-point Likert scale (Likert, 1932) and the opinion description. The questionnaire is passing the thorough verify process by pre-test with 30 participants and adopt the Cronbach's Alpha to analyze the reliability of the data that coefficient of reliability is 0.67 – 0.91 and post-test with 390 participants is 0.74 – 0.87 as standard criteria. The question of 390 participants is utilizing by PSPP program to reveal the statistic data in frequency, percentage, ean, standard deviation, T-test, Pearson correlation and Chi-square test.

## **5.2 Demographic Characteristic of Respondents**

The demographic data of the control group (Traditional media) is similar to experiment group (AR media). The most respondents are the female who have age ranged from 21 – 25 years old, whereas the youngest respondent age is under 20 years old and the oldest is around 26 – 30 years old. The respondents are students who study in Bachelor degree.

## **5.3 Consumer perception towards advertising media**

The perception towards advertising media of the experiment group (AR media) have a very good satisfaction level that higher than the control group (Tradition media).



**Table 5.1** The satisfaction level consumer perception towards advertising media.

| Data                      | Control Group (Tradition media) |      |       | Experiment Group (AR media) |      |           |
|---------------------------|---------------------------------|------|-------|-----------------------------|------|-----------|
|                           | Average                         | SD   | Level | Average                     | SD   | Level     |
| <b>Perception</b>         |                                 |      |       |                             |      |           |
| Perception responsiveness | 3.29                            | 0.82 | Good  | 3.75                        | 0.85 | Very Good |
| Effectively access data   | 3.25                            | 0.88 | Good  | 3.88                        | 0.83 | Very Good |
| Knowledge achievement     | 3.23                            | 0.91 | Good  | 3.88                        | 0.85 | Very Good |

#### 5.4 Purchase Interest Percentage

The experiment group (AR media) is resulted to have more interested in traveling at Phimai Historical Park than the control group (Tradition media) with a result of 72.3 percent comparing to 69.7 percent.

**Table 5.2** The frequencies and percentages of the Purchase Interest between the experiment group (AR media) and the control group (Tradition media).

| Data               | Experiment Group (AR media) |            | Control Group (Tradition media) |            |
|--------------------|-----------------------------|------------|---------------------------------|------------|
|                    | Frequency                   | Percentage | Frequency                       | Percentage |
| Purchase Intention |                             |            |                                 |            |
| Travel             | 141                         | 72.3       | 136                             | 69.7       |
| Not travel         | 54                          | 27.7       | 59                              | 30.3       |
| Total              | n = 195                     | 100        | n = 195                         | 100        |

#### 5.5 The comparison of consumer perception towards advertising media

The comparison of consumer perception towards advertising media between traditional OOH advertising and AR technology advertising. The analysis resulted that there is a difference in consumer perception towards advertising media in 3 perspectives (interactivity, novelty and creativity) between traditional OOH advertising and AR technology advertising at Statistical significance of 0.05.

**Table 5.3** T-Test of consumer perception towards advertising media

| Data              | Experiment Group (AR media) |      | Control Group (Tradition media) |      | t     | Sig.  |
|-------------------|-----------------------------|------|---------------------------------|------|-------|-------|
|                   | Average                     | SD   | Average                         | SD   |       |       |
| <b>Perception</b> |                             |      |                                 |      |       |       |
| Interactivity     | 3.76                        | 0.81 | 3.45                            | 0.64 | -4.24 | 0.000 |
| Novelty           | 3.97                        | 0.84 | 3.33                            | 0.75 | -7.98 | 0.000 |
| Creativity        | 3.95                        | 0.75 | 3.34                            | 0.73 | -8.11 | 0.000 |

Note : \* Statistical significance 0.05

## 5.6 The comparison of consumer attitude towards product or service

The comparison of consumer attitude towards product or service between traditional OOH advertising and AR technology advertising. The analysis shown that there is a difference in consumer attitude towards product or service at Statistical significance of 0.05.

