



Faculty of Applied and Creative Arts

**Travel Needs for Tourism Apps Features for Tourist in Kuching
Sarawak**

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Tourist's Travel Needs for Tourism Apps Features for Tourist in Kuching Sarawak

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.



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ABSTRACT

Nowadays a depth information regarding tourist needs are requirements to tourism agencies and business in order to providing attraction, accommodation and transportation. Travel agencies business play an important role in creating effective apps to become the tools to boost tourism marketing. The needs of tourist must include in features of apps in details meet their desire in conjunction be guideline to tourism agencies and business. Sarawak government support to have depth research because tourism industry is relying on smart technology to attract more tourists to visit and enrich their travel experience and most tourists use smart technology which is features such as location queries, local restaurant reviews, or mobile payments through smartphones during their travel. Features on apps have many benefits in developing the tourism industry to increase the economic sector and provide travellers with the best travel experience. In the conjunction to this, the researcher analyzed further on travel needs, the impact of features of tourism apps to needs of tourist and will become guideline to travel agencies and business. To carry forward this research, quantitative method was conducted among tourist around Kuching, Sarawak. The results show tourist travel needs in Kuching are pleasure, cost of travel, feasibility includes safety and security. These aspects of features are proven give an impact to tourist travel needs and travel agencies. The final outcome of the study is a conceptual framework as a guideline to be implemented by tourism agencies and business in order to developing tourism apps for their business itself

Keywords: Tourism sector, tourism organization, apps, travellers.

***Keperluan Pelancong Terhadap Menu Aplikasi Pelancongan untuk Pelancong di
Kuching, Sarawak***

ABSTRAK

Aplikasi pelancongan sering cuba memenuhi jangkaan keperluan dan permintaan pengembara. Kadangkala, kerjasama antara pengeluar aplikasi pelancongan dan pemilik organisasi pelancongan memainkan peranan penting dalam mencipta aplikasi untuk menjadi kunci dalam meningkatkan pemasaran pelancongan. Penggunaan telefon mudah alih merangkumi butiran dan panduan untuk tarikan pelancongan ini. Kerajaan Sarawak menyelidik pelbagai strategi dan inisiatif untuk merancakkan industri pelancongan domestik dan salah satunya adalah dengan melabur dalam pelancongan digital. Aplikasi mempunyai banyak faedah. Menghasilkan aplikasi memerlukan kajian yang sesuai tentang keperluan dan permintaan pelancong atau pengembara itu sendiri. Hasil kajian menunjukkan keperluan perjalanan pelancong di Kuching adalah keseronokan, kos perjalanan, kebolehlaksanaan termasuk keselamatan dan sekuriti. Walaupun aplikasi pelancongan mempunyai pengaruhnya ke atas pelancong apabila mereka berpuas hati dengan perjalanan, bukti dalam hipotesis yang disokong bahawa penggunaan aplikasi pelancongan akan memenuhi keperluan perjalanan pelancong secara sederhana yang mempengaruhi permintaan tinggi dalam tarikan pelancongan, pengangkutan dan penginapan. Objektif tiga adalah untuk mencadangkan ciri-ciri aplikasi pelancongan untuk pelancong dan agensi pelancongan, menyimpulkan empat ciri harus termasuk kemudahan, aktiviti dan keselamatan, penginapan, dan tarikan semula jadi. Industri pelancongan merupakan bidang yang luas, sebelum produk tertentu dihasilkan dan perkhidmatan tertentu ditawarkan, pengeluar perlu menganalisis sasaran pasaran mereka.

Kata kunci: *Sektor pelancongan, organisasi pelancongan, aplikasi, pengembara.*

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LIST OF ABBREVIATIONS

A	Cronbach's Alpha
ACC	Accommodation
App	Application Feature
B	Standardized Coefficients, Beta Results
CA	Cronbach's Alpha
CFA	Confirmatory Factor Analysis
DS	Descriptive Statistics
DV	Dependent Variables
EFA	Exploratory Factor Analysis
FA	Factor Analysis
H1 @ H2 @ H3 @ H4 @ H5 @ H6	Hypotheses One, Hypotheses Two, Hypothesis Three, Hypotheses Four, Hypotheses Five and Hypotheses Six
IV	Independent Variables
KMO	Kaiser-Meyer-Olkin
M	Mean
MSA	Measure of Sampling Adequacy
MV	Moderator Variables
N	Number
P	Significant Value
PCA	Principal Components Analysis
R	Regression Analyses
SD	Standard Deviation
SIG.	Significant

T	T-test
TN	Travel Needs
TR	Tourism Attraction
TR	Transportation
VR	Varimax Rotation
<	Smaller Than
>	Bigger Than
$\hat{r}$	Relationship
(%)	Percent

CHAPTER 1

INTRODUCTION

1.1 Introduction

The tourist industry in Malaysia is expanding nowadays as a consequence of the sector's favourable economic and indirect benefits on social and national development. The arrival of foreign and domestic tourists in Malaysia is regarded as a significant contribution to the development of the local economy. According to Tourism Malaysia (2017), Malaysia received 25.9 billion visitors in 2017 and earned RM82.1 billion from their trips. The figure demonstrates the significance of the tourist industry in enhancing the country's economic value. Most significantly, the sector creates local employment possibilities while also encouraging future investment.

According to Nair and Thomas (2013), there are two benefits that contribute to Malaysia's tourist industry's development. The first is the climate, which permits visitors to visit Malaysia all year. Second, Malaysia is a melting pot of nations, faiths, history, and culture, which all attract tourists. Tourists pick their holiday destination depending on their preferences and motivations, which are directly linked to the attractions, resources, and things accessible in Malaysia, particularly in Sarawak. As a consequence, travel operators must ensure that their goods and services adequately fulfil the wants and requirements of travellers. To do this, the attractions must be publicised and promoted via appropriate media. Meanwhile, employing technology such as online apps and websites to promote Malaysia's tourist business is a fantastic strategy.

The use of technology has an impact on the tourist industry. Technology is included in ICT (information, communication, and technology). The technology, software, and data that individuals use to communicate and carry out their everyday jobs are referred to as ICT. The most important component in its implementation is the presence of an internet connection, which enables ICT to entirely change into a communication technology. Apps are a sort of information and communication technology (ICT). A human constructed them to respond to human goals and expectations in the twenty-first century.

According to Bhasin (2017), needs are the basic human requirements of basic essentials such as food, clothing, and a place to live. Education and healthcare are increasingly seen as basic requirements. Demand, on the other hand, refers to a person's desire for something that is not required. When a person has the ability to get something, desire becomes demand. Tourists are essential to the tourist business since they are the sector's target customer. According to Ren (2016), the majority of commodities are manufactured to satisfy the demands and aspirations of purchasers. Tourists are a varied demographic with a wide range of needs and interests. Their goals and preferences may help us classify them. As a consequence, each visitor has a distinct viewpoint on how they will interact with applications. They need travel software to help them locate what they are searching for. Travel app development has expanded in recent years as a result of rising traveller demand. The existence of 1.2 to 1.3 million applications in the Apple App Store and Google Play Store supports this. In 2013, app sellers estimated a total revenue of around 26 billion dollars from collecting applications, with a tremendous growth projected within five years (Statista, 2013). The number of applications available on the App Store rose to 2.2 million in 2017, while the number of apps available on the Google Play Store expanded to over 2.6 million in 2018 (Statista, 2018).

Tourism apps often attempt to forecast what travellers want and need in order for the individuals that create them to profit. To create an effective travel app, collaboration between the developer of a tourism app and the owner of a tourism company, such as a travel agency that offers vacation lodgings and activities, is typically necessary. Tourism applications are progressing by anticipating people's expectations in areas such as orientation, navigation, and communication in unfamiliar situations. Tourism applications are made freely accessible before, during, and after trips. Tourists currently utilise apps to gain additional information on their journeys for a variety of reasons. The use of applications in the tourism industry has helped travel agents as well. There are several tourism applications available to meet the demands of various travellers.

According to Sucheta (2015), travellers have varying perceptions on the value of each tourism app in achieving their goals. Before starting on a journey, tourists may utilise tourism apps to learn more about it. a digital tourism business that serves as a one-stop shop for travellers looking to organise unique activities such as swimming with sharks or shopping with stylists. These benefits will make travellers' trips more enjoyable. Tourist applications have made it much easier to acquire information and communicate with travel agents. Customers will also feel more at peace since the applications will provide them with extensive and timely information regarding their trip.

The detailed travel information given by tourism applications saves travellers time and money when planning their trips. Because there are several discounts and suggestions from different travel businesses and hotels that are instantly accessible, tourism apps give travellers with a selection of cheap vacation alternatives and ideas. Tourism applications frequently use promotional strategies such as memberships or discounts to market their apps,

especially to its loyal customers. Tourism applications provide different advantages depending on the stage of the journey. According to Black, there are five phases of travel (2015). They are fantasising, planning, booking, living, and sharing their lives. Each stage has a distinct impact on the behaviour of visitors. Tourists utilise applications to plan their trips ahead of time. While travelling, they utilise it for navigation and communication. Tourists commonly post comments, reviews, and suggestions on tourism apps so that other tourists may reflect on their own experiences or read about the pros and cons of various services before choosing on the best holiday spot and housing for their requirements.

The way a tourist organises their holidays influences their travel experiences. When it comes to seeking out new experiences, everyone of them has their own set of expectations and preferences. Tourists would treasure every minute of their vacation, even if the experience was not what they were searching for (McCabe, 2009). The trip planning stage starts with visitors picturing their vacation and ends with them sharing their travel experiences and memories with other tourists. According to Digital Tourism Scotland, the dreaming stage is a component of the travel stage (2015). Dreaming of a lovely and interesting vacation is a vital first step in vacation preparation. Dreaming is often referred to as "nibbling" in the minutes before embarking on a trip. Tourists commonly use tourist apps and cellphones to plan their trips. Tourists' behaviours and preferences will change as a consequence of using tourism applications. As a consequence, tourism applications have a significant impact on influencing and encouraging travellers to plan their trips.

The information, comments, ratings, and suggestions supplied by tourism applications impact visitor choices. According to Cristescu (2016), mobile applications have an influence on tourists' travel experiences in five categories. To begin with, mobile apps are

an important source of inspiration in contemporary tourism. Second, individuals are attracted to travel by the tourist experiences of their friends and acquaintances. Third, in line with this trend, many mobile apps use sharing facilities to promote tourist activities, which is also an impact. Fourth, advanced search algorithms in mobile applications allow for the most efficient planning of any tourist activity. Finally, key impacts include the aims of finding needs through mobile apps to study travel information on hotels, countries, or motels and buy tickets. The usage of transportation, lodging, and activity booking apps by travellers is constantly expanding as a strategy to reduce travel costs.

According to Ostlick (2016), more travellers exist in a virtual world today because they are more interested in virtual information, such as reviews, comments, and recommendations, than physical information, such as a hardcopy of a travel guide. Meyers (2013) feels that the most common source of travel inspiration is a chat with or reviews, ideas, and remarks from trustworthy personal travel companions. A discussion with a trustworthy individual through messaging systems such as Skype and WhatsApp may also be a credible source for a visitor to seek for and get information before to their journey. Some travellers would also double-check the information provided on the applications before acting on the advice. As a consequence, the material will inspire and influence how a visitor organises and chooses a vacation. Furthermore, the sharing standards in tourism apps allow many travel organisations to utilise the applications to share and market their tourism activities, goods, and services.

Each tourist app, however, has pros and cons. Producers must do thorough research on the requirements and wants of visitors in order to create an efficient and successful tourism app. According to Ramos and Rodrigues (2010), the development of tourism

applications may be enhanced if the producer raises the criteria by investigating the wants and desires of visitors. It will make the applications more distinct, distinctive, fascinating, and useful. Thus, the success of a tourist app is determined by how thoroughly and thoroughly the creator has explored and studied the target audience. In contrast to the traditional method, tourists depend on tourism applications to have things sorted either before, during, or after their vacation excursion. While certain travel firms may be biased in their brand ratings and suggestions, tourism apps give honest information. The tourist sector is diverse. Producers must analyse their target market before producing certain items or providing certain services. The data will assist the producers in better understanding how the tourist business operates and how to make their applications more successful and relevant to their consumers (Hendrik & Perdana, 2014).

1.2 Background of Study

Sarawak is Malaysia's most populous state. It is situated on the island of Borneo, which is noted for its unique natural beauty, including orangutans and the world's largest flower, the Rafflesia. Kuching, Sarawak's capital, has its own collection of tourist attractions. It is different not only in terms of its people's culture, heritage, and arts, but it also has various must-see locations across the town. Tourists that visit Kuching typically stay around the Kuching waterfront since it has the bulk of historical sites, local community location, and entertainment.

The Sarawak River, for example, is one of the attractions near the Kuching Waterfront and provides River Cruise and Perahu Tampang services. Sarawak Museum, Borneo's oldest museum, Tua Pek Kong Temple, The Astana, Fort Square, Fort Margherita, Kuching Old Court House, and Kuching General Post Office are some of the historical

buildings around Kuching Waterfront that tourists can visit to learn about the local community's arts, culture, heritage, and history. Despite the fact that travellers have varying likes and inclinations, the Sarawak tourism business is thriving. The variety of its local ethnic is is the primary factor. This is supported by statistics from Sarawak's Immigration Department, which revealed that the overall number of visitors arriving in Sarawak climbed from 4,371,748 in 2013 to 4,857,867 in 2014. Despite a dip in 2015, the number of visitors increased again in 2016, rising from 4,517,179 to 4,661,100. The total number of tourist arrivals reported in 2017 was 4,856,888. While there were 4,430,921 persons in 2018, there were 4,662,419 in 2019, 1,199,872 in 2020, and 235,245 in 2021.

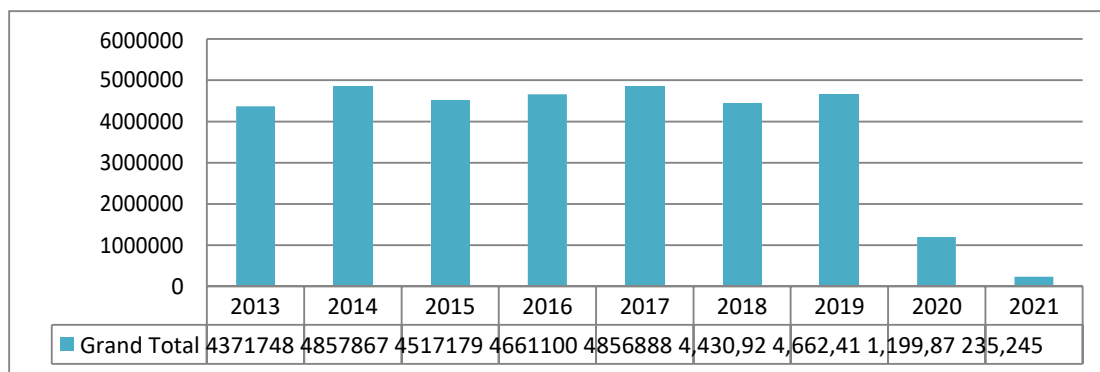


Figure 1.1: Tourist Arrival at Sarawak from year 2013 until year 2021

Source: Immigration Department of Sarawak, (2022)

The graph in Figure 1.1 demonstrates that Kuching, Sarawak, is a must-visit city for visitors, since it provides a variety of attractions and activities. To grow their company, every industrial industry demands technology. Sarawak's tourism sector, in particular, has to modify its approach to promoting local tourism activities in order to attract a greater number of visitors from both inside and beyond the state. Most significantly, it is to increase profits. Sarawak, like other well-known developed nations and states, has its own tourist applications created by the Sarawak Tourism Board. It is part of the endeavour to create a viable local

tourist economy. Unfortunately, only a tiny percentage of visitors used these applications to plan their vacations and keep track of their travel activities. The functionality and distinctiveness of the applications are two major criteria that influence travellers' choice to pick and utilise a certain tourism app. As a result, app developers must offer tourism applications that meet the majority of visitors' wants, desires, and preferences.

1.3 Problem Statement

According to Ryan (2003), travellers would tailor their demands based on their workout habits, preferences, and familiarity with items or services. Travel requirements are crucial to driving tourism success; if this seems to be self-indulgence, then tourist demands must be addressed with the delivery of services by travel agents to assure success. This process may be considered as part of tourist life enrichment, in which technology, travel alternatives, and different product offers at different sites all work together to achieve a good outcome. Lodging, transportation, and other holiday demands are dependent on a variety of factors that the prospective tourist perceives as a set of priorities right now. These priorities may change over time as you become more aware of your travel requirements.

According to Altschuler (2020), the Top Competitive Countries in Travel and Tourism list in 2019 was topped by Spain, France, Germany, Japan, the United States, the United Kingdom, Australia, Italy, Canada, and Switzerland. These countries are well-known not just for their strong cultural offerings, but also for their enormous natural resources, infrastructure, and ability to host huge numbers of visitors. Most tourism-related companies, including those in transportation, housing, food and beverage, entertainment, and associated sectors such as travel brokers and tour operators, depend on the success of their consumers. The tourism industry must be innovative and knowledgeable about related topics, such as

visitor demands, requests, and goods or services, in order to meet visitor expectations.

According to Sarawak Tribune (2018), private enterprises, in particular should have all of their goods and services accessible and entirely ready in order to deliver top-notch service with sufficient resources to fulfil visitor expectations (By, 2018). Digital technology may be utilised as a promotional tool to market their goods and services. The level of study on demands based on visitor desire should be used to influence how travel agencies business construct their business strategies. According to Suhaimi (2021) in the Sarawak Tribune, the state must seek technology-based tourism as a future route. This, according to Tourism, Arts, and Culture Minister Datuk Abdul Karim Rahman Hamzah, would assist ensure that the sector can recover from the COVID-19 epidemic.

According to the minister, it is vital for the ministry to ensure inclusive tourist development by using community-based tourism via homestays, local hosts, crafts, and souvenirs to enjoy the benefits of tourism, especially in enhancing family income. Vacation locations rely on smart technology such as travel websites, apps, and social media to attract more tourists and improve their travel experience. When travelling, most tourists use smart technology to satisfy their needs, such as location searches, local restaurant ratings, or mobile payments, which are all aspects or functionalities of smart technology. Smart technology is used across the travel industry, such as websites for destination marketing organisations, tourist apps, social media, and virtual reality experiences, to assist travellers in planning and improving their trips. Visitors will utilise a greater spectrum of smart technologies in terms of social media, apps, and websites, exhibiting smart technology's potential. A Sarawak travel app might be a wonderful promotional and marketing tool for our tourist industry. As a consequence, I hope that all of the prominent

experts attending this conference will completely study the enlarged version of this expertise.

According to Dian, Kasuma, Adenan, Nordin, and Awang (2018), operating a company in the tourist industry is difficult. Travel agencies and enterprises should be knowledgeable about the items they will handle and the practises they must implement in their company. Websites, social media, and apps are becoming prevalent in the tourist industry, particularly among SMEs. However, due to limited expertise and approaches, not all tourist providers, such as guesthouse owners, employ it in their enterprises. According to the data, only a few homestay operators completely use e-business since the majority of them are unfamiliar with technology, particularly the e-business tool. As a consequence, initiatives to encourage travel companies to improve their grasp of technology, especially tourist applications, must be prioritised. The tourism sector will utilise technology to its advantage, according to Datuk Sebastian Ting, Assistant Minister for Tourism, Arts, and Culture, by offering information for travellers and rules for travel companies (Louis, 2020). The Sarawak government will investigate a number of approaches and initiatives to strengthen the local tourism business, including investing in digital tourism. Tourism organisations may boost their chances of generating money by marketing their goods and services to a larger audience using digital technologies such as websites and apps.

According to Kenteris, Gavalas, and Economou (2008), features enable the development of mobile tourist apps with extensive content that fits to user interests. The features provided in tourism applications must be effective and distinctive in order to satisfy the travel needs, desires, and wishes of the visitors. However, the growth of tourism applications has shown a significant gap between the features and the wants and desires of travellers. Therefore, a study of visitors and their usage of tourism apps is required to

discover the missing value that can be added to build additional added value features for tourism applications.

1.4 Research Questions

In line with the study context and issue description, three research questions have been selected. A perceived lack of information within a subject area or field of study generates research questions. A collection of research questions is provided below:

- i. What are the tourists' travel needs features that can satisfy tourist?
- ii. What impact do app features have on travellers' needs and travel agencies?
- iii. How can app features become guideline for tourism agencies?

1.5 Research Objectives

The objectives of the study are as follows:

- i. To analyse travel needs features that satisfy tourist
- ii. To determine the impact of apps features have on travellers needs and travel agencies.
- iii. To propose the apps features as guideline for tourism agencies.

Table 1.1: Explains the relationship between the main Problem Statement, Research Questions and Research Objectives

Research Questions	Research Objectives
What are the tourists' travel needs features that can satisfy tourist?	To analyse travel needs features that satisfy tourist
What impact do app features have on travellers' needs and travel agencies?	To determine the impact of apps features have on travellers needs and travel agencies.
How can app features become guideline for tourism agencies?	To propose the apps features as guideline for tourism agencies.

Table 1.1 comprises two columns that are connected to one another in order to achieve the thesis's outcomes. One of the three research goals is to analyse travel needs features that can suit the needs of tourists. This goal is to analyse a list of travel needs for apps features that can be utilized by tourist according to tourist wants; travel needs features is also an important component of analysing the market segment for tourism agencies services or product supply in the tourism industry. The study's next aim is to investigate how the impact of app features connects to the fulfilment of tourist travel demands and, consequently, directly to the profitability of travel agencies. The most important app features would be the results of research based on tourist travel demands and vice versa for the tourism agency guideline.

1.6 Scope of Study

This study investigates the widespread usage of tourism applications among travellers in Kuching, Sarawak. This study also investigates the impact of tourism apps on travellers' trip experiences. The initial goal of the research is to determine the travel demands

of visitors utilising tourism applications. Although there are many reasons to use tourist applications, this research will concentrate on the most essential ones. The most critical requirements might originate from any component of the applications. It might be the navigation map or the booking services used to purchase tickets, activities, and lodgings. There is also the chance that the tourism applications would continue to fall short of meeting the requirements and desires of travellers.

Furthermore, the researcher looks at the influence of tourism app features on tourists' trip experiences, especially if the features have a substantial impact on tourists' travel demands and tourism attraction management. In general, the characteristics of tourism applications impact visitor choices, particularly in terms of vacation planning, lodging selection, and travel activities. The information in tourism applications, such as comments, ratings, and advice from other travellers, will inspire them to plan their next dream vacation.

Following that, the researcher offers elements of a prototype tourism app for usage by travellers and travel companies, who are the study's target users. Tourist travel demands and proposed tourism app features that affect visitors and travel agencies as target customers will be examined in order to discover acceptable tourism app features in Kuching, Sarawak. Every piece of information and data obtained during this study, as well as ideas and recommendations, would be utilised as a reference, especially for Sarawak Tourist's future efforts to build effective and efficient features for tourism applications. Hopefully, the characteristics of tourism applications would assist the Key Tourism Association and the Minister of Tourism, Arts, Culture, Youth, and Sports in promoting Kuching, Sarawak as a top tourist destination.

1.6.1 Location of Study

The study is being conducted in Kuching, Sarawak, using local and foreign visitors as respondents. Kuching, Sarawak, was selected as a study place because it has the potential for a variety of tourism attractions that must be promoted and explored by other visitors in order for them to enjoy the magnificent culture, history, and arts of Kuching, Sarawak. Accommodation and transportation in Kuching and Sarawak have huge development potential, given Kuching already has outstanding tourism amenities. The use of tourist applications with exceptional features would undoubtedly strengthen the tourism business in Sarawak, particularly in Kuching.

1.7 Significance of Study

Travel agencies, local tourism enterprises, and Sarawak's Ministry of Tourism, Arts, Culture, Youth, and Sports have been recognised as having relevance for the research. This research should assist the Ministry in updating its database and information on visitors who choose Kuching, Sarawak, as their trip destination. Furthermore, this research is being conducted to provide the information that travel agencies in Kuching, Sarawak, need in order to improve, advertise, and sell their goods and services based on tourist requirements and expectations. Furthermore, this study will provide travel firms with a variety of options for differentiating their goods and services. It also aims to increase the provision of high-quality services and goods.

Apart from that, the goal of this study is to boost the efficiency of the local tourist business. ways to provide their products and create their own firm apps as marketing tools. The inclusion and use of technology, such as tourist applications, should aid Sarawak's Minister of Tourism, Arts, Culture, Youth, and Sports in the development of the local

tourism industry. The features of the tourism applications will help to promote a variety of fascinating activities and experiences in Kuching, Sarawak.

1.8 Research Limitation

The research will only be limited to Kuching as a research primary data collection area. The largest state in Malaysia, Sarawak, as we all know, has a large number of provinces, each of which has its own tourism attractions and business to develop. In addition, this study only used one method, quantitative by distributing questionnaires to collect data within the Kuching area. Although the initial planning of this study was constrained by the spread of COVID-19, the researcher still intended to use the qualitative method, which involves interviewing travel agencies and tourism businesses. The travel agencies or tourism business may also produce more findings using a method like a qualitative interview. Consequently, only open-ended questionnaires were given to the visitor.

1.9 Summary

To conclude, this chapter has discussed the entire history of the study, the study's introduction, the study's background, and a full description of the study's structure, aims, issues, and research site. Aside from that, the study importance and limits were also highlighted in this chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter provides an overview of the research's literature review and background study. A literature review is required for the creation of a high-quality research study since it assists in the identification of the issue. In addition, the literature review assists the researcher in choosing the best technique or approach for answering research questions and achieving study goals. This chapter addressed previous studies on relevant subjects, such as the significance of utilising tourism applications and their influence on visitors' trip experiences. The goal is to provide readers with a quick overview of the history of Kuching, Sarawak, encompassing factors such as the history of landmarks and attractions, as well as the community and inhabitants. In addition, the researcher will examine the tourism business and applications, including the advantages and reasons that persuaded visitors to use them.

Furthermore, this chapter tracks the researcher's and visitors' trip experiences via tourism applications. It also examines numerous research that explored the availability of tourist applications, including the apps' efficiency and functionality. The review of literature is separated into two sections: theoretical foundations and conceptual framework, both of which are relevant to the study questions and goals.

2.2 Theoretical Underpinnings

A theoretical framework is made up of theories presented by experts in the topic in which you want to conduct research, which you will use to offer a theoretical basis for your data analysis and result interpretation. Swanson (2013) defines the theoretical framework as

the structure that holds or supports the theory of a research investigation. The theoretical underpinning for the thesis is more than just a collection of personal thoughts regarding the research. Rather, it is a synthesis of previous scholars' views in the subject as they relate to the proposed framework thesis. To grasp the whole argument, a theoretical framework will be utilised. In summary, the theoretical framework includes the study topic, the research question, the issue to be investigated, and occasionally even recommendations for how to handle that problem.

Theories aid in the formation of an educated viewpoint, the examination of writing, the acquisition and analysis of facts, the interpretation and discussion of results, and the formulation of suggestions and conclusions. Data discussion and interpretation cannot be written like conversational discourse in academic writing. It must demonstrate academic rigour and talents, as well as be backed by past researchers. The theoretical framework is a structure that summarises concepts and theories discovered through previous researcher analysis and knowledge, which you combine with research objectives to help develop a theoretical foundation, as well as questions for data collection, data analysis, and interpretation of the meaning contained in your research area.

The researcher examines the tourism sector and apps, including the advantages and reasons that persuade visitors to utilise them, in this theoretical framework. Furthermore, it follows a recent study from another researcher on travellers' experiences using tourism applications. It also examines numerous research that looked at the availability of travel needs, tourist attractions, and the effectiveness of the app's features in order to give a solid guideline for travel businesses. The theoretical foundations' focuses are as follows:

2.2.1 Tourism

Tourism is a social, cultural, and economic phenomena in which people travel to countries or areas other than their usual surroundings for personal or professional purposes. Their travel places are selected based on their hobbies and preferences. Visitors, whether tourists or excursionists; residents or non-residents; and tourism are related to their behaviours, some of which include tourism expenditure (United Nations World Tourism Organization, 2008).

Meanwhile, tourism is defined as "tourist activities" by the United Nations World Tourism Organization (UNWTO 2013). One of them is spending less than a year travelling to and living in regions outside of their normal environment. There are several reasons why travellers want to go to certain holiday places outside of their typical surroundings. It might be for pleasure, business, or something else different. Tourism is one of the most significant components of a country's economic growth. It not only accelerates global economic development, but it also becomes a vital engine of social growth inside a community.

Tourists leave their hometown to learn about a community's culture, history, tradition, and way of life firsthand. Learning about these topics via books or movies is not the same as learning about them from your neighbours. Tourists may get a real understanding of the local people's culture, traditions, and way of life by visiting the actual location and its surrounds. In a nutshell, these distinguishing traits and unforgettable experiences are the major factors that lure travellers to visit a country and learn new things.

2.2.2 Tourism Industry

According to Holden (2006), every nation in the world develops its economic sectors via tourism. As a result, in order to attract more visitors, each nation must emphasise its individuality and originality. Furthermore, the national governments are responsible for delivering excellent services in their tourist industry. Efficient services are critical since every visitor wants to have the greatest travel experience possible. In summary, a variety of attractions and high-quality services will entice and encourage more people to visit.

The tourism business in Sarawak is one of the most significant contributors to the local economy, according to the Sarawak Tourism Board (2018). Recognizing this, the Sarawak government seeks to encourage the economic development of the tourism sector. The first step is for the Malaysian Government's Economic Transformation Plan to establish tourism as one of the country's important economic regions, with an emphasis on the range of alternatives and values in order to capture a bigger share of visitors' wallets. The Sarawak government also plans to employ technology to boost tourism. Meanwhile, the tourist business is experiencing significant transformations as a consequence of the use of technology and information and communication technologies (ICT). By 2020, Malaysian tourism is expected to attract 36 million visitors and generate RM168 billion in income.

Sarawak Tourism Board is presently working to enhance high-value tourism in the state. Luxury tourism, adventure and ecotourism, meetings, events, and corporate tourism are all examples of this. To promote Sarawak as a tourist destination, several types of tourism will be emphasised as the key attractions. However, ecotourism has the most development potential and opportunity since Sarawak is a state rich in natural beauty, culture, tradition, history, and various local populations. Because of the existence of diverse ethnic groups,

several festivals may be celebrated, making Sarawak even more enticing and genuine to visitors. Kuching also boasts a number of institutions that exhibit Sarawak's distinctiveness, such as Kampung Budaya Sarawak, the Sarawak Museum, and Bako National Park. These institutions may be among the variables that affect travellers' decision to visit Sarawak.

2.2.3 Tourism Motivation to Travel

Kuching, Sarawak, is a well-known tourist destination in Malaysia. Motivational theories are among the most often used ideas among academics in this field. The three primary reasons for travellers to come are culture, shopping, and dining (Lee, 2015). According to Fodness (1994), the most fundamental explanation of motivation is an active process of psychological components inside the human, including wants, desires, and goals, that will dissipate tension within the human mind and body depending on human preference and desire. Every place, according to McIntosh (2000), has its unique set of attractions. There is generally something unique about an area that draws people in. It might be the effect of a recent occurrence that encouraged travellers to choose a certain region as their trip destination. Understanding what inspires visitors to travel is the greatest way to provide the finest services or sell things. Every visitor to Kuching has their own reasons for coming. Visitors to Kuching are drawn in by both push and pull factors. It might be because of their interests or the influence of others. Humans will take action to fulfil their wants and desires as a consequence of the tension.

These attractions identify the factors that influence visitor choices. All natural and man-made resources, as well as culture, tradition, and history, are included. Only a few examples include events, architectural components, traditional artwork, leisure, entertainment, food, music, and handicrafts. The Sarawak Tourism Board (2015) lists 30

pleasurable things to do in Kuching, Sarawak, divided into categories such as culture, heritage, nature and wildlife, food and cuisine, fun and nightlife, leisure, and shopping. In conclusion, Kuching, Sarawak, has its own distinctive attractions that entice travellers. Culture in the tourist industry has had a big influence on a country's economy and has been a component of urban tourism for the last 20 years. Anthropologists emphasise that culture is a way of life in specific communities, and its accessible assets, which include both material and intangible goods, form the place itself (Jensen, 2007). This kind of thing is likely to attract tourists from beyond the region. As a consequence, tourism culture has become a driving force behind tourist travel. Furthermore, cities provide opportunities for visitors to connect with the local people via culture. As a consequence, culture is no longer restricted to the visual usage of artefacts like galleries, theatres, and architecture, but also includes the adaptation of the environment for tourism (Galdini, 2007). Tourists in Sarawak may stay with natives and engage in activities like as handcrafting jungle things, learning cultural dances, and seeing native women weave the stunning traditional Pua fabric on an old back-strap loom.

Food is also mentioned as a motivation to travel in general, since it is a tourist resource that service providers may use to sell a site, such as a local restaurant or accommodation, as well as to brand the area. Local cuisine is characterised by its national and regional hallmark dishes (Björk & Kauppinen-Räsänen, 2016). The originality of the food connected with Sarawak, which has become a part of the local culture and history owing to the mix of races in the state, draws visitors. Consider the following scenario: local food has become a tourist attraction, and travellers go to discover and enjoy local cuisine. Kuching's food is diverse, savoury, and unique. It is suitable for adventurous travellers who

are prepared to take a risk on the food. Sarawak Laksa, Mee Kolok, Bubur Pedas, Manok Pansoh, Sarawak Layer Cake, and a variety of other authentic Kuching dishes are offered.

Shopping is a popular leisure and entertainment activity for tourists, and it is also one of the driving motivations behind travel (Hughes, 1989). A vacation isn't complete until you spend money on shopping, since every tourist must pay for something and buy something to remember certain areas. Travelers in general like purchasing mementos from their adventures. Tourists are always seeking for something unique and different from what they could find at home. Kuching, Sarawak, is famous for the uniqueness and beauty of its indigenous handicrafts, such as Pua Kumbu cloth, beaded necklaces, and rattan goods.

A tourist destination is a central place with attractions that provide travel amenities and services (Kim & Brown, 2012). It is also a venue where tourists may engage in a range of tourism activities. Zabkar, Brencic and Dmitrovic (2010), identified the 4A's and 6A's theoretical frameworks for destination qualities. Attractions, Access, Amenities, Available Packages, Activities, and Ancillary Services are represented by the 4As, while the 6As represent "Attractions, Access, Amenities, Available Packages, Activities, and Ancillary Services." While researching tourist destinations, Royo-Vela (2009) discovered that monuments, museums, theme parks, beaches, ski resorts, and natural parks were picked because they influence the destination's attractiveness. In addition, Mahika (2011) revealed that visitors choose recreational tourism sites in order to participate in recreational and leisure activities. According to Sarawak Tribune News, as reported by Karim (2017), national parks are still a prominent tourist destination in Kuching. This is because of the diverse biodiversity, attractiveness, and unique landscape and creature sorts. Bako National Park, Semenggoh Nature Reserve, Kuching Waterfront, and other national parks and

tourist attractions are well-known in Kuching.

2.2.4 Tourism Attraction

Tourism attractions might include housing availability and comfort, which influence the amount of people who arrive when their needs are satisfied. In order to suit visitors' expectations and aspirations, lodging facilities cannot be separated from the attractions given by the tourism sector, and when travellers are away from their intended destination, housing is one of the most important elements to consider. There are various hotel alternatives for travellers in the tourism business (Dolnicar, 2017). Size, affordability, tourist attraction proximity, and comfortability are all aspects to consider. Tourists may utilise tourism apps to learn more about hotel alternatives and choose the one that best fits their needs and budget. Airbnb, for example, gives additional information on unique tourist experiences and holiday ideas in addition to lodging. Some tourists may want low-cost lodgings, while others may prefer maximum comfort; this is dependant on the tourist's preferences. Furthermore, the hotel has been utilised as a starting point to analyse visitor preferences at demand-side sites (McKercher, 2018).

Because of their natural beauty, pleasant surroundings, geography, culture, and traditions, beaches are a popular tourist destination. Beaches each have their own individual attractions that may persuade visitors to choose one location as their holiday destination. Beach attractions are well-known in travel places such as Bali, Indonesia, and the Maldives, for example. Natural, social, and economic resources are represented by beach tourism (Zadel, 2016). Beach tourism is dependent on the natural environment. According to Kirubashini and Ameen (2019), beach sand, waves, security, and visible vistas are elements that may entice tourists to satisfy their demand for healing sentiments and increase their

satisfaction in tourism experiences. As a consequence, beaches are one of the deciding factors in travellers' selections to visit a certain location. Beaches are popular recreational sites that attract tourists to the water and, as a consequence, to the businesses in the surrounding region. Beach tourism is also one of the most popular kinds of tourism across the globe, and it is a significant economic driver in many locations (Alves, Benavente & Ferreira, 2014).

Tourist destinations according to Benckendorff (2014), tourist attractions are an essential feature of tourism destinations because they offer culture and entertainment and are one of the four main sectors of the tourism system. Attractions are present inside a tourist location and serve as the basis for the product and service offerings. It is impossible to establish a tourism site that lacks potential or natural tourist attractions. Nowadays, man-made facilities, such as amusement parks like Disneyland, have become tourist attractions, but this sort of entertainment also includes culture and history. There are several sorts of attractions, but not all of them may be used for tourism; thus, those that can must be labelled as tourist attractions. Tourism attractions are one of the primary reasons people visit an area and are considered essential tourism resources. Tourism attractions, according to Inskeep (1991), may be divided into three types: Natural Attractions: Nature attractions include wildlife sanctuaries, sunset and dawn panoramas, national parks, beaches, mountains, rivers, and other natural occurrences. Human activity creates culture and historical attractions, such as Sarawak Culture Village in Kuching, which exhibits a range of ethnic dwellings and dance shows. Tourists are also drawn to historical structures like as Kuching's Old Courthouse. With current knowledge and their own motivation, distinct attractions entice visitors to visit, which creates a push element to encourage people to visit a place that fulfils their requirements and objectives.

2.2.5 Management of Tourism

Management, according to Darr (2015), is a process composed of intertwined social and technical functions and activities that accomplish organisational objectives via people or the use of other resources and are carried out inside a formal organisational structure. A manager is the most important function in an organization's management since they are actively engaged in the decision-making process. Managers are usually referred to as the company's leaders since they have been granted authority and may influence the whole workforce to fulfil the organization's objectives. The five management functions are planning, organising, managing, directing, and staffing. Every industry has its own method of managing an organisation that is built on the same elements and functions.

Management is also used in the tourism industry to ensure that each work is handled methodically. Tourism management organisations are classified as either government or non-government. Both types of organisations are committed to ensuring that the tourist sector can adapt to changing circumstances. Pender and Sharpley (2015) define tourism management as the government's role in managing information and communications technologies (ICT) for tourism, destination marketing and the environment, international tourism management, crisis and ethics in tourism management, and heritage enterprise management for livable host communities. The non-governmental sector, on the other hand, helps to preserve all tourism-promoting media.

Tourist management, according to Andrades and Dimanche (2015), may also be defined as the management of all activities associated with the tourism business. Students will learn about various types of tourism, geographical environments, destination awareness, development, and management, market segmentation, tourist goods and services, tourism

impacts, and tourism trends in this lesson. It requires supervising a variety of responsibilities, such as researching tour destinations, planning a trip, arranging travel arrangements, and providing housing. It also includes marketing attempts to attract visitors to certain regions.

2.2.5.1 Pleasure

Everyone has their own style of life in which they seek enjoyment, release stress, and find peace. One solution is to go to other locations where individuals may need to escape, relax, and get relief from the physical and emotional pressure caused by typical sun lust. According to Saayman (2006), seven socio-psychological factors influence the decision to travel: escape from one's everyday environment, self-discovery and evaluation, relaxation or participation in recreational activities, gaining a certain level of prestige, strengthening family ties, and facilitating one's level of social interaction.

The importance of pleasure in visitor satisfaction becomes a conduit for enticing individuals to join in activities or visit a certain location. The history of tourism models also shows that pleasure travel is preferred above other sorts of travel. Tourists enjoy both personal and business travel, with tourism being one of the most significant aspects of both domestic and international tourism. Pleasure in tourism should be considered since it is a trend that may change over time. Pleasure is defined as finding pleasure apart from one's daily life and spending one's spare time for non-work purposes. Every action may be designed according to one's tastes and preferences without regard for other factors (Page and Connell, 2020). Pleasure has a special appeal in the hearts of tourists because our lives appear to be dominated by the never-ending chase of pleasure and happiness above other goals, and few other pastimes in life better demonstrate the dynamics of this search than travelling to new locations away from home (Terkenli, 2002).

According to Mansfeld and Pizam, these feelings of pleasure and discontent, like joyous and sorrowful travels, were generated by the rhythm of the way of life that was so much a part of the human being's daily existence (2006). Every tourist need delight while travelling in order to achieve a higher level of satisfaction. As a consequence, tourist services and goods are investigating ways to satisfy or fulfil visitor joy. Dopamine is a neurotransmitter that is involved in the stimulation of human senses as well as the initiation of desire. Russell (2005) claims that the state in his model linked to pleasure influences desire fulfilment. This problem motivates visitors to fulfil their desires and interests in order to satisfy their need for pleasure.

According to Currie (1997), "tourism" is pleasure travel, where pleasure is defined as a sense of happiness, satisfaction, or joy. Their trips offer visitors with happiness and a feeling of accomplishment, which has an effect on both the mind and the body. As a consequence, "pleasure tourism" refers to the travel-based pursuit of such feelings. The fundamental purpose of tourism, according to the UNWTO (2007), is pleasure. Tourists, according to Smith (1989), are human beings striving to find a briefly leisured person who consciously travels to a destination outside of their home to enjoy a change from their everyday routine. When something is judged desirable, the experience or prospect of it provides pleasure based on the visitor's curiosity, wants, and the fulfilment that will thrill them. Some basic requirements are necessary for pleasure tourism to occur, including a personal desire to experience a change via travel, the voluntariness of the decision, free time and activities, and, most importantly, their safety while travelling.