**Table 5.4** T-Test of consumer attitude towards product or service

| Data     | Experiment Group (AR media) |      | Control Group (Tradition media) |      | t     | Sig.  |
|----------|-----------------------------|------|---------------------------------|------|-------|-------|
|          | Average                     | SD   | Average                         | SD   |       |       |
| Attitude | 3.81                        | 0.92 | 3.51                            | 0.83 | -3.36 | 0.001 |

Note : \* Statistical significance 0.05

## 5.7 The comparison of the consumer purchase interest

The comparison of the consumer purchase interest between traditional OOH advertising and AR technology advertising. The analysis resulted that there is no difference in consumer purchase interest between traditional OOH advertising and AR technology advertising at Statistical significance of 0.577.

**Table 5.5** Chi-Square of the consumer purchase interest

| Media Type | Purchase Interest |             | d.f | $\chi^2$ | Sig.  | Total |
|------------|-------------------|-------------|-----|----------|-------|-------|
|            | Interest          | No interest |     |          |       |       |
| AR         | 141               | 54          | 1   | 0.31     | 0.577 | 195   |
| Tradition  | 136               | 59          |     |          |       | 195   |

## 5.8 Conclusion and Discussion

The comparison of AR advertising and traditional Out-Of-Home advertising in perception, attitude toward products and purchase interest were analyzed by using T-Test, Chi-Square and Pearson Product-moment Correlation. The T-Test results showed the differences between consumer perceptions of 3 perspectives (interactivity, novelty and creativity) and attitudes toward products between AR technology and the traditional Out-Of-Home advertising at a Significant level of 0.000. However, the test on customer demands showed no difference on purchase interest between AR technology and the traditional Out-Of-Home advertising at a Significant in level of 0.577 in Chi-square test for Homogeneity. An advertisement using AR technology creates more purchase interest than a traditional way of advertisement at a level of 72.3 percentage.

The perception towards media of the AR advertising has a satisfaction level of consumer higher than the Tradition media due to the AR media has responsiveness to customer that they can interact with the media to access the efficiency data and achieve more important product or service knowledge. For this reason, the AR advertising has contributed to attract the consumer attention and impression that the marketers can adapt this innovation to create more purchase interest.

## **5.9 Limitations and Future Research**

### **5.9.1 Limitations of the Study**

This research is designed to reveal the general effectiveness of AR in products presentation. That focus on Generation Z consumers who were born between the late 1990s to early 2000s (Merriam-Webster, 2019) and live in Amphur Muang Nakhon Ratchasima. Generation Z consumers are within the typical age range of those more proactive in online marketing for products. The AR technology must use a product technology that is more concordant with these customers age range. For these reasons, they are included in the potential groups of consumers who are among the most willing group to use AR technology in the future (Lytle, 2012; Owyang, 2010).

The product or service that use in this research is Phimai Historical Park, Nakhon Ratchasima. Phimai Historical Park is one of the largest and most important Khmer temples of Thailand that has a lot of tourists from all over country visiting there. This tourist attraction is used for the research because everyone can go there to visit this place. There is no limitation of gender, age, educational level, or brand loyalty on the product.

The instrument used in this study is Questionnaires with an open and closed-ended format which have 4 parts including composed of various answer questionnaire, a five-point Likert scale (Likert, 1932) and the opinion description. The data is collected on May 2018 until November 2019 that focus on students who born between the late 1990s to early 2000s in Suranaree University of Technology, Nakhon Ratchasima.

### 5.9.2 Future Research

The product or service in this research is a tourist attraction that is not attached to any brand name or trademark. If the researcher is interested in any other products or services, they can define the brand name or trademark to achieve the thorough data and customer insight on that product or service.

This research is focused on students who born between the late 1990s to early 2000s. The researcher should study in other age ranges to expand the research result that will be useful for a further knowledge.

This research studied the effectiveness of AR technology in Out-Of-Home advertising on 3 perspectives (consumer perception, attitude toward advertising media and purchase interest). The researcher can study in other perspectives to get the deep insight data because the customer purchase interest is depending on various factors.

This Quasi-experiment used Nonequivalent Control Group Posttest Design that compares between the experiment group (AR media) and the control group (Tradition media). The researcher can study in the other media type such as VR technology to get more data and results in the comparison.

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**APPENDIX**

**AR MEDIA PRESENTATION**

มหาวิทยาลัยเทคโนโลยีสุรนารี



## แบบประเมินการรับชมสื่อโฆษณา

คำชี้แจง แบบประเมิน

1. เพื่อให้ผู้จัดทำมีโอกาสรับทราบผลการดำเนินงานของตนเอง และเพื่อประโยชน์ในการปรับปรุงรูปแบบสื่อโฆษณาให้มีประสิทธิภาพมากขึ้น
2. โปรดเติมเครื่องหมาย  และกรอกข้อความให้สมบูรณ์

### ส่วนที่ 1 ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

1. เพศ

ชาย

หญิง

2. อายุ

ต่ำกว่า 20 ปี

21-25 ปี

26-30 ปี

31-35 ปี

36-40 ปี

40 ปีขึ้นไป

3. ระดับการศึกษา

ปวส.

ปวช.

ปริญญาตรี

ปริญญาโท

ปริญญาเอก

อื่นๆ .....

4. อาชีพ

นักศึกษา

ข้าราชการ

พนักงานบริษัทเอกชน

พนักงานรัฐวิสาหกิจ

ธุรกิจส่วนตัว

อื่นๆ .....

## 5. รายได้ต่อเดือน

ต่ำกว่า 10,000 บาท       10,001 – 20,000 บาท       20,001 – 30,000 บาท

30,001 – 40,000 บาท       40,001 – 50,000 บาท       50,001 บาทขึ้นไป

6. ที่อยู่ปัจจุบัน (ระบุจังหวัด).....

7. ภูมิลำเนา (ระบุจังหวัด).....

## ส่วนที่ 2 ข้อมูลเกี่ยวกับทัศนคติและความชื่นชอบต่อการท่องเที่ยว

## 1. งานอดิเรก (สามารถเลือกตอบได้มากกว่า 1 ข้อ)

อ่านหนังสือ       ดูโทรทัศน์/ฟังเพลง       เล่นอินเทอร์เน็ต  
 เล่นดนตรี/ออกกำลังกาย       ท่องเที่ยว       อื่นๆ .....

## 2. รูปแบบการท่องเที่ยวที่ชื่นชอบ (สามารถเลือกตอบได้มากกว่า 1 ข้อ)

แหล่งธรรมชาติ       แหล่งท่องเที่ยวเชิงเกษตร       แหล่ง  
วัฒนธรรม  
 แหล่งท่องเที่ยวเชิงประวัติศาสตร์       แหล่งท่องเที่ยวในความสนใจพิเศษ       อื่นๆ .....

## 3. ท่านเดินทางท่องเที่ยวบ่อยเพียงใด

1 ครั้ง / สัปดาห์       1 ครั้ง / เดือน       1 ครั้ง / 3 เดือน  
 1 ครั้ง / 6 เดือน       1 ครั้ง / ปี       อื่นๆ .....

4. หากกล่าวถึงสถานที่ท่องเที่ยวในรูปแบบแหล่งวัฒนธรรมและเชิงประวัติศาสตร์ที่สำคัญของจังหวัด นครราชสีมา คือ

“ปราสาทหินพิมาย” ท่านมีความรู้เกี่ยวกับข้อมูลแหล่งท่องเที่ยว ปราสาทหินพิมาย มากน้อยเพียงใด

มากที่สุด  มาก  ปานกลาง

น้อย  น้อยที่สุด

5. ท่านเคยท่องเที่ยวที่ปราสาทหินพิมายหรือไม่

เคย  ไม่เคย

ส่วนที่ 3 การรับรู้ข้อมูลการประชาสัมพันธ์และสื่อโฆษณาของสถานที่ท่องเที่ยว

1. ปกติท่านรับรู้ข้อมูลข่าวสารเกี่ยวกับสถานที่ท่องเที่ยวผ่านช่องทางใด (สามารถเลือกตอบได้มากกว่า 1 ข้อ)

วิทยุ  โทรทัศน์  อินเทอร์เน็ต (ช่องทาง

ออนไลน์)

สื่อโฆษณานอกบ้าน (บิลบอร์ด, ป้ายประชาสัมพันธ์)  นิตยสาร, หนังสือพิมพ์

บุคคลที่รู้จัก (ครอบครัว, เพื่อน)  อื่นๆ .....