2.2.5.2 Accessibility

Tourists refer to learning about or visiting sites that are conveniently accessible when travelling. The accessibility fee includes lodging and transportation to and from the tourist site. Tourists are a diverse group of individuals, and not all of them are fortunate; some are also handicapped people who like travelling and seeing the globe. Good accessibility when travelling is one of the demands of travellers that the tourism industry must address. Aside from that, accessible facilities and attractions give a wonderful tourist opportunity for persons with disabilities, which is also a problem that has to be addressed so that tourism may be a better industry. According to the tourism industry motto "Tourism for All," every human being on the planet should be able to experience the delight and fulfilment of travel (Burnett & Baker, 2001).

The tourist industry is a complex system of independent providers managed by the tourism industry as a supplier with the purpose of keeping the client satisfied with the services or goods provided. A variety of tourism-related businesses are involved, including tourism attractions, handcrafted products, travel agencies, lodging, transportation, and the use of technology, all of which frequently have conflicts relating to the tourist's accessibility in relation to their needs, wants, and interests. The overall tourism system is characterised by five aspects that concentrate on tourist goods and services to achieve commercial success.

The enlarged framework below also demonstrates the connection of the six "A's," which are critical for analysing every component in the tourism industry that determines tourist travel demands while at a trip site. These include amenities, attractions, supplemental services, activities, available tourist packages, and accessibility. Accessibility encompasses not just the transportation component of the system, but also all parts of the

customers' information need chain. These "A's" represent amenities (such as hotels and restaurants), attractions (such as museums), auxiliary services (such as health care), and activities inside the tourist destination. Several tourist packages are offered via travel agencies, tour operators, and other intermediaries, and today, owing to technological improvements, tourism packages are available through tourism apps, making them more accessible. All active actors in the tourism sector have incorporated the systems and information that travellers commonly demand to market the tourism industry, as tourists require to fulfil their desire and taste in the region that they have selected to visit (Buhalis, 2003).

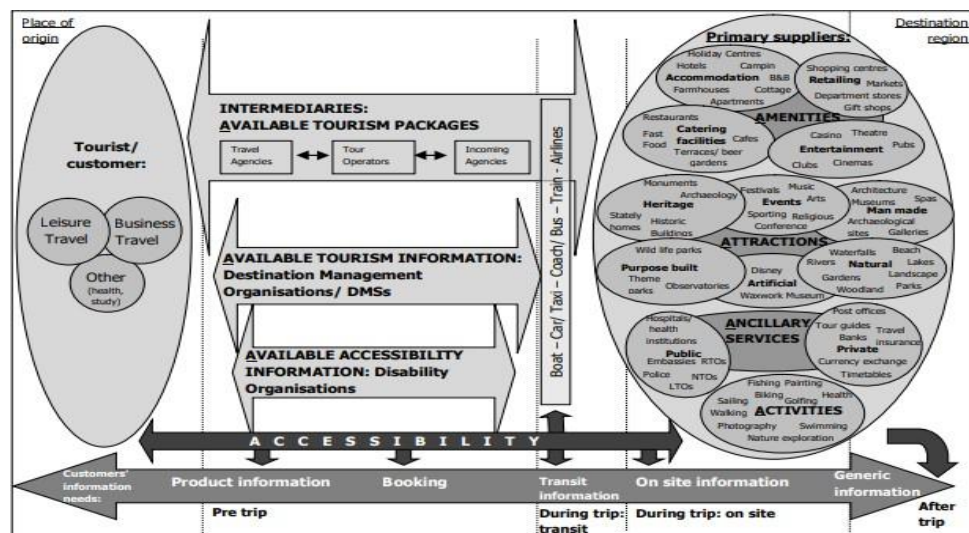


Figure 2.1: The Impact of Accessibility toward Tourist

Source: Buhalis (2003)

The most rapid and extensive technological advancements in human history have resulted in significant changes in economic, political, social, and judicial institutions. Travelers recognise these advances and their influence on the tourism business in terms of happiness and experiences. Within the framework of these changes, some trends that are expected to have a favourable long-term impact on the current structure, such as the use of

social media and apps to market their products, may help societies or businesses function better than before. While every detail information on a tourist attraction in a tourism location can be included in one tourism app to show good facilities in terms of transportation, tourism attractions, lodging, and locality of maps give an impact on tourist accessibility directly can influence a tourist to visit upon that also satisfy tourist travel needs. Tourists who wish to experience it for themselves are lured in by the availability of information and the possibility to learn about what is going on in other locations (Tanrsevdi & Cavus, 2003). Specialized technology and tourist organisations may collaborate to improve service evaluation in a country's tourism industry. Travelers are drawn to this nation because transportation expenses are inexpensive in Thailand, India, and Malaysia (Connell, 2006).

2.2.5.3 Feasibility

According to Purnaya, Semara, and Saputra (2009), tourism feasibility is a need for tourists when travelling due to the flexibility that may improve their experience in the tourism industry. The tourism industry has conducted its own analysis on the variety of trip demands. The ease or difficulty with which someone may access the hurdles to doing something in the way they wish until they succeed is referred to as feasibility. When choosing a job objective, consider the long-term viability of your aspirations. In the conventional tourist mode, the tourism business is still unable to match the demands of today's guests, as it was many years before. While on vacation, an increasing number of people seek physical pleasures and fulfilment. Tourists arrange tour itineraries before visiting unknown picturesque places to maximise their tourism experience. Tourists have preferences as well as time and financial constraints, therefore they often design vacation itineraries using information from travel books, personal travel blogs, or acquaintances. Many variables impact tourist demand for tourism destinations, according to Cenamor,

Ronnberg Sjodin, and Parida (2017), including the following:

- i. Tourist attraction factors that pay attention to enticement (attraction), accessibility and feasibility (transportation), amenities (facilities), and ancillary services should be increased where there is a powerful attraction of natural tourism objects to attract tourists' interest,
- ii. Tourist attraction factors that pay attention to enticement (attraction), accessibility and feasibility (transportation), amenities (facilities), and ancillary services should be increased where there is a powerful attraction of natural tourism objects to attract (institutional).

In that research, tourist feasibility is divided into seven categories, each of which influences visitor feasibility, such as their desires while travelling to seek tourism attractions. This part highlights how, in the new age of tourism, employing tourism apps will bring several benefits in terms of marketing and supplying tourist needs and expectations in order to suit their wishes and preferences. The usage of mobile technologies in the tourist industry has grown significantly in recent years. Innovative strategies led by research and leveraging new technologies will enable new ways to manage and market competing destinations for the benefit of visitors in the future. Tourists will find recommenders to be an appealing option for handling the challenge of planning an itinerary for a few days of touring in a tourist region (Lu, Fang & Tseng, 2016). To ensure that visitors' needs are satisfied, the tourism feasibility factor is divided into seven categories:

- i. Attraction is a factor that encourages people to visit and sightsee an attractive location

- ii. Accessibility is the ease with which public transit is available
- iii. The state of the community's social and economic environment within a one- kilometer radius of natural attractions
- iv. Vehicle availability within a 15-kilometer radius of the natural feature is considered accommodation.
- v. Supporting amenities and infrastructure, such as a souvenir shop, café, prayer place, and restrooms, to ensure tourist happiness.
- vi. Travel comforts and decent road conditions are markers of safety.
- vii. Relationships with both comparable and dissimilar tourism attractions.

2.2.5.4 Cost

Tourism is one sector that provides an expenditure that drives economic activity in each of the world's countries, and consumption of tourism activity is as important to measuring the economic measurement of tourism and the foundation of its economic effects as the study of tourist costs while spending for a travelling session. Higher tourism activity consumption in that country is dependent on the services and goods given by tourism supply firms that develop their products and services depending on the trend of tourist travel demand. The expansion of a country's tourist industry has a substantial influence on the country's economic sector since tourism is one of the most important businesses that contributes to the country's revenue (Mihalic, Sharpley, & Telfer, 2002).

According to Eugenio-Martin and Inchausti-Sintes, identifying the factors that influence tourist consumption behaviours and estimating the effect of these factors on tourist

cost and spending while travelling has its own patterns that are influenced by their preferences, needs, demands, and desires that become important factors are important factors (2016). In terms of destination and tourist activity information, this knowledge may help visitors scan essential criteria so that they may choose which component is most relevant to them, and the results will be based on that method. It will either be lucrative for tourists or will not meet their expectations as a tourist who will experience that sort of atmosphere that suits their choice and taste when travelling in that vacation place. Visitors who are satisfied with the services given will stay longer and spend more money during their holidays, as well as urge their relatives to visit places where they are satisfied with the services supplied. Tourists often share their expertise and experiences with other travellers, which may be used to choose a vacation spot (Lin et al., 2015).

Indeed, travellers must make several small financial decisions, such as tourist activities, hotels, restaurants, and transportation, all of which are dependent on their tastes, wants, wishes, and preferences (Park et al., 2013). a collection of trip-planning choices impacted by the tourist's personality. In terms of spending category, the precise deciding factor influencing visitors is not anticipated to have the same affect on all of them. The deciding factor may have varied impacts on different sorts of expenditures depending on its size (within expense-category analysis). The difference could refer to tourist income and tourism activities based on the tourist nature of life, and the effect of prices can differ between the supplier's products and services, such as types of accommodations and restaurants, but it can also differ within accommodations depending on whether the level of expenditures in accommodation is high or low.

According to Garin-Munoz and Montero-Marti (2007), tourists are always cautious

and selective with the prices offered for tourism activities and facilities, so tourism studies on tourist travel require a link between the supply of services and the demands of tourists due to the pricing of tourism activities, accommodations, and transportation in the tourism sector. Because of the enormous influence on that component in a tourist's decision-making process, the bulk of research in tourism attractions, housing, and transportation has focused on tourism pricing, or relative price, which measures a tourist's cost of living at a location. The cost of travel includes the cost of products and services utilised by visitors at the destination, such as activities, transportation, and housing. The "travel cost" or "transportation cost" is the cost of travelling from the tourist originating country to the destination, and it accounts for a significant amount of the total trip cost. While lodging is the expense of a tourist's stay in a region while they are away from home.

2.2.5.5 Safety

Safety in tourism, or when visitors travel, is an important factor that must be emphasised by all tourism enterprises, whether they provide transportation, activities, housing, or tourism goods. To make visitors feel at ease, the items and services for sale must follow standards and procedures that ensure tourists' safety at all times. According to Kaplan, Szybillo, and Jacoby (1974), tourists will always consider the safety of physical, psychological, social, financial, and overall perceived risks information before travelling, as they believe that is the most important factor in influencing tourists to choose and plan their itinerary. External environmental hazards, such as natural and man-made disasters, may jeopardise tourists' safety. Terrorist attacks, political crises, economic recessions, and natural disasters have all posed a danger to visitor safety and impacted the tourism industry's profitability throughout the previous decade. These disasters and crises have provided enormous challenges to the tourism industry's survival and recovery, since disasters have

emerged as one of the key factors that, if travellers take them seriously, might hinder the industry's long-term development (Khazai, Mahdavian & Platt, 2018). One of the most important prerequisites for persuading tourists to purchase goods and services is to assure their safety. The tourist's keen interest in the offered commodities or services would have an impact on the tourism industry's direct revenue to the nation.

Tourism is an industry whose supply and demand are sensitive to disasters such as the current epidemic impacting all nations. Covid-19, a disaster that may compromise tourist safety, lowered the supply and demand for tourism-related commodities (Vincent, 2014). Disasters and harmful events not only physically destroy tourist destinations' tangible assets (facilities and infrastructure) in a short period of time, but they also make long-term rebuilding of the destination's reputation and image challenging. Visitors will almost likely cancel their trip plans if they hear that their vacation to a destination may jeopardise their safety due to the sensitivity of the tourism demand for safety. Goods sales in tourist areas will decline (Zhang, 2005). As a consequence, many tourists are concerned about the safety and security of tourist attractions and areas they want to visit. According to Leiper (1990), the following is a list of catastrophes:

- i. Natural catastrophes
- ii. Natural calamities caused by humans.

The current emphasis on crime rates, terrorism, food safety, health issues, and natural catastrophes has been a significant cause of concern. Malaysia's reputation as a safe and secure destination was damaged a few years later, and a new horrible event this year has affected Malaysia's image in the tourist sector, impacting passengers' judgements on whether or not to visit the country. Health issues, terrorism, the Lahad Datu intrusion, recurring

kidnappings and killings in Sabah, the twin airlines incident, riots and unlawful rallies, and erroneous foreign media reporting all provide fresh challenges for Malaysia's tourist business. Although some occurrences may have a short-term effect on the Malaysian tourist industry, they have a substantial impact on the Malaysia branding process in terms of recovering visitor trust in the country's ability to ensure their safety and security while visiting. When dealing with this scope, three concepts are utilised, but the most usually used are safety and security. Some writers, on the other hand, choose to combine the concepts of safety and security into a single phrase, certainty. As a consequence, methods have been developed to ensure the comfort, safety, and well-being of Malaysian tourists. Malaysia's dedication to and prioritisation of safety issues was evidenced by these steps. This aspect is crucial to providing high-quality tourism, and the success of a tourist destination is dependent on its capacity to provide a safe environment for guests more than any other economic activity (Johnrose, 2014).

2.2.6 Travel needs using the application

Each tourist has unique travel requirements depending on their interests, preferences, and requirements. Human beings are required to have needs in order to live a happy existence. According to the North American Industry Classification System (NAICS 2007), there are five different types of travel requirements:

- i. Accommodation
- ii. Food and beverage services (often referred to as "F&B").
- iii. Recreation and amusement
- iv. Transportation

v. Transportation services

Nowadays, technology is extensively utilised, and every human being of any age recognises the value of utilising technology and the internet. Some individuals got little information, while others received a lot, and this makes the internet a part of everyday life. The reliability of the internet, as well as its speed, efficiency, and infinite, become elements that tempt consumers to utilise it for the extensive transmission of information depending on their requirements. Information, communication, and technology (ICT) are frequently used regardless of place or time. Tourists, as clients, use travel apps to suit their needs in the tourist business. This is particularly true in the tourism marketing and communication fields. Even if a tourist destination is hundreds of kilometres distant, it is just a mouse click away in the virtual world. Virtual travel is described as exploring a visual representation of a tourist attraction in the blink of an eye. Mobile application tools may become marketing tactics that speak directly to tourist travel wants because they organise tourism locations based on information acquired from tourism apps or websites. Using tourism apps to search for travel paperwork, immigration bureaucracy, transportation prices, hotel costs, and other information, one may enjoy a tourist site without having to physically be there. Alternatively, a visitor who intends to visit a tourist site in person just has to follow the information accessible on different social media platforms in today's virtual world rather than interacting with people, local societies, or travel agencies associated with the tourist destination. Tourism communications, often known as "e-Tourism," have fully embraced ICT (Janet et al., 2014).

According to Liu, Mehraliyev, Liu, and Schuckert (2019), travel applications are the sixth most popular category of most downloaded apps, and 60 percent of travellers prefer to

use mobile apps while travelling. This is one of the tested applications of travel apps that is crucial to improve the traveler's experience. Visitors' choice of tour location is influenced by six indicators of features that become tourist needs when using travel apps, including the tour visit destination, transportation, housing, food, and tourism activities such as shopping and leisure activities. The influence of utilising mobile apps to make a journey go more smoothly has been widely examined. Tourism research has looked at the development and basis of e-tourism, which always connects to the travel demands of tourists while using tourism apps. They aid travellers in integrating ICT into their physical infrastructure in tourism locations as the cornerstone for the whole operation of e-tourism, according to the important component of features in tourism apps. Without this tourism application option, a journey would be traditional or old-fashioned.

However, the use of technology, such as the availability of a website and apps, guarantees that the tourist business continues to expand and overcomes obstacles. Mobile technology is intended to address long-standing issues, such as promoting the tourism sector on a technical basis. These challenges include precisely and continuously determining the impact of tourism, analysing mutual interactions between tourists' needs and the environments of travel destinations, monitoring and analysing mutual interactions among other activities at the tourism destination, and assisting tourism planning and development by identifying tourists' needs and expectations (Moscardo, 2011). The rapid growth of ICT in the tourist sector has had a direct influence on the transition of the traditional tourism industry to the era of e-tourism, and smart technologies are now extensively used in the industry. Smart technologies seek innovative ways to give unique experiences to travellers by addressing their needs and extending the destination co-creation space (Neuhofer, Buhalis, & Ladkin, 2012). From the perspective of tourists, the function of smart

technology in travel has become more important.

While using this tool, the trend that combines technology in many tourism-related firms has adopted a variety of smart technologies to market and sell their places depending on tourist requests. To develop an e-tourism destination, the government and major tourist organisations typically use an evaluation system based on smart city policy. As an inherent component of the experience, smart technologies have become a vital feature of travel. The majority of travellers use smart technology to suit their travel needs, such as location searches, local restaurant reviews, and mobile payments through smartphones, when travelling. Websites, tourist software, social media, and virtual reality are all used to assist travellers in planning and improving their trips. (Wang, 2018).

2.2.7 E-Tourism

E-Tourism is the use of information technology in the tourism industry to change procedures and boost the sector's effectiveness and efficiency. The Internet has altered client preferences and service delivery techniques. Customers have grown much more savvy and discriminating as a consequence of excellent service, and their quality of living has greatly improved. As a consequence, travellers have become more demanding, expecting high-quality goods, good value for money, and good value for their time; yet, many tourism industries continue to use outdated strategies, failing to attract both internal and foreign visitors (Okwemba & Nambiro, 2020). For example, in the tourist business, technology aids in the development of programmes that provide suggestions and tailor trips. As a consequence, travellers may learn about a certain city and its activities while arranging their holiday. These apps also arrange information according to the tourist's budget and preferences. E-tourism, in a nutshell, is an online application that assists tourists before,

during, and after their visit. Tourists may utilise the application's recommendations and ideas as references before deciding where to go.

2.2.8 Tourism Apps

Tourism apps that combine all trip aspects in a one-stop solution, according to Travel Daily News (2021), are crucial to improve travel experiences. Despite the fact that 90% of individuals prefer to plan their vacations online, travel companies are experiencing problems growing their businesses via online travel apps. Several organisations report that, despite substantial effort and financial commitment, travel apps usually fall short of expectations. Tourists typically expect tourism apps to filter through intriguing information and propose the best vacation for their requirements. The budget is the most important criterion to consider when screening services or items in order for visitors to receive the greatest bargain. Since a consequence, the tourism app designer must guarantee that the app's features can match the demands and desires of visitors, as this will determine the app's efficiency.

First and foremost, the applications must deliver useful information to users in order for them to organise a trip. The information must be correctly separated. Nature and wildlife, education, culture, tradition, history, and cuisine, for example, are all types of sites of interest. Apps' operating systems may likewise be customised in this manner. When tourists plan their journeys in this country, they may begin by reserving an airline ticket, then a hotel room, before moving on to picking real things to do at the travel location, all of which are suited to their wants and desires.

Recommendations and ideas on hotels and activities depending on the visitors' budget may also be included as elements of tourism applications. Tourism applications, in any case, assist travel organisations in marketing their enterprises and travellers in

personalising their profession. Tourism app developers are therefore urged to engage with travel organisations to get information about visitors in order to build app features that correspond to that information. Tourism applications may be completely used by travel organisations to promote their enterprises or sell their services and goods. Collaboration is essential for developing applications that can meet the interests and expectations of travellers.

2.2.9 Technology Acceptance Model in Tourism Apps

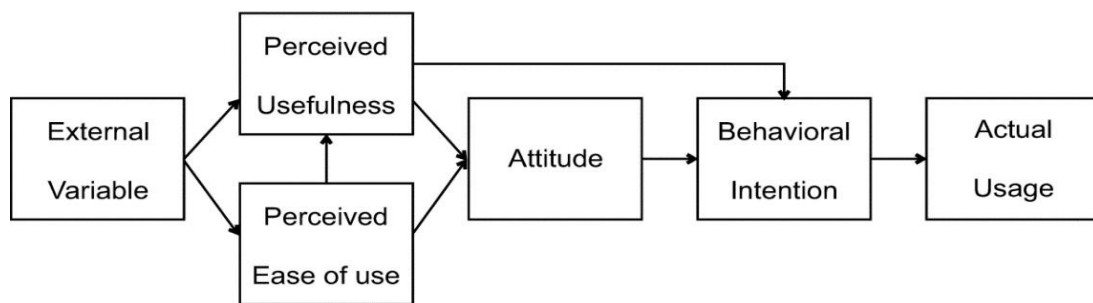


Figure 2.2: The Technology Acceptance Model

Source: Davis (1989)

Davis's Technology Acceptance Model (TAM) was discussed in the model above (1989). The TAM model displays the relationships that may be utilised to influence an individual's acceptable actions. TAM is a powerful and accurate term that describes how to influence everyone's system usage based on their perceptions of their needs and desires for any product or service. This model is used to influence people's decisions and has an effect on model application technologies in the tourism sector. The following are the two TAM structures:

- i. The Perceived Utility (PU)
- ii. Ease of Use Perception (PEOU)

Many previous studies have utilised TAM to establish the theory's significance in influencing technology adoption. The usage of technology applications in the hotel and tourism industries has increased dramatically in recent years (Oh, Jeong & Baloglu, 2013). These technologies have had a tremendous influence on tourist enterprises' competitiveness as well as the visitor experience. Many travellers and businesses consider the Internet and mobile information and communication technologies to be very useful channels for not just communication, but also travel things such as airline tickets, hotel stays, and rental autos. According to Kim, Park, and Morrison (2008), the most important parts of the tourism sector that use technology to attract more tourists and improve services or products to become more efficient are self-check-in kiosks, electronic tourist guides, tourism information kiosks, self-service systems in dining facilities, hotel self-check-in, and automated hotel check-out (2008). According to Oh, Jeong, and Baloglu (2013), there are seven major technical scopes, which include:

- i. Hotel technology adoption
- ii. Low-cost-carrier technology adoption
- iii. Acceptance Theory is a preference utilised in tourism research.
- iv. The usage of travel apps by tourists,
- v. Tourists' usage of mobile devices to arrange their trips,
- vi. Online purchasing habits and,
- vii. The use of self-service technology in dining establishments

The user-friendly characteristics of the application that might assist tourists in exploring it more readily. Many research demonstrate that ease of use influences consumers' new technology application adoption (Yoo, Kwon, Na & Chang, 2017). According to Okumus and Bilgihan (2013), past study has shown that the model can impact another person's decision regarding their trip plans.

2.2.10 Mobile Application

Recently, with the pervasive adoption of mobile commerce, the use of mobile telephony has soared. Everyone today has a smartphone and uses it to access social media and search the internet (Wong, Tan, Loke & Ooi, 2014). Smartphone sales in Malaysia and throughout the globe are fast expanding, and this trend will have an influence on every business (Hong et al., 2014). By enabling users to utilise mobile services to advertise and sell their goods and services, mobile technologies are projected to bring up a host of new business opportunities (Wong et al., 2015). By informing people about a company through a mobile app, anybody may browse, search, and get a wealth of information without restriction.

This sort of function improves commerce and business by directly attracting customers; suppliers and consumers may also connect with this mobile technology by presenting a range of things that meet consumer preferences (Tan, Loke, & Ooi, 2014). According to MCMC data, about 38.5 million Malaysians, with a penetration rate of 133.3 percent, utilise a smartphone to access numerous applications at once; they use the smartphone to browse whatever they want without limitation depending on their wants, preferences, and demand behaviours (Khoo, 2021). Ueno (2014) said in The Star Newspaper that mobile phones account for around 25% of application and website traffic, suggesting

that the mobile platform is gaining acceptance in Malaysia with decreased usage of laptops and personal computers and more comfortable use of mobile phones. Mobile phones are often used for making phone calls, texting, accessing the Internet, reading e-mail, and other simple activities, while personal computers are utilised for more demanding projects or work. Application usage refers to software that is intended to be accessed solely via a smartphone. It works on mobile devices and offers users services similar to those offered by PCs (Swanson & Taylor, 2011).

Nowadays, the number of existing mobile phone programmes, often referred to as "apps," is increasing in response to client requirements in every industry, and the functions inside the apps contain a variety of features that were developed in answer to those requests. This combination of mobile phones and apps has created a new trend in the mobile phone consumer market due to the enhanced efficiency in producing money for the corporation. Some sectors, such as tourism, the arts, and economics, are responding to the present situation by building mobile apps to increase company development and attract more clients to purchase goods and use services (Bohmer et al., 2011). Malaysian smartphone users have exceptional taste in mobile apps. They may choose apps based on their personal needs as well as the app's attractions, which is one factor. Users will be encouraged to choose that programme if the features loaded make it more helpful.

2.2.11 Application Features

There are several apps accessible nowadays that were created by developers to meet the demands and requirements of their consumers. It is necessary to design an integrated mobile application that focuses on client requests and connects them to the function to be given. Modeling strategies for the production of features in mobile apps for the tourism

industry that are focused on sharing geographical data across the globe are inadequate; a strategy based on the feature concept that is based on the location itself is necessary. This is due to the fact that each tourist site has its own own visitor behaviour, preferences, wants, and expectations (Zha & Sriram, 2004). Feature-oriented software development (FOSD) is a mobile application development methodology for the creation, customization, and synthesis of large-scale software systems. The concept of a feature created from the developer's analysis of research data is central to FOSD. A feature is a subset of a software system's capacity that addresses a technical requirement, shows a research-based design choice, and provides a possible configuration option for ease of use. A combination of qualities in one mobile application that may also be found in numerous software systems is often built to share common and distinctive features (Olimpiew & Gomaa, 2005).

According to Ghorbani, Mohammadzadeh, and Hossein (2020), the best way for marketers to offer tourist destinations and activities is via a mobile application, since consumers see tourism apps as advertising, annoyance, and ineffective. Marketers will also save money by advertising their tourism businesses using mobile apps rather than conventional marketing methods. Furthermore, users use apps for an average of 82 percent of their time and frequently use 15 applications. The following are the five categories of mobile apps:

- i. Entertainment and games
- ii. Social networks,
- iii. Utility
- iv. Discovery

v. Brands

The design of the options available, colours, and layout are all important parts of developing a mobile application. A successful mobile application has many moving parts, and it needs extensive research to identify critical elements that may impact the design, functionality, and user acceptance. The mobile context dilemma, user interfaces, the perspectives of programme designers and users, and social considerations of culture and age have all been investigated in the past. Unfortunately, if the majority of consumers use mobile apps for less than three weeks after installing them, there is something wrong with the apps that has to be rectified. More significantly, it begs the issue of what features a mobile app should have in respect to tourist travel desires, and whether this move will have an effect on enhancing mobile app stickiness in the tourism industry. In some respects, designing a software application is a bargain between what the user wants and needs and what the designer knows will become the program's features, which is the first step toward assuring the mobile application's success.

2.2.12 Existing Tourism Application

Because smartphones and tablets are more practical and offer more storage capacity, visitors may leave their laptops at home. As a consequence, the tourist sector has been compelled to invest in apps that give clients with the greatest amenities, attractions, and functions before to, during, and after a visit. Because using a smartphone is so straightforward, the number of individuals who utilise mobile apps is constantly increasing. Depending on the business, there are several mobile apps that provide a variety of functions that may help users make their life simpler. Tourism apps are a sort of mobile application used in the tourism business to aid travellers in obtaining information to plan

their vacation and share their experiences, however most visitors will use tourism apps while travelling to search for maps, activities, and other information. Tourists will often utilise tourism apps as technological tools to support their requirements while travelling; as a consequence, there are numerous tourism apps in the tourism business today that are technology driven. Most of the tourism apps focuses on tourist itself as a customer but in this research, more focuses on the travel apps as features that can be a guideline for tourism agencies to have better knowledge in digital technology especially tourism application features to support tourism industry in Sarawak. This because of in Sarawak, Sarawak More to Discover is the only tourist app focused on Sarawak in Kuching. The following current apps will be compared to the intended characteristics of tourist applications in Kuching:

2.2.12.1 TripAdvisor

TripAdvisor is a well-known tourism-related smartphone app that is well-known for its recommendations and recommendations for locations to visit. TripAdvisor Media Group is the company behind the TripAdvisor tourist applications, which aim to serve as a travel information directory on the internet and via mobile apps (Stephen Kaufer, Co-founder and Chief Executive Officer). TripAdvisor (2022) assists 463 million passengers per month in making every vacation their greatest trip. Travelers from all over the world use the TripAdvisor website and app to read over 859 million reviews and comments on 8.6 million lodgings, restaurants, activities, airlines, and cruise lines. Travelers use TripAdvisor to compare inexpensive costs on hotels, airlines, and cruises, book popular excursions and activities, and reserve tables at famous restaurants, whether they are planning a vacation or are already on one. According to TripAdvisor (2022), millions of people use their website

and love this app for a number of reasons, including:

- i. Free download in the smartphone: cost saving
- ii. No requirement for a mobile data connection to use this app;
- iii. Attractions: all sites mentioned in this city;
- iv. Suggestions and recommendations: reviews and thousands more posted daily with fresh, sample, and honest content from experienced tourists themselves.
- v. Self-guided tours: the greatest itineraries in town, allowing you to visit intriguing areas, iconic sites, and hidden treasures.
- vi. Point me there: this app will lead users utilising the entertaining and practical "Point Me There" screen, which uses the phone's GPS and Compass, to help them find their way around.
- vii. GPS-based: uses the phone's GPS to display the user the top restaurants in the area

2.2.12.2 Klook

Klook is a tourist app founded in Hong Kong in 2014 by Eric Gnock Fah that focuses on travellers and sells tourism locations in Asia. At the time, Klook was popular among visitors planning vacations to Korea; they utilised tourism applications to design itineraries, while they were largely focused on buying tickets and leisure experiences for tourism activities. Consumers may now choose from over 280,000 things and services in over 500 locations, including exceptional prices for some of the world's most well-known attractions,

according to Klook. The key features of Klook booking activity are as follows:

- i. Confirmation within 24 hours: you will get confirmation of your reservation within 24 hours. If your booking cannot be confirmed for whatever reason, you can contact the Klook support staff.
- ii. Open Date Ticket: with open-dated tickets, you can use your voucher at any time throughout the validity period shown on the activity page.
- iii. Fixed-Date Ticket: redeem your voucher for fixed-day tickets on the precise date you picked when booking.
- iv. Show Mobile or Written Coupon: simply show your Klook voucher to the operator on the day of your activity, either on your phone or in a printed copy.
- v. Access Immediately with Voucher: you may enter the attraction directly with your Klook voucher on your phone or a paper copy, skipping the huge lines!
- vi. Get a Real Ticket: before entering the attraction, show your Klook coupon and get a physical ticket.

2.2.12.3 Sarawak More to Discover

Sarawak has a lot more to offer in terms of tourism-related mobile apps that promote Sarawak's tourism business. Sarawak More to Discover App is a Sarawak government initiative aiming at making travel in Sarawak easier for both local and international tourists. This app gives all necessary travel information using Augmented Reality (AR) and Virtual Reality (VR) technology, enabling users to rapidly navigate all of Sarawak's unique

experiences. Visitors to Sarawak will be able to customise their holiday and stay in each of the state's cities by selecting one of four options: travel, stay, eat, and shop. This app gives important information such as contact information and directions to the suggested locations. The app's search feature also enables users to travel to additional suggested places around their present location. Sarawak features to discover include the following:

- i. City: all cities in Sarawak listed in this apps with information
- ii. Attraction: attraction around Sarawak
- iii. Nearby: attraction nearby that tourists can explore
- iv. Local food: famous Sarawak local food
- v. Bioscope: biodiversity and landscape in Sarawak
- vi. Heritage: old Kuching and kampung heritage
- vii. Event and festival: listing of events a festival in Sarawak
- viii. Useful Info: regulations and telecommunications

2.2.13 Benefits of Tourism Apps

Hundson and Bendon (2010) stated in their study that there are ten main benefits of tourism apps, all of which are independent of their functions. They are transportation planning, event listing, travel planning, accommodation planning, tour guidance, providing directional services, delivering attraction experiences, organising local information, providing tourist assistance, and providing tourist information about specific companies. These ten major benefits help tourists before, during, and after their vacation.

Before vacation, tourists will use tourism apps to get as much information as possible to plan their trips properly. While on vacation, they use it mostly for directional services purposes, and some will use it to share their travel experiences with other tourists after vacation.

Mobile application Social networks like Facebook or Twitter can also be defined as tourism apps, even though their primary function is as communication apps. This is because some tourists will use these platforms to check on information like suggestions of places to visit and food to eat in certain locations. The information shared on Facebook and Twitter will be helpful for tourists in planning their trips. In fact, the tourism organization's official Facebook page or Twitter account can function as tourism apps since they can be used by the tourists to search for the information, they need to begin their vacation planning.

Other advantages of tourist applications include making reservations easier, enhancing access to local information, sharing experiences, and saving money. Cost-cutting is linked to the tourist's budget. Some tourists opt to spend more money on activities and less on lodging. As a result, many people use tourism apps in the hopes of better planning their vacations based on their budget. In short, good tourism applications might be one aspect that draws visitors and impacts their travel plans.

2.2.14 Factors that Influence the Tourist in using Tourism Apps

Kang (2014) claims that many major aspects impact tourists' decisions to utilise tourism applications. The key criteria might be viewed as either tourists' satisfaction with the apps' capacity to provide relevant information that aids in holiday planning or the efficiency and efficacy of the apps' capabilities in giving directional information while on

vacation. In any case, utilising tourism applications is less difficult and more sophisticated than using a paper tour guide's guidebook. Everything visitors want and want may be standardised to fit their wishes, interests, and tastes. Tourists may use tourism applications through a variety of devices, including phones, desktop computers, and laptop computers. The functionality and features of the tourism applications developed by the developers are expected to meet visitor expectations. However, certain lacking functions should be added and updated on a regular basis in order to improve and maintain the efficiency and effectiveness of tourist applications. These missing characteristics can only be discovered and recognised by doing ongoing study on travellers.

Furthermore, travellers may use tourism applications for social usefulness or to convey motives among tourists, such as through sharing experiences, information, and recommendations. Tourists generate strong desires for tourism applications because they feel the information and ideas supplied in the evaluations will assist them in determining the quality of certain tourist firms. It is simpler for them to identify any potential bias in tourism businesses' material, whether their claimed objective is just to attract more visitors or whether they actually provide outstanding services and products. Via summary, travellers see tips and advice from other tourists in tourism applications as trustworthy sources.

Gretzel, Sigala, Xiang, and Koo (2015) discuss the impact of smart technology on the tourist industry, such as applications, websites, and social media. According to experts, the essential aspect of smart technology in tourism that impacts destinations is incorporating features into a tourist destination's physical infrastructure. Without this capacity, a trip would be more traditional or old-fashioned. Scrolling tourism applications on a smartphone for travel is influenced by complex interactions between contextual conditions, cognitive

beliefs, past experiences, and daily use, and smartphone use has the potential to dramatically alter a tourist's experience. Similarly, Wang, Xiang, and Fesenmaier (2014) identified smartphones as a powerful tool with efficient processors, current operating systems, broadband internet access, user-friendly interfaces, and productivity-enhancing software features that thoroughly aid a tour visit.

According to Beliatskaya (2013), proven mobile apps have assisted in the administration of tour excursions, as well as their role and functions as a collaborative and dynamic instrument in supporting a sustainable trip that will influence tourists on how to manage their agenda. Furthermore, according to Lalicic and Weismayer (2016), the impact of mobile phone apps on the concept of enthusiasm influences the outcomes while travelling. The usage of mobile phone apps has a substantial impact on passionate behaviour and emotional results. Other tourism players studied a tour guide's usage of mobile apps to streamline visitor operations and ensure effectiveness. The adoption of mobile apps greatly facilitated their trip.

Tan, Lee, Lin, and Ooi studied whether mobile tourism apps would become a need in the tourist industry in 2015. According to their conclusions, the passage of time has proved that mobile development is a necessary for travellers. Eden and Gretzel (2012) establish a taxonomy of mobile apps in tourism from two angles to summarise the full usage of mobile applications. To begin, a taxonomy of service-related app features was developed, with seven distinct categories identified: navigation, social, mobile marketing, security/emergency, transactional, entertainment, and information. The taxonomy based on the degree of uniqueness of tourist apps, on the other hand, is about personal preferences, location, and security, as well as content addition, aesthetic changes, and applications that

stay the same for everyone.

The study of theoretical foundations contains all relevant research material, from travel demands to the value of tourist app features as guidance for travel firms. The connection between each of these elements as a critical aspect of research must be clearly articulated in order to have a better grasp of the relationship between each of these items—travel demands, tourist attractions, and applications that highlight them. As a consequence, the researcher will explore each of these elements in a conceptual framework alongside the framework and figure in order to acquire a deeper understanding. The tourism business and apps, including the advantages and reasons that motivated travellers to use them. The following are the critical components in conceptual framework details:

2.3 Conceptual Framework

A conceptual framework is an essential component of research since it serves as a guideline for the researcher's excellent research report. A conceptual framework, according to Maxwell (2012), is more than just a visual or tabular depiction of ideas; it is a framework of ideas, concepts, and commitments that leads and educates the researcher and readers about the study. To build a robust conceptual framework, the researcher must first understand the study goals and the framework components. Conceptual frameworks, according to Ravitch and Riggan (2012), assist researchers in developing the study subject, literature review, and other issues, including methodology, procedures, data collecting, data analysis, and discussion. It also assists the researcher in developing interview questions and questionnaires to achieve the research's purpose.

The conceptual framework should comprise three key components: independent variables, moderators, and dependent variables. The conceptual framework in this study defines travel demands as independent factors, app features as moderators, and travel attractions, lodging, and transportation as dependent variables. The development of the optimum conceptual framework for this study is separated into five stages.

2.3.1 Process Creates Conceptual Framework

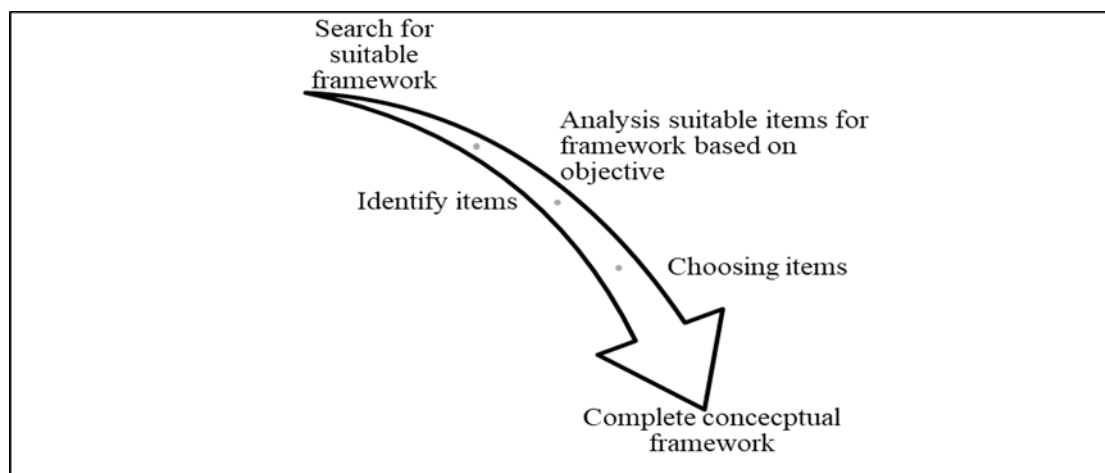


Figure 2.3: Step-by Step process of conceptual framework development

Source: Ravich and Carl (2016)

Figure 2.3 displays the processes used by a researcher to create a suitable study conceptual framework. According to Ravich and Carl (2016), conceptual framework creation is a generative framework that expresses the thought throughout the study process. Diagrams are often created to clearly define the components or variables of the studied subject, with arrows demonstrating their connections. The process of developing a conceptual framework is divided into five stages. The first step is to find an acceptable framework, then analyse relevant objects for a framework based on the research goals, then identify items, choose items, and lastly develop a thorough conceptual framework.

In this study, the researcher initially looked for a good framework to use as an example for creating the research framework. Three acceptable conceptual frameworks were selected and used as models in developing a new conceptual framework for this research: first, Singleton (2013)'s travel demands, second, Gunawan (2018)'s app features, and lastly, Manat's tourist attractions (2008). Following that, based on the literature assessment, the researcher determines the applicability of the items and ties them to the research goals. The researcher then determined which factors should be included as independent variables, dependent variables, and moderators. Finally, the researcher chose the items for these three sections and started developing a new conceptual framework for this study.

2.3.2 Independent Variables: Travel Decision-Making Process

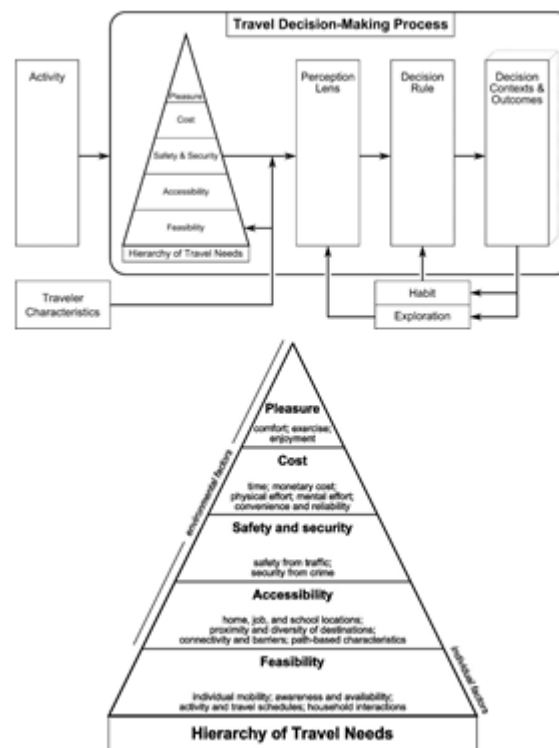


Figure 2.4: Items of Independent Variables

Source: Singleton (2013)

These efforts are based on the theory of travel decision-making, which aims to provide a unified multidisciplinary framework that combines findings from the tourist's domains of daily activity, the hierarchy of travel needs, and a perception lens that will influence travel planning and decision-making. Evaluation of tourist daily activities, which will have a continual influence on the travel requirements hierarchy While perception lenses that modify the importance of components within the travel requirements hierarchy. Because each activity performed by a visitor contributes to categorising the demand for various types of activities performed by a tourist in tourism, activity models are categorised based on travel decision-making. Activity- and attraction-based aspects, on the other hand, were among the characteristics that motivated visitors to attend for a particular reason. The selection of daily activity patterns, home- and work-based tours, and main and secondary tour activities enables an explicit portrayal of activity prioritisation and how activities contribute to and restrict travel (Ortzar & Willumsen, 2011).