2. ท่านรับข้อมูลข่าวสารเกี่ยวกับสถานที่ท่องเที่ยว ผ่านช่องทางดังกล่าวบ่อยเพียงใด

อย่างน้อย 1 ครั้ง / วัน  อย่างน้อย 1 ครั้ง / สัปดาห์  อย่างน้อย 1 ครั้ง /

เดือน

อย่างน้อย 1 ครั้ง / 6 เดือน  อย่างน้อย 1 ครั้ง / ปี  อื่นๆ .....

#### ส่วนที่ 4 การรับรู้และทัศนคติต่อรูปแบบของสื่อโฆษณาที่บ้านที่ได้รับชม

(ระดับ 5 = มากที่สุด 4 = มาก 3 = ปานกลาง 2 = น้อย 1 = น้อยที่สุด)

| รายละเอียด  | ระดับคะแนน |   |   |   |   |
|---|------------|---|---|---|---|
|   | 5          | 4 | 3 | 2 | 1 |
| <b>1. การตอบสนองต่อรูปแบบโฆษณาที่ได้รับชม</b>   |            |   |   |   |   |
| สื่อโฆษณาที่ท่านได้รับชมมีการแสดงข้อมูลที่ชัดเจน  |            |   |   |   |   |
| สื่อโฆษณาที่ท่านได้รับชมมีรูปแบบที่น่าติดตาม  |            |   |   |   |   |
| สื่อโฆษณาที่ท่านได้รับชม ช่วยให้เกิดความรู้สึกเสมือนจริงที่ได้เข้าชม<br>จุดสำคัญต่างๆ ภายในปราสาทหินพิมาย |            |   |   |   |   |
| <b>2. ความแปลกใหม่ของเทคโนโลยีที่ประยุกต์ใช้ในสื่อโฆษณา</b>   |            |   |   |   |   |
| สื่อโฆษณาที่ได้รับชมมีความแปลกใหม่ ซึ่งท่านไม่เคยรับชมสื่อรูปแบบนี้มา                                     |            |   |   |   |   |
| สื่อโฆษณาที่ท่านได้รับชมมีการประยุกต์ใช้เทคโนโลยีรูปแบบใหม่ในการผลิต                                      |            |   |   |   |   |
| <b>3. ความสร้างสรรค์ของสื่อโฆษณา</b>  |            |   |   |   |   |
| รูปแบบของสื่อโฆษณามีความสร้างสรรค์ ช่วยให้คุณเกิดการเสริมสร้าง  |            |   |   |   |   |
| สื่อโฆษณาที่ท่านได้รับชม ช่วยให้เกิดการเสริมสร้างองค์ความรู้เกี่ยวกับ<br>ปราสาทหิน พิมาย ได้ชัดเจนมากขึ้น |            |   |   |   |   |
| <b>4. การรับรู้ต่อรูปแบบของสื่อโฆษณานอกบ้านที่ได้รับชม</b>  |            |   |   |   |   |
| สื่อโฆษณาที่ได้รับชม สามารถตอบสนองต่อการรับรู้ของท่านได้เป็นอย่างดี                                       |            |   |   |   |   |
| รูปแบบของสื่อ โฆษณาที่น่าสนใจช่วยให้ท่านเกิดการเข้าถึงข้อมูลของสถานที่<br>ท่องเที่ยวได้อย่างมีประสิทธิภาพ |            |   |   |   |   |
| รูปแบบของสื่อ โฆษณาที่น่าสนใจช่วยให้ท่านได้รับความรู้เกี่ยวกับปราสาท<br>หินพิมาย                          |            |   |   |   |   |
| <b>5. ทัศนคติต่ออุทยานแห่งชาติปราสาทหินพิมาย</b>  |            |   |   |   |   |
| รูปแบบของสื่อ โฆษณาที่น่าสนใจ สามารถช่วยดึงดูดความสนใจในการรับชม<br>จากท่านได้เป็นอย่างดี                 |            |   |   |   |   |
| จากสื่อโฆษณาที่รับชม ช่วยให้คุณเกิดความรู้สึกชื่นชอบหรือประทับใจใน<br>อุทยานแห่งชาติปราสาทหินพิมาย        |            |   |   |   |   |