A perception lens creates tourist views of meeting travel demands, which are based on the tourist perception lens throughout the trip decision-making process. Differences in how individuals balance distinct travel demands in relation to the travel choice under consideration are explained by social norms and individual or personal values, beliefs, attitudes, preferences, and perceptions. Perceptions of travel requirement fulfilment may also alter depending on the context, such as the goal of the journey or the time of day (Singleton, 2013). The hierarchy of travel demands covers aspects that impact travel choices such as feasibility, accessibility, safety and security, cost, and enjoyment. According to Singleton (2013), the hierarchy of travel needs is an important component of the theory of travel decision-making. It organises and ranks psychological, sociological, and environmental factors considered to impact transportation decisions. The hierarchy outlines the

characteristics of those demands, motivations, or intentions, as well as the characteristics of other possibilities that are significant when making travel selections based on travel requirements.

Human needs in all spheres of life on our planet fluctuate according to human progress and lifestyle. Some people's travel demands will be influenced by where they live, whether in the city or in the country. The hierarchy of requirements in this pyramid started with basic physiological demands that had to be addressed before going upward to safety and security needs, then social needs, then psychological needs, and finally nirvana, or self-actualization. All of these criteria, including basic physiological, safety, and security requirements, are related to the pleasure and travel domains, and although they may be the major motivator for travel, they are not guaranteed to be satisfied. Some tourists are mainly concerned with physiological needs such as food, air, sleep, and even sex, and many all-inclusive cruise passengers base their selections on the expectation that they would be able to eat and drink as much as they want.

According to Singleton (2013), characteristics of travel demands such as security and safety in the travel area, how to get from one location to another, and how the expense of travel impacts tourist physiological needs may also influence tourists. This fundamental criterion may be jeopardised if a traveler's taste does not agree with the food of a certain trip location. Those who reside in dangerous areas, such as those threatened by natural or man-made catastrophes, may choose to migrate if they can afford it. However, it is well acknowledged that travel raises a variety of risks that endanger one's safety and security.

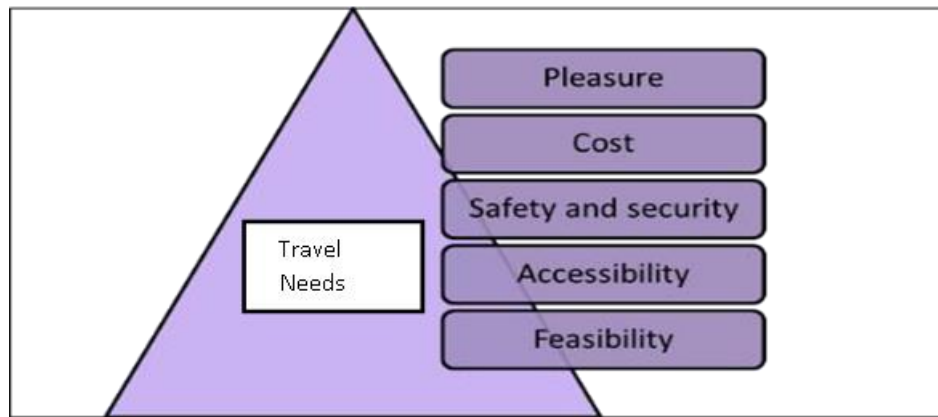


Figure 2.5: Items of Independent Variables

Sources: Singleton (2013)

The initial goal is to analyse travel requirements in applications and features that appeal to tourist travel requirements. Consider the travel requirements theory literature study and the aim itself as relevant independent variables, as stated by Singleton (2013), since travel needs are the driving force in order to meet tourist demands. Smart technologies, according to Neuhofer, Buhalis, and Ladkin (2012), study innovative approaches to deliver unforgettable experiences for visitors by addressing their demands and increasing the destination co-creation area. Smart technology, such as tourism applications, are now an essential component of the key to influencing the visitor experience in the tourism industry. The majority of travellers utilise tourism applications to suit their travel needs, such as location searches, local restaurant reviews, and mobile payments through cellphones, when travelling. Websites, tourist software, social media, and virtual reality are all used to assist travellers in planning and improving their trips (Wang, 2018).

According to Schneider (2013), each tourist has their own set of travel requirements in order to fulfil their travel wants and behaviours. Their requirements drive their decisions on trip activities, transportation, and housing. As a result, their travel requirements will have

an influence on their trip experience. To be selected and utilised by visitors, app designers must research the tourists' current travel demands and connect them with their goods and services. This is because tourists are the target clients, and their wants must be met in order for efficient services to be provided and product quality to be maintained. As a consequence, as long as the company continues to acquire the confidence of its clients, it will stay competitive in the sector.

Each of the travel necessities outlined by Singleton (2013) has its own set of explanations. Pleasure, cost, safety and security, accessibility, and feasibility are the five travel needs. These five factors must be addressed while developing a smart travel app. Pleasure is defined as the visitors' sense of comfort and delight throughout their trip experience. The cost is a statement of how much the visitors has, intend, or need to spend on their vacation in terms of monetary cost, time, physical effort, and dependability. Meanwhile, safety and security allude to their protection from traffic and crime when travelling. This is the most critical need. When designing successful travel applications, accessibility must also be addressed since it helps travellers to connect with and access travel attractions and locations. Finally, viability pertains to visitor mobility, which involves transportation and travel schedules. To summarise, every piece of travel equipment requires critical qualities in order to create a strong prototype for travel applications. To achieve a successful rate of acquire attention, tourism app elements must be related to tourist demands.

2.3.3 Moderator: BMSGuide Application Features

Menu	Description	Menu	Description
Natural Attraction	Information of natural tourist attraction in Banyumas	Entertainment	Information of entertainment place like café, theatre, salon, etc.
Hotel	Hotel information	Searching	The function is to find location
Culinary Tour	Restaurant Information	Nearby	The function is to find nearest location
Atm	Atm Information	Event	Event information in Banyumas
Transportation	Transportation Information	Help	Helping information to operate the application
Emergency Call	Information for emergency call like police station, hospital, etc.	About	The information about Android-based Banyumas Travel Guide application

Figure 2.6: BMSGuide Application

Source: Gunawan (2018)

According to Gunawan (2018), the Travel Guide application Banyumas' menu or functions include: natural attraction, hotel, culinary tour, ATM, transit, emergency call, entertainment, searching, nearby, event, help, and about. This trip guide application was created as a tourism site search application. This BMSGuide application was created to meet the demands of travellers visiting Banyumas. This menu or features in the programme make it simple for users to use, and this application can meet the information demands of tourist sites and neighbouring areas in Banyumas. Most mobile facilities are provided via apps with practical features for customers, displaying a preference based on their want and assisting them in simplifying the search for and use of mobile applications that may affect their everyday life (Nielsen, 2014). These application characteristics, in reality, affect their choices, which influence their views toward items and services.

The customer in the tourism sector is a tourist, and they will use tourism apps to plan their trip schedule and pick their vacation destination since most tourism apps provide ideas on tourist sites and activities that visitors should participate in. This kind of feature

will have an impact on tourist preferences and their desire to design their vacation schedule depending on their expectations and wants. The features that should be included in tourist apps, according to Goh, Ang, Lee, and Lee (2010), should concentrate on providing core services for passengers, such as transportation, housing, and food, and should be less concerned with context-aware services and trip planning. Aside from that, the most common features on tourism-specific mobile apps include hotel reservations, activity search, real-time comments and advice from experienced tourists, map information, and transportation access.

Tourism apps have an effect and influence on visitor choices, and before tourism apps can be utilised to advertise tourism destinations, product and service research on tourist needs must be implemented. There are several tourist applications available throughout the globe that provide a variety of practical features that help travellers organise their excursions and get information. According to Wang and Xiang, travel apps are classified into eleven categories (2012). Among the eleven categories are single-city destination guides, online travel agencies, language assistants, airline managers, theme park and resort guides, facilitators, multiple-city destination guides, food finders, entertainment, live cams, and currency converters. According to Wang et al. (2012), research should focus on the impact of mobile applications, particularly tourism apps, on travel planning because innovative functional functions in apps and emerging information channels such as mobile apps to express their opinion to other tourists will influence travellers' decisions, and this can become one of the marketing tools promoting tourism destinations.

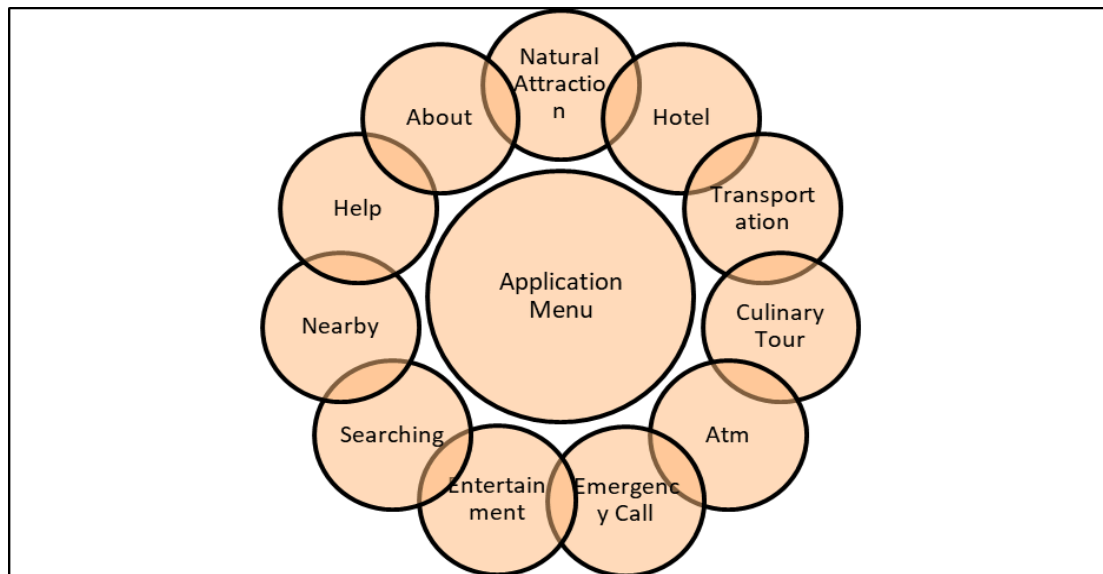


Figure 2.7: Items of Moderator

Source: Gunawan (2018)

The three goals outlined here suggest aspects of tourism applications for visitors and travel companies that will be related to tourist travel demands and will provide tourism attractions. Tourists will want information when utilising tourism apps in order to effectively prepare before, during, and after their vacation. Because their tourism destination planning is based on information acquired from a tourism application or website, this mobile application tool may control travel needs and tourism attractions to become marketing tactics that communicate directly to fulfil tourist travel desires. Without any boundaries or restraints for tourist travel desires, one may enjoy a tourist area without physically being there by using tourism apps to search for travel paperwork, immigration bureaucracy, transportation expenses, hotel costs, and other information. Alternatively, a visitor who intends to visit a tourist site in person just has to follow the information accessible on different social media platforms in today's virtual world rather than interacting with people, local societies, or travel agencies associated with the tourist destination. Tourism communications, often known as "e-Tourism," have fully embraced ICT (Dickinson, Ghali, Cherrett, Speed, Davies &

Norgate, 2014). The researcher only picked eleven things from the application menu known as "items of moderator," each of which serves a specific purpose in developing a good app to serve as a reference for travel firms. The original programme menu included twelve options, but the researcher only chose eleven. An event is something that was not chosen at random by the researcher. However, the researcher classified this item as an entertainment item. This implies that visitors will get results for events and entertainment through a single feature, the entertainment item. To ensure that effective and efficient travel applications for tourists can be developed, the researcher plays a part in determining the application menu that should be included as app features. In this study, the researcher modifies Gunawan's application menu (2018). Every component in the framework was chosen by the researcher based on the likelihood of the visitors' interest. The app's first menu choice is "nature attraction," which refers to the attractions in and around Kuching, Sarawak. Aspects of culture, history, tradition, environment, or the community itself are examples. Following that is hotel and transportation, whose role is to offer suitable lodging and transportation options for travellers to consider. The gastronomic tour is the app's most unique feature. It emphasises numerous varieties of must-try local food, as well as a list of sites where travellers may sample cultural cuisine.

Menu elements such as emergency calls, help, searching, and nearby, on the other hand, will not only secure the safety of the visitors but will also enable them to have quicker access to the local environment if required while on the road. Meanwhile, the entertainment item relates to current activities or events taking place in Kuching, Sarawak, during the trip period, such as the Rainforest Music Festival, the Kuching Jazz Music Festival, or Pesta Benak. Finally, each item in the app menu has a function. Nonetheless, they are vital and must be included in the travel app prototype since each item will assist

visitors fulfil their vacation wants, requirements, and requests. At that time, the success of the travel applications can only be assessed. To guarantee the success of travel applications, travel companies must depart from assumptions about visitor wants and requests and provide suitably with tourism attractions, transportation, and housing as a service or product to be supplied.

2.3.4 Dependent Variables: Policy and Planning of Tourism Product Development

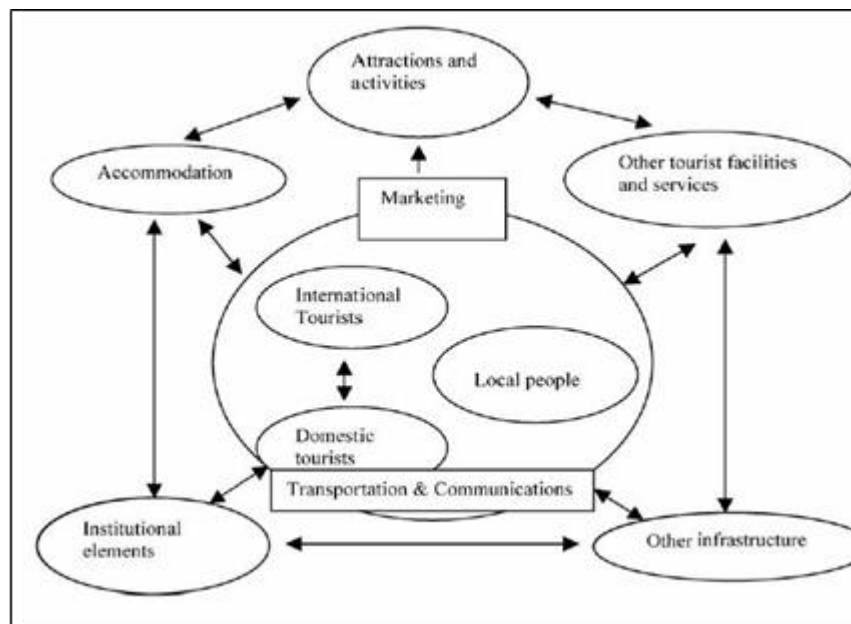


Figure 2.8: Policy and Planning of Tourism Product Development

Source: Chaisawat (2006)

The suggested model, which is the centre of policy and planning for tourism product development, is designed to meet the requirements and desires of demand factors for foreign and domestic visitors, as well as locals. Because of technological advancements, the competitive environment for marketing tourist goods, services, and attractions is evolving. This problem is causing travel agencies, local communities, non-governmental organisations (NGOs), and governments to reconsider their tactics and structures in order to function

effectively in a borderless world. This paper's suggested policy and planning structure for tourist goods places demand elements at the centre, with marketing, transportation, and communications connecting five groupings of supply components. Accommodation, attractions, activities, institutional components, other tourist amenities, and other infrastructure are examples of supply variables offered by travel firms or the public sector that become tourist attractions.

We included demand variables in the model's centre since the ultimate objective of tourism development is sustainability—satisfying the needs and desires of locals as well as domestic and international visitors. Marketing, transportation, and communications have two functions as intermediaries between demand and supply factors: as a physical connection and as an impact on destination choice. Demand considerations affect supply variables. Hospitality service providers, such as travel agencies, hotels, and transportation companies, as well as the tourist sector as a whole, must set standards and design criteria. Supply factors, goods, and services that constitute tourism attractions should adhere to the norms and criteria to guarantee that tourism development is ecologically responsible and satisfies the expectations of visitors and locals.

Providing general geographical, historical, and cultural background of the area, the attractions' facilities and services, their travel costs, transportation schedules and types, the location of shopping, medical facilities, consulates, embassies, and religious institutions, and other specific information to tourists before and after they arrive at their destinations. Technology improvement must play a part in addressing the requirements and wants of visitors. Tourists may use social media, including applications and websites, as a form of electronic communication. These tools must provide accurate and balanced information

about events and circumstances that may affect the flow of visitors. They should also give precise and trustworthy information about goods and services to tourists visiting tourist destinations. (WTO, 1999).

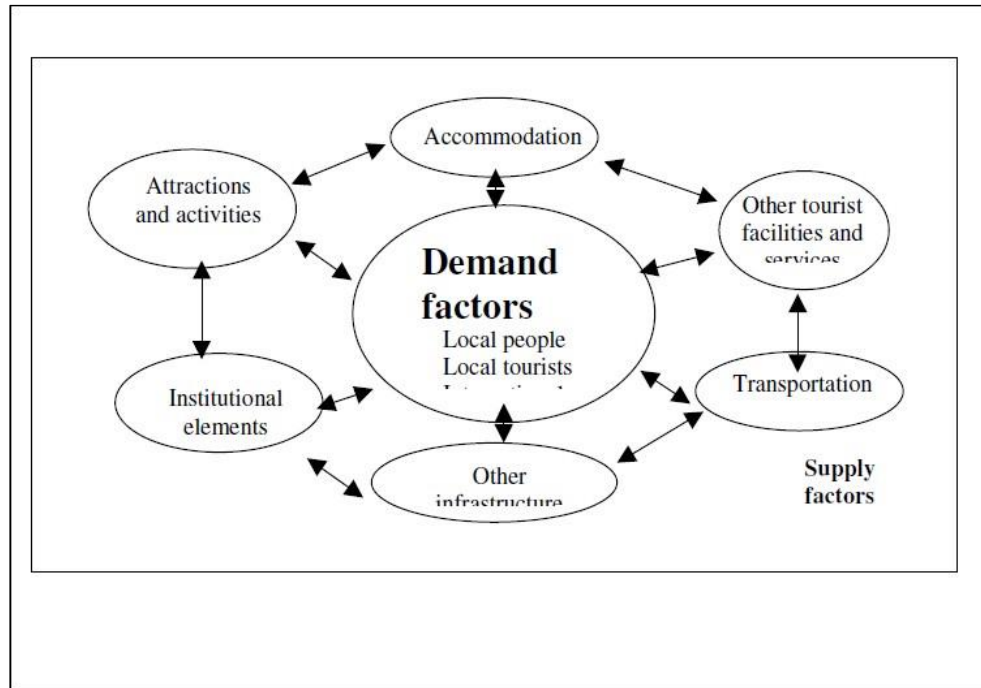


Figure 2.9: Tourism System and its Environment

Source: Chaisawat (2006)

According to Changwat, Amphur, and Changwat (2007), the tourism industry should be considered as an integrated system and socioeconomic sector that provides tourists with tourism attractions in the form of goods and services. The functional tourism system is built on supply and demand aspects, as represented in the image above from a policy-synthesis concept paper titled "Policy and Planning for Thai Tourism Industry: A Supply-Side Approach" (Chaisawat, 2006). To supply the tourism attraction markets, tourists may come from a worldwide, domestic, or local territory. Some product and service suppliers may try to cater to the broad interests of visitors or other unique interests. Tourist-related items and services are included in the tourism attractions market; travel companies also offer housing

and transportation. Tourist attractions, lodgings, transportation, institutional features, amenities, and services, as well as infrastructure, should all be considered while growing the tourism industry.

Tourist attractions may include a variety of elements such as lodging, transportation, amenities, and infrastructure. To entice people to visit the region, attractiveness and activities must be provided. This framework is largely focused with folk styles such as natural resources, history, traditions, and culture. Natural attractions include nature parks and beach/marine areas, archaeological sites, and historic sites; cultural attractions include arts, entertainment, crafts, traditional architectural styles, economic activities, and traditional customs and ceremonies; and "man-made" attractions include theme parks, casinos, and special events such as fairs, festivals, and sporting competitions. To deliver the best tourism attractions, it is vital to understand tourists' needs in their origin regions, tourist destinations, and the relationship between tourist areas and tourist destinations, lodging, and transit routes. One of the most significant requirements while travelling is lodging. Every nation must have hotels, resorts, and motels where visitors may stay. The traveller will choose their hotel depending on its facilities, pricing, or closeness to other destinations.

Tourist transportation requirements were also part of the attraction, which offered facilities and services to reach the attraction and lodging. Routes and timetables are required for modes of transportation such as aeroplanes, trains, and buses. Accessibility may also be utilised to connect one route to another and is intricately related to the transportation system since the effectiveness of the transportation services supplied is very essential in influencing tourist demands when travelling. Transportation modes, transit charges, and journey time from one destination to another will all be considered when deciding which option best meets

tourist expectations. Transportation operations continue to be crucial in the tourist industry because they enable people to travel or relocate from one site to another, allowing for the successful establishment of new attractions. Travelers, for example, may use transportation to go to tourist attractions (Rajamani & Rizal, 2013). The transportation system is connected to tourist attractions to facilitate trip planning. As a result, a tourist destination with a more effective and accessible public transportation network is more likely to attract more visitors, because if the transportation service has limited routes to travel around the destination, users such as tourists or visitors, particularly independent travellers or drifters, may be unable to reach their desired destination because their mobility is dependent on it (Bajada & Titheridge, 2017). First, as a product or service that will meet the demands of visitors when travelling to have an experience with local and diverse things, which is a tourist attraction, dependent variables play a significant part.

2.3.4.1 Tourist Attraction

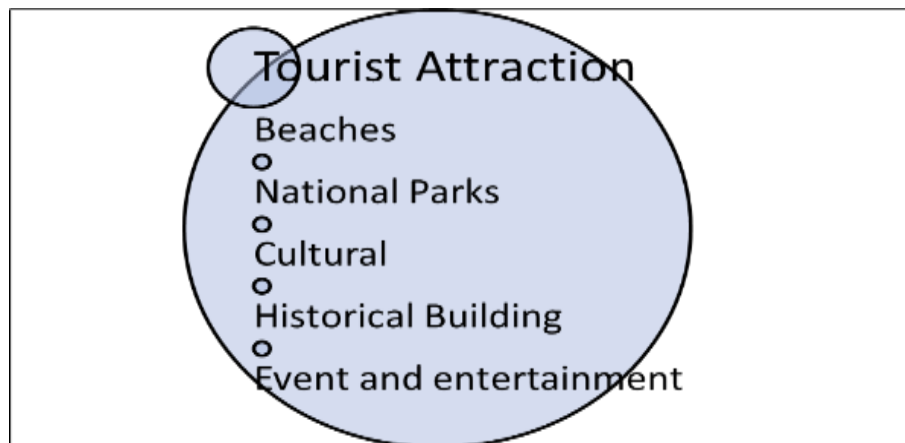


Figure 2.10: Item of Dependent Variables

Source: Chaisawat (2006)

To assess the influence of app features on tourist travel requirements and tourism associations While the second goal assesses the impact of tourism apps on tourists' travel

requirements and tourism attraction management, tourist attractions are dependent variables because they have a big impact on the efficacy of an app's features in satisfying tourist wants. Tourist attractions given by travel agents and tourism enterprises through features in tourism applications must meet travel demands. To give the greatest tourist attractions, it is vital to understand the demands of visitors visiting the locations, as well as the link between those needs and those that may be met by providing activities, hotels, and transit routes. When visitors make a choice to visit, the existence of an attraction plays a significant role in their decision. When tourists are satisfied with the goods and services provided by travel companies, they will express their gratitude in terms of pleasure, accessibility, affordability, and security (Suwantoro, 2004).

The ideas and concepts of Manat (2005) were used to develop a new conceptual framework for this investigation. Aside from the app menu as the moderator, an engaging and excellent travel app must also include additional components known as dependent variables. The dependent variables in this research must be able to characterise and assist travellers in discovering the attractions in and around Kuching, Sarawak. Another way to look at it is that the attraction listings will assist the travel app developer in creating useful app features. In general, the success of a travel app is determined by its features' capacity to meet and fulfil the requirements and wants of travellers. Tourist attractions, as confirmed by Vengesayi, Mavondo, and Reisinger (2009), are one of the variables that may meet the wants and desires of travellers.

Beaches, national parks, cultural and historical structures, and events and entertainment are the five categories of tourism attractions. Every component contributes to the attraction of travellers to Sarawak as a vacation destination. Meanwhile, the suggested

travel app prototype would assist travellers in better planning their vacation activities. As a result, the researcher must carefully choose each theoretical component in order to create a solid and effective tourist app prototype. The prop

2.3.4.2 Transportation

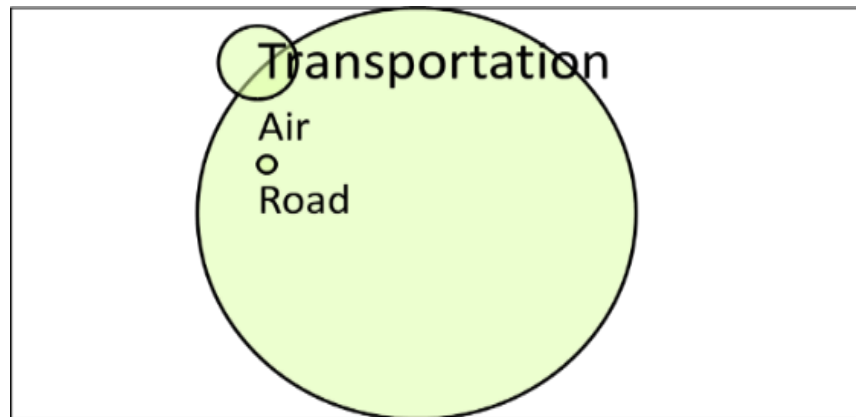


Figure 2.11: Item of Dependent Variables

Source: Chaisawat (2006)

Chaisawat (2006)'s transportation theory is also one of the elements that impact visitors' decision to visit a certain location. As a result, it is another feature that must be incorporated in travel applications to guarantee visitors have convenient and safe access to transportation. As a consequence, they will feel more comfortable and free to see all of the attractions in Kuching, Sarawak. At the same time, travel applications must give appropriate transit information to assist visitors in planning their trip adventure more efficiently and easily. Meanwhile, Kuching has three forms of transportation: air, road, and train. The researcher chose these three forms of transportation based on the amenities that have been established in Kuching, Sarawak. Airplanes are an example of air transportation, whereas buses, vehicles, motorbikes, taxis, and e-hailing services are examples of road transportation. Rail, on the other hand, includes cruise ships, boats, and ferries. Tourists must utilise a

different method of transportation to reach the sights or travel from one location to another in Kuching. Tourists, for example, must use boats to access Bako National Park. This information will be presented on travel applications for travellers to use.

2.3.4.3 Accommodation

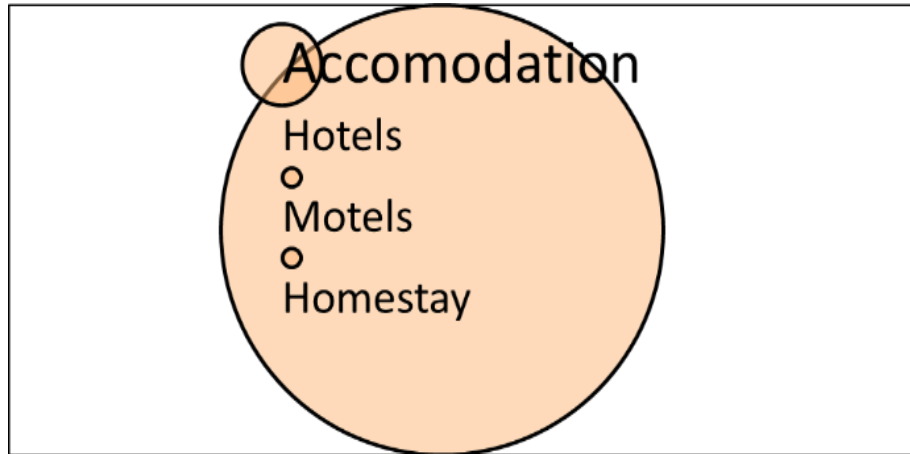


Figure 2.12: Item of Dependent Variables

Source: Manat (2005)

The accommodation idea developed by Manat (2005) was used in this study to create a new conceptual framework. While travelling, tourists will need lodging. Their choice of lodging is determined by their preferences and desires. Accommodation, like transportation, is a vital component to include in tourism Apps since it meets the demands of tourists. Accommodation in tourist applications will be sorted by price, from cheap to high, more popular to less renowned. Trivago Apps, for example, sort their lodgings based on pricing and suggestions from past travellers. Hotels and motels are the two forms of lodging, according to Chaisawat's (2006) idea. The researcher then added homestay to the list. Different types of lodging provide tourists with diverse experiences. To attract more travellers, hotel information must be clearly shown in tourism applications.

2.3.5 Creating New Conceptual Framework

The researcher chose a few existing frameworks and utilised them to create a new progress framework for this study. The new framework was utilised as a guidance for the researcher to carry out this research and develop the study's six hypotheses. The framework's performance is ensured by three crucial elements: independent factors, moderators, and dependent variables. Every piece serves a purpose and is interconnected. Travel demands are made up of independent variables, which contain five sub-items: enjoyment, cost, safety, security, accessibility, and feasibility. The sub-items clarify the tourist requests depending on their requirements while travelling. Every visitor has varied demands, which need supply from diverse tourism stakeholders.

Their requirements, such as their trip budget, must be met. Some visitors, for example, may want high-end accommodations but low-cost transportation, whilst others may be more concerned with safety and security when travelling. In summary, while developing good travel applications in Kuching, Sarawak, every aspect must be examined. As a consequence, the new framework is being utilised as a guideline by the researcher in order to perform in-depth study on travel applications and visitors.

The application menu is the second element, moderator. The application menu has eight sub-items: natural attraction, hotel, cuisine, atm, emergency call, entertainment and event, searching, nearby, and transportation. Every sub-item is shown as a travel app feature, which functions to meet the requirements and wants of visitors travelling. Meanwhile, information on each sub-item feature is sorted depending on the visitors' search histories and needs. Overall, the moderator's content (application menu) attempts to provide travellers with the finest travel experience possible by educating and promoting the uniqueness of local

culture and tradition. As a consequence, visitors are more likely to return to Kuching, Sarawak in the future.

Meanwhile, the dependent variables were made up of three components. The first component is tourism attractions, which comprise sub-items such as beaches, national parks, cultural and historical structures, events, and entertainment. The third component is transportation, which contains three modes: air, road, and train. Finally, there are subcategories of accommodation, such as hotels, motels, and homestays. These three dependent variables allude to the attractions and amenities available in Kuching, Sarawak. They gave travellers the information they needed about transportation and hotels in Kuching, Sarawak. This information assists travellers in making prudent holiday plans.

Finally, the new information obtained via the development of a new research framework assists the researcher in determining and understanding the wants and desires of visitors in detail, allowing her to design a strong tourism app prototype.

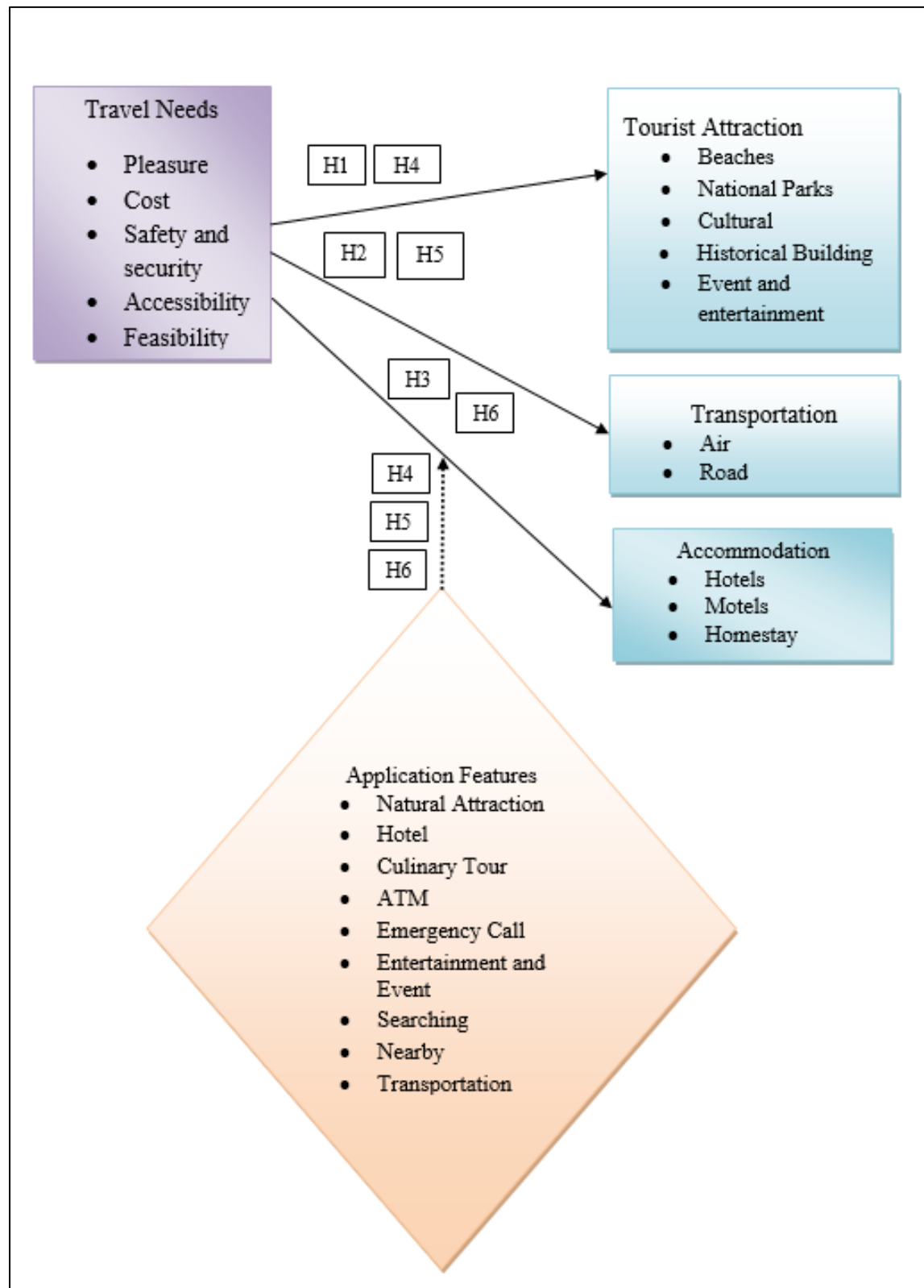


Figure 2.13: Proposed New Conceptual Framework

2.3.6 Hypothesis

There are six hypotheses based on the new conceptual framework:

- H₁ Satisfaction on travel needs by tourists will influence a tourist attraction supply by travel agencies
- H₂ Satisfaction of tourist travel needs will impact transportation supply by travel agencies
- H₃ Satisfaction on tourist travel needs will impact to higher demands of accommodation by tourist vice versa high supply by travel agencies
- H₄ The usage of tourism apps features guideline by travel agencies will generate higher satisfaction success rate of travel needs and higher demands tourist attraction by tourists
- H₅ The usage of tourism apps features as a guideline by travel agencies will moderate high satisfaction travel needs and demands of transportation by tourist
- H₆ The usage of tourism apps features as guideline by travel agencies will moderate high satisfaction with tourist travel needs and high accommodation demand by tourists.

2.4 Summary

In-depth discussion of the relationships between the theories pertinent to the topic of the study and the conceptual framework developed to serve as a basis for empirical research were covered in this chapter.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explain the methods to achieve the objectives of the study. This chapter aims to help the researcher in obtaining the entire data from respondents and informants to complete the research study. This chapter include and elaborate on the research design, population and sampling, data collection method, questionnaire development, and data analysis.

3.2 Research Location

This study's primary objective was to analyze the travel needs of app features that satisfy the tourists travelling needs, to determine the impact of features on tourists' travel needs and tourists' agencies. For this purpose, the study tourist in Kuching, which is a capital city of Sarawak Malaysia. This location was selected due to its uniqueness and vast tourist destinations sites, good social amenities, and accommodations. This place also has large flow of tourist who were the target population in this study, which made this location even more suitable as data collection point. Such a location was, therefore, expected to have wide range of tourists from different regions which made they provided more reliable.

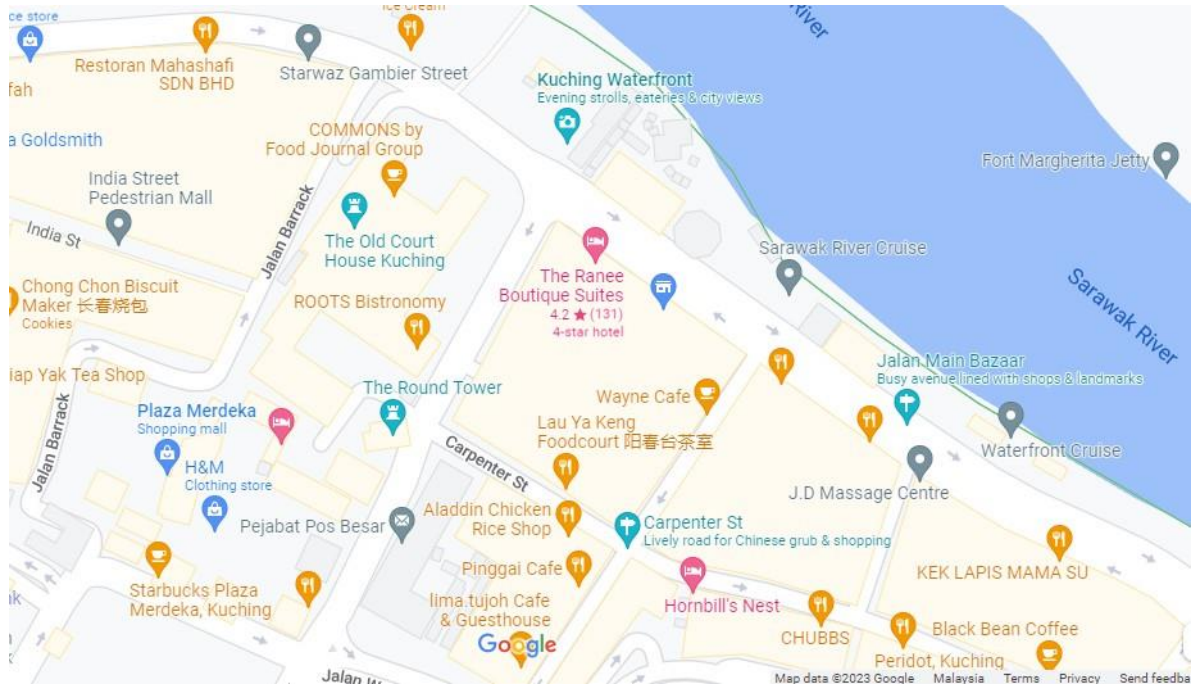


Figure 3.1: Kuching District

Source: Google Maps (2022)

3.3 Research Design

This study employed a quantitative approach, in which the main research question were addressed using numerical data. This is a systematic scientific method that seeks to assess the relationship between variables as well as test some research hypothesis. The hypothesis are deductive researchers claim that are tested through statistical techniques. The approach is highly used since it gives reliable and accurate outcome and the methods used could be assessed (Bloomfield & Fisher, 2019).

In addition, this approach technique obtains data from the targeted demographic using the survey method. In particular, the survey techniques such as questionnaire are used to collect information that are then analyzed using statistical techniques (Mazhar et al., 2019). Such techniques would help understand the impacts of apps features on tourist's travel needs and tourism agencies around Kuching. Therefore, this research will use the

primary data collected through the questionnaire.

The statistical package for the social sciences (SPSS) software is used to examine the data so that the researcher can read and gather the data more systematically. Factor analysis will be conducted to arrange the suitable items. This software will assist the researcher in finding the frequency level of every item in the questionnaire after the data are completely key into the system.

3.4 Data Collection Methods

The researcher used questionnaires to collect the data to answer the research questions. Using questionnaires helps the researcher to obtain data more accurately and systematically. The questionnaires were divided into four sections. The development of a questionnaire was based on an understanding of each component of the literature research, which included travel needs, tourist destinations, and tourist app features.

3.4.1 Questionnaire

To collect information from tourists in the Kuching, Sarawak area, the researcher distributed the completed survey form. Tourists from abroad or within the country were given the questionnaire. The questionnaire has four sections, each of which has a potential study topic. Visitors to Kuching were the target responders.

3.3.4.1 Questionnaire Design

Every questionnaire, according to Abdelal, Herrera, Johnston, and McDermott (2009), should include demographic respondent information. It should be highlighted that knowledge aids researchers in identifying data and can explain why individuals behave in specific ways, make certain choices, and the elements that influence them. According to Hou

(2012), mentioned that demographic questions are important in tourism industry to have tourist preferences. Gender, education, and age on the other hand, are reported to be key factors in profiling visitors who traveled while factors such as: education and income can be employed to predict visitors' participation in cultural events. Overall, demographic factors are key factors that can be used to classify visitors based on their activity choices. According to Teclaw, Price, and Osatuke (2012) and Drummond, Sharp, Carsin, Kelleher, and Comber (2008), inserting demographic questions at the beginning of surveys raised response rates for demographic questions while having no effect on non-demographic questions. The questions that addressed goals depending on the factors were then asked. According to Louis (2019), the most common question in tourist research is as follows:

- i. Is this your first visit to this tourist destination
- ii. Personal safety and security.
- iii. The quality of the accommodation (hotel, motel, apartment...)
- iv. Well-known attractions influence a tourist to visit
- v. The offer of local cuisine.

The questions in the questionnaire are mostly adapted to make it suitable with Kuching, Sarawak as a research location. Each of questions also particularly oversee each part of capacity of tourism in Kuching like attraction, infrastructure, facilities, and the policy of tourism to ensure the understanding of questions and maintain the suitability of questionnaire. The questionnaire is divided into three parts: Part A, Part B and Part C. The

design of the questionnaire is as follows:

Part A: Section A includes the demographic data of tourists traveling around Kuching, Sarawak.