สื่อโฆษณาที่บ้านที่ได้รับชม มีส่วนช่วยให้ท่านเกิดความสนใจในการท่องเที่ยวที่ปราสาทหินพิมายหรือไม่

ใช่

ไม่ใช่

เพราะเหตุใด

.....

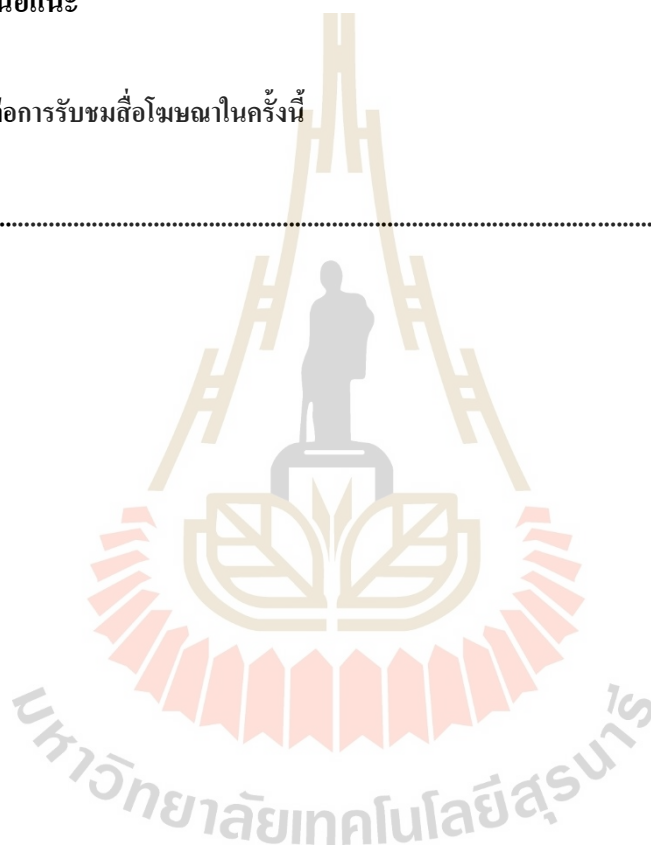
ส่วนที่ 5 ข้อเสนอแนะ

ข้อเสนอแนะที่มีต่อการรับชมสื่อโฆษณาในครั้งนี้

.....

ขอขอบคุณในความร่วมมือ

คณะผู้จัดทำ



# CURRICULUM VITAE

Entrepreneur in advertising service and marketing experience for 4 years with Out-Of-Home advertising production and 2D, 3D, motion graphic design.

## Skills

- Experience in management and dealing with a variety of people.
- Proficient in marketing service, recommendable about advertising information and operate media production.
- Application creative concept for efficiency performance.
- Responsible and implement to achieve target.

## Work Experience

- |                       |  |
|-----------------------|--|
| Dec 2015 - Present    | Founder and owner at KamdeawDsign  |
| Sep 2012 - Nov 2015   | Operation staff at Government Savings Bank                                     |
| April 2012 - Aug 2012 | Compensation Management Officer<br>at Double A International Network Co., Ltd. |

## Education

- Bachelor of Management Science degree in Economics, Khonkaen University, 2011
- Candidates Master of Management in Innopreneurship and Business Design, Suranaree University of Technology, 2019