Part B: Section B touches on the benefits of using tourism apps for tourists themselves. This section includes the advantages of tourism apps like the usage of an app before, during and after travel.

Part C: Section C includes the impact of tourism apps on tourist travel experience.

Table 3.1: References of questionnaire

Section B: Independent Variables (Travel Needs/Benefits)		Literature Review References
Pleasure		
12	Tourism apps ensure tourists' pleasure to plan their activities	Page and Connell, 2020 Terkenli, 2002
13	Tourism apps satisfy tourists' pleasure with suggestions or tips	Mansfeld and Pizam (2006) Rusell (2005)

Table 3.1 continue

Cost		
14	The cost to travel can be estimated while using tourism apps	Mihalic, Sharpley, and Telfer, 2002 Eugenio-Martin and Inchausti-Sintes (2016) Park, Nicolau and Fesenmaier (2013)
15	Tourism apps helps tourist to reduce the cost of travelling	
16	Tourism apps help tourist to filter the price of facilities and Activities	
Accessibility		
17	Digital maps in tourism apps help tourist to access the accurate location	Burnett and Baker, 2001 Buhalis, 2003 Tanrsevdi and Cavus, 2003
18	Digital maps help tourists' accessibility to plan their trips systematically	
Feasibility		
19	The apps help tourist to find information	Purnaya, Semara, and Saputra (2009) Cenamor, Ronnberg Sjodin, and Parida (2017) Lu, Fang and Tseng, 2016
20	Searching for facilities become easier	
21	Comparison between one to other facilities become easier	

Table 3.1 continue

Safety and Security		
22	Help tourist to access to nearest security and emergency department	Vincent, 2014 Zhang, 2005
23	Helps tourist to ensure their safety	Johnrose, 2014
24	To find information of places’ safety level	Louis (2019).
Section C: Moderator (Apps)		
Features		
25	Natural attraction should be included in apps	Gunawan (2018)
26	Hotel searching should be included in apps	Cristescu (2016)
27	Hotel searching should be filtered according to the budget	Björk & Kauppinen- Räisänen, 2016
28	Culinary tour should be included in apps	Shove (2010)
29	Culinary tour should show cultural food according to the race of community	Oh, Jeong & Baloglu, 2013 Kim, Park & Morrison (2008)
30	ATM nearby should be included	
31	Features for ATM should state name or type of ATM	Kim and Brown, 2012 Dolnicar, 2017 Nielsen, 2014
32	Emergency calls are one of the important features to ensure tourists’ safety	Hundson and Bendon(2010)

Table 3.1 continue

33	Tourist can install their own emergency call	Wang, Xiang, and Fesenmaier (2014) Lalicic & Weismayer (2016) Goh, Ang, Lee & Lee (2010),
34	Showing show time of event and entertainment	
35	Nearby aids tourists in having access to facilities and activities easily.	
36	Transportation available should be featured to benefit mobility of tourist	
37	Searching helps tourist to use the apps systematically	
Section D: Dependent Variables (Tourist Attraction)		
Beaches		
38	Beaches can influence tourist to visit Sarawak	Royo-Vela (2009) Zadel (2016)
39	Beaches as a natural attraction to be a main factor of tourist attraction	
National Parks		
40	The known national parks can attract tourist to visit Sarawak	Inskeep (1991) Benckendorff (2014), Suwantoro, 2004).
41	Known national parks can promote Sarawak as a best travel location	
42	The preservation of national parks is important to ensure tourist satisfaction	

Table 3.1 continue

Cultural		
43	Variety of cultural races in Sarawak become a major tourist attraction	(United Nations World Tourism Organization, 2008).
44	Every cultural attraction market Sarawak tourism	Altschuler (2020)
Historical building		
45	Historical building has its own significance attraction by history	Andrades and Dimanche (2015)
46	Historical building with unique design attracts more tourist	
Event and entertainment		
47	Event and entertainment can influence tourist to visit	(Hughes, 1989)
Section D: Dependent Variables (Transportation)		
Air		
48	Air transportation is important for tourist to access from one to another location and influence tourist to visit the place	Schneider (2013)
49	Efficient road transportation around Sarawak attracts tourist to visit	Goh, Ang, Lee & Lee (2010)
Road		
50	Road transportation pick point is systematic	Rajamani & Rizal, 2013

Table 3.1 continue

Section D: Dependent Variables (Accommodation)		
Hotels		
51	Price of hotels in Kuching, Sarawak are acceptable to attract tourist to visit	Buhalis, 2003
52	Choices of hotels around Kuching, Sarawak influence tourist to visit	Chaisawat (2006)
Motels		
53	Tourist can find motels or budget accommodation	Dolnicar, 2017
54	Rate of motels can be linked with tourists' budget	Lin, Mao & Song (2015).
Homestay		
55	Services and uniqueness of homestays attract tourist to stay	Datuk Abdul Karim Rahman Hamzah, (2021)
56	Highlighted cultural way of life in homestays become an attraction	Dian, Kasuma, Adenan, Nordin & Awang (2018),
Section E: Others		
Apps		
57	Tourism apps influence tourists to plan vacation before the trip.	McCabe, 2009
58	Tourism apps influence tourist to choose their trips activities during the trip.	
59	Tourism apps influence tourist to provide suggestions to the others after trip.	

Table 3.1 continue

60	Use hand phone to access travel apps.	Digital Tourism Scotland (2015)
61	Use laptop to access travel apps.	
62	Travel apps help tourist to organize their travel trip systematically	Sebastia, Garcia, Onaindia & Guzman (2009),
63	Travel apps restrict the freedom of tourist	Khoo, 2012
64	The features inside the travel apps attract tourist to use it	Vengesayi, Mavondo & Reisinger (2009),
65	Design of travel apps attract tourist to use it	
66	The background colour of tourism apps should be a solid colour	
67	Use photos for background wallpaper	Olimpiew & Gomaa, 2005
68	Using fancy fonts	
69	Using formal fonts	

3.3.4.2 Secondary Data

This method is very important for the researcher in collecting information to help with the progress of this study. The researcher uses books, journals and articles from various sources, including Centre for Academic and Information Services, Springer link, JSTOR, Scopus, Google Scholar, Science direct and UKM Journal Article Repository. Various sources related to tourists, tourists' needs and demands, factors influencing tourists' use of tourism apps, most popular tourism apps, and so on are found to be the supporting evidence for this study. This comes in handy in that it would help support this research findings and

related them to other existing literature. The secondary data, therefore, helps determine whether the existing literature is supported or not. Also, these secondary data helped in the formulation of the conceptual framework and the reading materials were used as an advocate to strengthen this study. In order for the information to be consistent with the study that was conducted, the researcher also looks for the appropriate information. It is crucial to acknowledge the significance reading materials contributed in thoroughly in comprehending the subject more deeply.

Secondary data collected in form of information search which aligned with research questions, which is mainly about travel needs, the influence of tourism apps towards tourist and management of tourism attractions, then features should be included. The secondary data analysis well by referring to the hypothesis of the research. The problem statement, research questions, and research objectives should be reviewed as a starting point for secondary data analysis in order to validate that the design of questionnaires and the purpose of data collection are both well-grounded in the subject of the study.

3.5 Study population

The study was conducted among the tourists traveling around Kuching, Sarawak. 364 respondents were selected randomly to answer the questionnaire. Purposive sampling is used to collect data from the respondents. This is a non-probability sampling technique which is commonly used when it is impossible to get the list of all the target population is not present. This technique samples from the population the individuals that are available to the researcher. Nonetheless, since the researcher selects the individuals that has the desired characteristics, a representative sample is obtained. This approach is also regarded as subjective sampling since it heavily relies on the researcher's discretion to choose the

respondents from the population (Etikan, Musa & Alkassim, 2016).

Despite being a nonprobability sampling technique, purposive approach has various advantages. First, the process of selecting the sample is cost-effective since the researcher depends on their knowledge about the subject under investigation, which helps save time. Also, from the small sample, the researcher is able to get an insightful and more precise results. The researcher is able to get relevant information since the best-fitting participants are used in the research and this also has been found to reduce the margin of errors (Ayres, 2018). Nonetheless, unless the approach is well used, it could lead to several invalid or inferential statistical results. If the researcher excluded some relevant groups, the results could be lopsided and also, in a large population, this approach is not ideal in collecting the data (Ayres, 2018).

The common areas of tourist destinations were selected as the points of dissemination of the questionnaires to the selected respondents. However, this was after the rigorous recruitment to ensure that the candidate respondents met to inclusion criterion. Some of these places include the heritage and historical buildings around the city such as square Tower building and Fort Margherita. In addition, the researcher also distributed the questionnaires around tourist accommodation and travel agencies.

3.4.2 Tourist Population in Sarawak from the Year 2013 until the Year 2017

Table 3.2: Tourist Population at Sarawak from the year 2013 until the year 2021

Year (Y)	Grand Total of Tourists(X)
2013	4,371,748
2014	4,857,867
2015	4,517,179

Table 3.2: continue

2016	4,661,100
2017	4,856,888
2018	4,430,921
2019	4,662,419
2020	1,199,872
2021	235,245

Source: Sarawak Government (2022)

3.4.3 Sampling Calculation

After searching for the total tourist population in Sarawak for the past 5-9 years, the researcher calculated the total of the respondent by the formula below. According to Krejcie and Morgan (1970), a population over 1000000 will have 384 total sample size that refers to the total of respondents. In this case, the sample size needed to reach any statistical significance would be 1, and the standard error fixed at 0.10. At 95% level of significance the sample needed will be

$$\begin{aligned} n &= \left(\frac{z_{\alpha} \cdot \sigma}{\varepsilon} \right)^2, \text{ where } \frac{z_{\alpha}}{2} = \frac{z_{0.05}}{2} = 1.960, \sigma = 1, \text{ and } \varepsilon = 0.1 = \left(\frac{1.960 \cdot 1}{0.1} \right)^2 & \text{Equation 3.1} \\ &= 384.1459 \\ &= 384 \end{aligned}$$

Thus, a sample of 384 was used in this research.

3.6 Development of Questionnaire

The questionnaire is divided into five parts, listed in the questionnaire as Section A to Section E as below:

Section A	:Demographic Respondents
Section B	: Independent Variables Travel needs
Section C	: Moderator Application Features
Section D	: Dependent Variables Tourist Attraction Transportation Accommodation
Section E	:Others

Prototype of Tourism Apps Features as Guideline

3.4.4 Questionnaire

The questionnaire needs the researcher to distribute the completed survey form to obtain information from tourists around Kuching, Sarawak. The questionnaire was distributed to domestic or international tourists. There are four parts in the questionnaire that can answer the research questions. Target respondents were tourists around Kuching,

In this case, the questionnaire for the app's features used by tourists to travel is recorded. There will be 13 questions associated with the moderating variables to determine the impact of apps features on the tourists' travel needs and tourism agencies. 19 questions will measure the tourist attraction, transportation and accommodation aspect that influence

the usage of tourism apps.

3.7 Sampling Procedure

Sampling is the process of acquiring items or units that represent the entire population. In other words, this is defined as the process of choosing a subset of the population to represent the population. In this case, the questionnaires will be distributed physically and the respondents will be requested to respond directly after being recruited. The process of data collection was done with the help of three researchers. The criteria to choose research location based on place famous with a large number of tourist visit, data collection conducted in area of waterfront Kuching, Sarawak, Old Courthouse and Museum Kuching also Damai along with Kampung Budaya Sarawak. The respondents were requested to participate in the study and on agreeing they will be given a consent form and will be told that if they wish to discontinue from the study they can be allowed to leave at any time.

3.8 Data Analysis Method

Data analysis is an important part of scientific research because it allows researchers to make informed decisions about how best to study a particular area of science.

3.7.1 Descriptive Analysis

Descriptive analysis works with defining a phenomenon in order to determine respondents' backgrounds and how we think something might assist our study findings. It tries to investigate scenarios in order to explain the research norms that are appropriate to support in order to answer the research question (Waliman, 2011). Descriptive analysis examines what already exists and attempts to prepare the way for the discovery of new information. It entails gathering information about items, people, individuals, events, and

circumstances, which is then shown in a table. Tourist type, gender, age, ethnicity, education level, employment, travel timings, frequency, trip purpose, media used to look for tourism, and travel spending were all included in this survey's demographic parameters.

3.7.2 Reliability Analysis

Reliability measures provide assurance that an assessment is reliable by demonstrating to what extent the assessment measures what it claims to measure and if it is appropriate to perform or should be changed to another. The link between reliability and validity is not the same. A measuring device can be reliable without being valid, according to Arcy, Jacobs, Razavieh, and Sorensen (2006), but it cannot be valid unless it is first reliable. In this study, there are two parts to reliability analysis. The first is a pilot test to see if the questionnaire is suitable for use. After demonstrating great results, a second reliability analysis will be performed on the real data, which will be separated into independent factors, dependent variables, and moderating variables. Following that, each variable will undergo a reliability analysis.

As for the reliability, the Cronbach alpha value is used to check the level of internal consistency of the unobserved variables. Ravinder, and Saraswathi (2020) suggests that a Cronbach alpha value of 0.70 or higher should be considered ideal as it shows high internal construct consistency (Hajjar, 2018). This will be used to check whether the constructs are reliable or not. Also, the corrected item-total correlation will be used to check the level of discriminant validity together with the loading in factor analysis. An item is said to have excellent level of discriminant when the corrected item total correlation is greater than 0.35. When the factor loading is used, a valid statement should have a coefficient greater than 0.60. This criterion would be used to check the level of items validity (Hajjar, 2018).

3.7.3 Factor Analysis (FA)

This study analyses data using factor analysis. Factor analysis clearly explains to find the patterns in the correlation of each of the variables. After analyses, every item of the patterns is arranged into groups based on the result after rotated components. Factor analysis explains the measurable or observable variables rotated to suitable variables that share a common variance and are unobservable, which is known as reducing dimensionality (Bartholomew, 1980). The purpose of factor analysis, according to Naseer (1998), is to determine the link between each variable. Measures that are strongly correlated (positively or negatively) are most likely impacted by the same variables, whereas those that are generally uncorrelated are most likely influenced by distinct factors.

There are two forms of factor analysis: exploratory factor analysis and confirmatory factor analysis. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) are the two most used factor analysis methodologies (CFA). To conduct research, the study might utilise any of the methodologies or combine both of the factor analyses. EFA aims to identify complicated patterns by studying the dataset and testing predictions, whereas CFA strives to confirm hypotheses and employs route analysis diagrams to depict variables and factors (Child, 2006).

Kasier – Meyer – Olkin is also revealed through factor analysis (KMO). KMO is a test that determines if factor analysis results are suitable for each variable. The sample adequacy metric is a value metric that is suitable for conducting FA. A score of >0.9 is excellent, >0.8 is commendable, >0.7 is average, >0.6 is mediocre, >0.5 is deplorable, and

0.5 is very low (George & Mallery, 2003). This is an important test to see if they are highly correlated and could be reduced to a smaller dimension without omitting or losing a

lot of information, as well as how much space they occupy.

In this study, there are three variables which are known as independent variables, moderating and dependent variables that were used for data analysis. The independent variable is the travel needs and will use the exploratory factor analysis. However, moderating, application features' use of confirmatory factor analysis and dependent variables, tourist attraction as components use exploratory factor analysis. Each of the variables has its questions that were identified and developed by a framework model. The independent variable and the moderating variable are used to measure the influence of tourism apps on tourist travel needs and tourist attraction. The dependent variable measures the tourist attraction, transportation and accommodation aspect that influence the usage of these apps. The moderating has 13 questions that will be used to help determine the impact of apps on a tourist's experience.

3.7.4 Regression Analysis

Regression analysis is a mathematical method of determining which of those factors has an effect, and it answers the questions: Which aspects are more important than which ones can we ignore? How do those factors interact with one another, and how sure are we that these factors exist? This approach is used to determine how effectively the independent variable can predict the result of the dependent variable. The purpose of this study is to see if the independent factors of travel need, such as tourist attractions, lodging, and transportation, can lead to a better dependent tourism attraction. Aside from that, the greatest features in tourist applications may be established, including moderating variables that assist affect independent variables and dependent variables. In this study, regression analysis was used to test the following hypotheses:

- H₁ Satisfaction on travel needs by tourists will impact a tourist attraction supply by travel agencies
- H₂ Satisfaction of tourist travel needs will impact transportation supply by travel agencies
- H₃ Satisfaction on tourist travel needs will impact to higher demands of accommodation by tourist vice versa high supply by travel agencies
- H₄ The usage of tourism apps features guideline by travel agencies will generate higher satisfaction success rate of travel needs and higher demands tourist attraction by tourists
- H₅ The usage of tourism apps features as a guideline by travel agencies will moderate high satisfaction travel needs and demands of transportation by tourist
- H₆ The usage of tourism apps features as guideline by travel agencies will moderate high satisfaction with tourist travel needs and high accommodation demand by tourists.

3.9 Pilot Test

From August 20 to 22 August 2019, a pilot test was conducted utilising the items in the questionnaire. The pilot test took place over three days in Kuching, Sarawak. Respondents should answer and read 45 questions in the questionnaire. A pilot study, according to Baker (1994), It can also be defined as the pre-testing or "trying out" of a researcher's knowledge of a new technique or method. Before the primary data collection was delivered to the real size of respondents, a pilot test was done with 30 respondents. 30 people were chosen at random from a tourist attraction to see if the questionnaire was clear enough to carry out the research. The analysis result of the pilot test using SPSS based on

Cronbach's Alpha value as shown below:

Table 3.3: Reliability Test Result

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.784	.807	45

From the results, it is concluded that the items are highly consistent and none of the items should be dropped from the measurement tool. Thus, all the 45 items (13 items for the independent variable, 13 for mediator factor and 19 for the dependent variable).

3.10 Summary

In conclusion, this chapter discussed the methodology used in the study and the sample and population of the study. The ways on how the data were collected and analyzed were also discussed for further understanding.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

This chapter focuses on the data analysis after it has been collected using the quantitative method, which is the questionnaire. The data was analysed using SPSS version 23 to help the researcher analyse the data more systematically. This chapter also includes all the processes the researcher went through to get the data. The first step is the data of whole reliability analysis, where each of the variables of the study undergoes the reliability analysis test to measure their consistency by looking at Cronbach's alpha value. The second one is the data of the demographic background. This is followed by the new framework after analysis and hypothesis testing.

4.2 Data Cleaning

Data cleaning was conducted to check whether there were any missing data in the questionnaire while conducting the fieldwork. Data was checked during the conducted pilot test and there was some improvement in sentences of questions but still to have same value and understanding. According to Marcus, Maletic and Lin (2000), data cleaning is a process used to determine inaccurate, incomplete, or unreasonable data and then improve the quality through correction of detected errors and omissions. There are three steps of data cleaning which are data checking, error detection data validation and error correction of the data. In this study, there were no missing data detected by the researcher.

4.3 Sampling

Questionnaires had been distributed in significant places visited by tourists that the researcher had chosen around Kuching, Sarawak. The planning of fieldwork to distribute the questionnaires was designed by the researcher. The places that the questionnaires had been distributed were focused were in Kuching Town and Damai.

The respondents chosen were 384, which comprises local tourists and international tourists. Using Krejcie and Morgan's sampling method, the numbers of the respondent had been set. The calculation of the sampling was based on the population in the study area, which is Kuching, Sarawak, which is the research location. Survey questionnaires were printed and distributed to the local and international tourists. The study was conducted among the tourists traveling around Kuching, Sarawak. 364 respondents were selected randomly to answer the questionnaire. Purposive sampling is used to collect data from the respondents. This is a non-probability sampling technique which is commonly used when it is impossible to get the list of all the target population is not present. This technique samples from the population the individuals that are available to the researcher.

4.4 Reliability Analysis

SPSS version 23 was used to conduct the reliability analysis for the real data. It is critical to do a reliability study for the entire survey and each of the variables in order to assess consistency. Reliability analysis is an essential topic in current research since it is used to improve the accuracy of research work assessment and evaluation (Tavakol & Dennick, 2011).

Table 4.1: Reliability analysis of the study

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.896	.898	45

The result of the reliability analysis shows that Cronbach's Alpha value, which is 0.896, is significant and good. The numbers of the items analyzed are 45 items from 384 respondents. The significant reliability value proved that the items are stable and consistent.

4.4.1 Variables Reliability Analysis After Pilot Test

4.4.4.1 Independent Variable Reliability Analysis

Table 4.2: Reliability analysis of independent variables

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.772	.773	13

The findings from Cronbach's Alpha reliability analysis for actual data of independent variables value of 0.772 is acceptable. The numbers of items in independent variables are 13 items and 384 counted respondents. The significant reliability value proved that the items are stable and consistent. A good value of reliability analysis is important to run another SPSS analysis, the factor analysis.

4.4.4.2 Moderator Variable Reliability Analysis

Table 4.3: Reliability Analysis of Moderator

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.791	.793	13

The score of Cronbach's Alpha reliability analysis of actual data for moderator value 0.791 is acceptable. The numbers of items in the independent variables are 13 items and 384 counted respondents. The significant reliability value proved that the items are stable and consistent, which shows correlation.

4.4.4.3 Dependent Variables Reliability Analysis

Table 4.4: Reliability Analysis of Dependent Variables

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.815	.817	19

The finding of reliability analysis actual data for moderator value of Cronbach's Alpha of 0.815 is shown good value. The number of items in independent variables is 19 items and 384 counted respondents. The significant reliability value proved that the items are stable and consistent.

4.5 Descriptive Analysis Demographics Respondents

4.5.1 Nation

Table 4.5: Nation of Respondents

	Frequency	Percent
Local	257	66.9
Foreigner	127	33.1
Total	384	100.0

Table 4.5 shows the value nation of the study based on frequency and percent. The total respondents were 384 tourists, both international and local. After being divided into two parts, the local category shows a number of 257 tourists with a percentage of 66.9% while the foreigner was lesser than the locals with only 127 tourists, 33.1%. The difference between the 2 groups of the nation was 130 tourists. This chart proves that 130 tourists which local tourists more than a foreigner, local more than foreigners because of the desire and needs of them that meets by tourism location.

4.5.2 Gender

Table 4.6: Gender of Respondents

	Frequency	Percent
Male	167	43.5
Female	217	56.5
Total	384	100.0

Table 4.6 shows the gender data of the study and the total number of respondents were 384. The 384 respondents are divided into two groups, male and female. There are

more female respondents than male respondents. There are 217 female respondents with a 56.5% percentage while the male was 167 respondents with a 43.5% percentage overall. This table aimed to analyse which group of gender travel more to the Kuching, Sarawak to develop a suitable prototype of tourism apps.

4.5.3 Age

Table 4.7: Age of Respondents

	Frequency	Percent
20 or below	41	10.7
21-30	133	34.6
31-40	105	27.3
41-50	101	26.3
Above 51	4	1.0
Total	384	100.0

Table 4.7 shows the frequency and percentage of the 384 respondents according to their age. The data is divided into 5 groups; 20 or below, 21 to 30, 31 to 40, 41 to 50 and above 51. Group 21-30 shows the most respondents (133) followed by 31 to 40 with 105 respondents, then group 41 to 50 with 101 respondents. The second-lowest is the 20 or below category with 41 respondents and the category with the lowest respondents is the above 51 categories with only 4 respondents. This chart represents the respondents from which categories a higher tendency to take part and involve in travel to Kuching, Sarawak. The age of 21-30 more than other age take part to answer this question. Age 21-30 get more interest in choosing Kuching, Sarawak as their travel location because of the more uniqueness and adventure activities they can explore.

4.5.4 Education

Table 4.8: Education of Respondents

	Frequency	Percent
Primary education and below	10	2.6
Secondary education	63	16.4
Diploma/higher diploma	140	36.5
Degree	148	38.5
Postgraduate and higher	23	6.0
Total	384	100.0

Education is also one part of the data that needs to be analysed. Table 4.8 shows the data after being analysed using SPSS. The education of the tourists visiting Kuching, Sarawak is divided into five parts and the total of respondents are 384. The Degree group has the most respondents with a number of 148 tourists equaling to a percentage of 38.5%. This is followed by the diploma or higher diploma group with 140 respondents, then the secondary education group with 63 respondents. The postgraduate and higher group have 23 respondents. Lastly, the primary education and below group have 10 respondents. Based on this result, nowadays there are many travelers who have a good education background, which it shows in the table that 148 tourists have a degree.

4.5.5 Occupation

Table 4.9: Occupation of Respondents

	Frequency	Percent
Public Sector	108	28.1

Table 4.9 continue

Self-employed	62	16.1
Unemployed	16	4.2
Private sector	138	35.9
Student	59	15.4
Other	1	.3
Total	384	100.0

Table 4.9 shows the frequency and percent data of the respondents according to their occupations from the 384 respondents. The data is divided into 5 groups which are the public sector, self-employed, unemployed, private sector and student. The number of respondents from the private sectors is 134 over 384, which is more than the respondents of the public sectors, 108. The self-employed group has 62 respondents, while there are 59 respondents from the student's group. The unemployed group records the least number of respondents.

4.5.6 Travelling Times

Table 4.10: Travelling Times of Respondents

	Frequency	Percent
First time	113	29.4
Second time	108	28.1
Third time	79	20.6
More than three times	76	19.8
Others	8	2.1
Total	384	100.0

Table 4.10 shows the data of the respondents' travelling time to visit Kuching, Sarawak. The First-time category shows the highest number of respondents, which is 113 respondents and equivalent to 29.4%. This is followed by the second time category, with 108 respondents that equal a percentage of 28.1%. The Third time category has 79 respondents (20.6%) and over three times recorded a number of 76 tourists (19.8%).

4.5.7 Travelling frequency

Table 4.11: Travelling Frequency of Respondents

	Frequency	Percent
Every year	188	49.0
Every two years	61	15.9
Every three years	34	8.9
I did not keep track	87	22.7
Other	14	3.6
Total	384	100.0

Table 4.11 shows the travel frequency data of the 384 respondents. A total number of 188 respondents recorded goes travelling every year, while 87 respondents recorded did not keep track of how many times they have travelled. A number of 61 respondents go travelling every two years and 34 respondents recorded they go travel every three years while 14 respondents tick up others as their choice of travelling is with no reason. The reason every year becomes the highest travelling frequencies because of their purpose of travelling, to have pleasure. Nowadays, humans spend their money in return they feel satisfied with the experience. On the other hand, tourist can also relax their mind.

4.5.8 Purpose of Travelling

Table 4.12: Respondents' Purpose of Travelling

	Frequency	Percent
Pleasure	279	72.7
Education	36	9.4
Business	63	16.4
Other	6	1.6
Total	384	100.0

More than half of respondents' response shows that the purpose of their travelling is for pleasure (279 respondents). This is followed up by business purposes with 63 respondents and education purposes, with 36 respondents. Six of the respondents fall under the 'other' category, as they did not write up their purpose.

4.5.9 Tourism Sarawak Market Medium

Table 4.13: Tourism Sarawak Market Medium of Respondent

	Frequency	Percent
Social Media	164	42.7
Travel experience	33	8.6
Media	66	17.2
Friend/relative	80	20.8
Travel agency	41	10.7
Total	384	100.0

Table 4.13 shows how the tourists hear about tourism in Sarawak. Most of them agree social media is the main platform, with 164 respondents (42.7%). The next medium of information is through friends or relatives, with 66 respondents. The Media as medium records 66 respondents while the travel agency has 41 respondents and the last one is a travel experience.

4.5.10 Total Spending

Table 4.14: Total Spending of Respondents

	Frequency	Percent
RM0-1000	86	22.4
RM1001-5000	162	42.2
RM5001-10000	88	22.9
RM10000 and above	44	11.5
Others	4	1.0
Total	384	100.0

Table 4.14 shows how much the respondents spend while traveling in Kuching, Sarawak. Most of them spend around RM1001 to RM5000 with a percentage of 42.2% in total. RM5001 to RM10000 group also has many respondents (88 respondents), which is equivalent to 22.9% and 86 respondents (22.4%) for the RM0 to RM1000 group. The RM10000 and above group has 44 respondents with 11.5% followed by the other group with 4 respondents (1.0%).

4.6 Tourists Perception of Tourism Application

Table 4.15: Tourists' Perception on Tourism Application

Influence of using tourism apps before travel		
	Frequency	Percent
Strongly disagree	0	0
Disagree	0	0
Neutral	22	5.7
Agree	191	49.7
Strongly agree	171	44.5
Influence of using tourism apps during travel		
Strongly disagree	0	0
Disagree	3	.8
Neutral	23	6.0
Agree	193	50.3
Influence of using tourism apps after travel		
Strongly disagree	0	0
Disagree	0	0
Neutral	32	8.3
Agree	196	51.0
Hand phone to surf through tourism apps		
Strongly Disagree	0	0
Disagree	2	0.5
Neutral	24	6.3
Agree	163	42.4
Strongly agree	194	50.5

Table 4.15 continue

Laptop to surf through tourism apps		
	Frequency	Percent
Strongly disagree	2	0.5
Disagree	8	2.1
Neutral	49	12.8
Agree	181	47.1
Strongly agree	144	37.5
Tourism apps helps planning itinerary systematically		
Strongly Disagree	0	0
Disagree	1	.3
Neutral	36	9.4
Agree	195	50.8
Strongly agree	152	39.6
The features in tourism apps influences tourist to use it		
Strongly disagree	0	0
Disagree	3	.8
Neutral	42	10.9
Agree	173	45.1
Strongly agree	166	43.2

Table 4.15 shows the data collected by the researcher. The data of application prototype development will create prototypes of tourism apps. Usually, tourists will search for a lot of information to plan their activities before travelling. According to the data that has been collected, a majority of respondents agree that tourism apps influence tourists to

decide before, during and after travelling. With the devices that are often used by tourist to surf the tourism apps, most of them (194 over 384) use handphones. However, 181 over 384 respondents agree they use laptops to surf through tourism apps. This shows that more of them use handphones to surf through tourism apps than using a laptop. This matter is because handphones are easier to bring and handphones are also considered the things that must be in an individual's bag. Furthermore, tourism apps help the tourist plan itinerary systematically, as seen, that most of the respondents agree with the help of the features inside of the tourism apps. Besides that, respondents also agree that the design of the tourism apps is also an influence of them to using it. This includes the background colour, the fonts and even the pictures in the apps. After the analyses, this study has decided that the combination of solid colours and pictures will develop prototypes of some tourism apps. While formal and fancy fonts are also used according to the suitability.

The key features in tourism apps identified were the facilities, activities and safety, accommodations, natural attraction, and search apps. This data helps the researcher and the tourism apps prototype developer to develop tourism apps that are based on their needs. Then, the researcher also obtained suggestions from the developer on developing good tourism apps. The features inside the apps are a combination of tourist needs and suitability features that were recommended by the developer as well. These matters will help in producing more interesting and efficient tourism apps.

4.7 Factor Analysis

Factor analysis is a method that is used to examine how underlying constructs can influence the response on several measured variables. Factor analysis has two types, exploratory and confirmatory. Exploratory factor analysis (EFA), attempts to discover the

nature of influencing a set of responses while confirmatory factor analysis (CFA), test whether a specified set of constructs influences response in a predicted way. In this study, there are three variables which are known as independent variables, moderating and dependent variables that were used for data analysis by the aspects of factor analysis. The independent variable is the travel needs and will use the exploratory factor analysis.

However, moderating, application features' use of confirmatory factor analysis and dependent variables, tourist attraction as components use exploratory factor analysis. Each of the variables has its questions that were identified and developed by a framework model. The Independent variable has 13 questions used to identify the travel needs of the tourist and tourist attraction. The Moderating also has 13 questions that were used to help determine the influence of tourism apps on tourist travel needs and tourist attraction. The Dependent variable has 19 questions that will measure the tourist attraction, transportation and accommodation aspect that influences the usage of tourism apps.

4.7.1 Independent Variables Factor Analysis (Travel needs/benefits of tourism apps)

Table 4.16: Items in Travel needs (Independent variables)

Travel Needs (Independent variables)	
• Pleasure	Two questions
• Cost	Three questions
• Accessibility	Two questions
• Feasibility	Three questions
• Safety and security	Three questions

The validity of the benefits of tourism apps has been tested by using the exploratory factor analysis. There were 13 questions based on items independent variables that were proposed in the framework. The items were divided into five parts; pleasure, cost, accessibility, feasibility, then safety and security, as seen in table 4.16.

Table 4.17: KMO and Bartlett's Test (Travel needs)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.754
Bartlett's Test of Sphericity	Approx. Chi-Square	924.051
	Df	78
	Sig.	.000

As shown in table 4.17 KMO and Bartlett's test of independent variables, the travel needs value is 0.754, which shows significant results for the correlation items in travel needs as independent variables. Results in Bartlett's test of Sphericity are significant with a value of 0.000 as it is through factor analysis on 13 items that were conducted towards 384 valid respondents. This data has answered the first objective of the research, which is to identify tourists' travel needs by using tourism apps. The factor analysis finds out the correlation between the items after doing a rotation.

Table 4.18: Component Transformation Matrix Independent Variables

Component Transformation Matrix				
Component	1	2	3	4
1	.565	.466	.504	.458
2	-.369	.773	-.478	.195
3	-.091	-.430	-.277	.854
4	-.733	.024	.664	.149

The factor analysis using varimax rotation revealed that a few items need to be arranged under alternative names of variables. Results of the factor analysis using varimax rotation revealed that the existence of four components with initial which is a value of 0.854 is greater than the other values. The result of the varimax rotation is also shown through the use of a scree plot as supported factor analysis. There are four components of varimax rotation. This matter revealed that the items should be rearranged under the alternative names of variables.

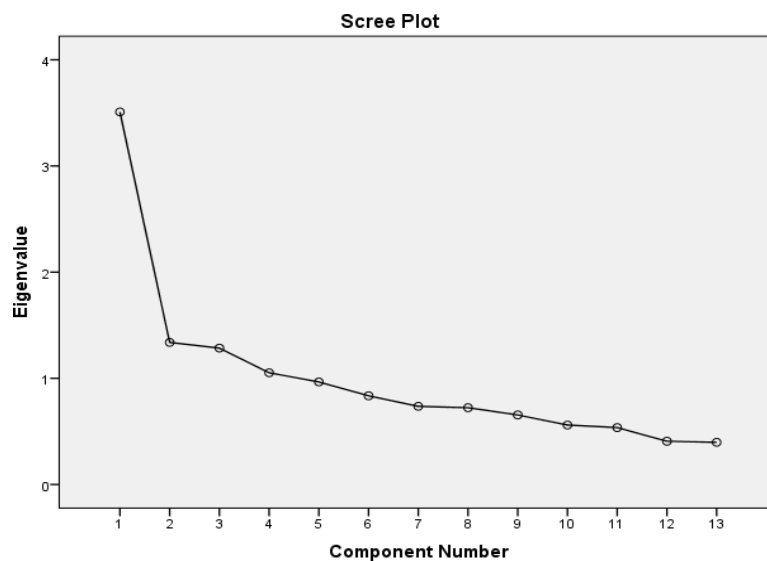


Figure 4.1: Scree plot to support the validity of rearranged items in travel needs

The rotation components matrix revealed that 4 component items are related to the travel needs in using tourism apps. The smallest value of the factor is 0.532 and the largest value of the factor is 0.850. After the factor analysis was conducted, the items must be rearranged into new items because of the after-rotation data. The original name of the items of the travel needs was changed and the other three sub-components will be rearranged under alternative names of variables. The first component of the rotation factor comprised four items, which is a mixture between ‘accessibility’ and ‘pleasure’. The factor accounted for component one values 0.532 to 0.677 and the new name variables of these components will be ‘pleasure’. While component two comprised three items, which are ‘safety and security’. The factor analysis safety and security value is 0.651 to 0.850 and will be under their variables. Component three included three items as well, which is ‘cost’ and the new name of variables is ‘cost of travel’. The Factor analysis value after component three is rotated is 0.669 to 0.736. The last component, which is component 4 has three items and the new name of variables is ‘feasibility’. The value recorded after rotation of factor analysis is 0.689 to 0.740.

Table 4.19: Factor Analysis Independent Variables

Rotated Component Matrix^a				
	Component			
	1	2	3	4
Pleasure				
Digital maps help tourists’ accessibility to plan their trips systematically	.677			
Tourism apps satisfy tourists’ pleasure with suggestions or tips	.659			

Table 4.19 continue

Tourism apps ensure tourists' pleasure of planning their activities	.646			
Digital maps in tourism apps help the tourist to access the accurate location	.532			
Safety and security				
Helps tourist to ensure their safety		.850		
To find information on places' safety level		.695		
Help tourists to access to nearest security and emergency department		.651		
Cost of travel				
The cost to travel can be estimated while using tourism apps			.736	
Tourism apps help the tourist filter the price of facilities and activities			.727	
Tourism apps help tourists to reduce the cost of travelling			.669	
Feasibility				
Searching for facilities becomes easier				.740
The apps help the tourist find information				.715
Comparison between one to other facilities becomes easier				.689

4.7.2 Moderator Factor Analysis (Features of Tourism apps)

To ensure the success and validity of every item in the features of the tourism apps, items that were evaluated by the 384 respondents were analysed using Component Factor

Analysis. The features of the tourism apps have 13 questions and major items of the features are a natural attraction, hotel searching, culinary tour, ATM, emergency calls, event and entertainment, nearby facilities and activities, transportation and searching.

Table 4.20: Items in Moderator

Features of tourism apps	
Features • Natural Attraction • Hotel • Culinary Tour • Atm • Emergency Call • Entertainment and Event • Searching • Nearby • Transportation	13 sub-questions in one component

The results of KMO and Bartlett's research are published in the journal Travel Apps. The objective of the research was to propose tourism apps prototypes for travelers and travel agencies. These results were significant through the factor analysis process on the 13 items counted from the 384 valid respondents.

Table 4.21: KMO and Bartlett's Test Moderator

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.808
Bartlett's Test of Sphericity	Approx. Chi-Square	941.414
	Df	78
	Sig.	.000

The moderator factor analysis using varimax rotation revealed that more added items will perform under the alternative names of variables. Before conducting the varimax rotation, only one item was identified, but after the rotation, the researcher identified four new components. The results of the factor analysis using the varimax rotation revealed that the existence of the four components with initial has a value of 0.860, which is greater than other values.

Table 4.22: Component Transformation Matrix Moderator

Component Transformation Matrix				
Component	1	2	3	4
1	.598	.529	.409	.442
2	-.285	-.415	.860	.087
3	-.421	.706	.253	-.510
4	-.620	.222	-.172	.733

The result of varimax rotation is also shown in the scree plot as supported factor analysis. There are four components varimax rotation. This matter revealed that there are

more added items that will perform under the alternative names of variables.

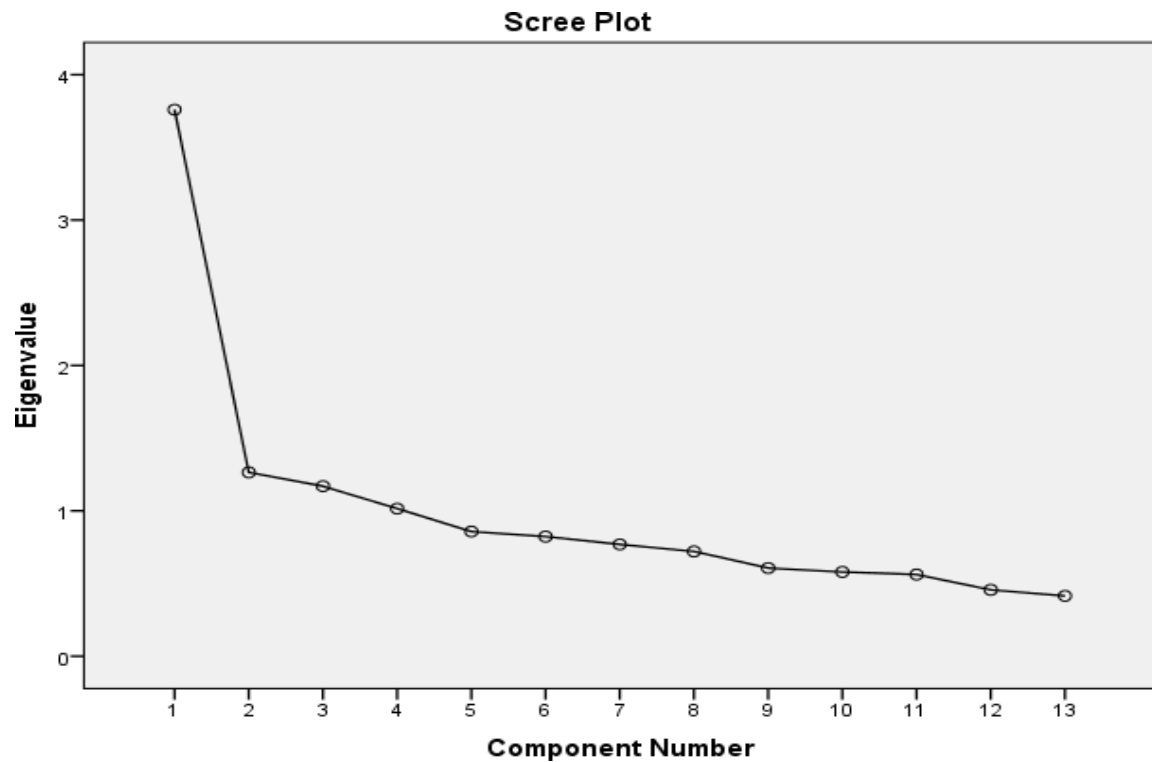


Figure 4.2: Scree Plot to Support Validity Items of Features Tourism Apps

After the rotation, the components matrix revealed that four components' items are related to the features of tourism apps. Because of that, the new variables will be added to the features of the tourism apps. Before conducting the factor analysis, the moderator only has one item with nine sub-items. However, after the factor analysis, it was revealed that there are four more components. Component 1 included ATM, transportation, emergency call and nearby facilities. The rotation varimax factor's smallest value is 0.550 and the largest value of the factor is 0.692. The new name of the first component will be named 'Facilities'. Then, the second component has four items under it; event, culinary tour, emergency call and searching. The greatest value of the items is 0.673, and the lowest is 0.508. These new variables will have their new name in the second component, which will be activities. Component 3 had included three items, which is hotel searching. The largest value of the

factor analysis varimax of component three is 0.733, and the lowest is 0.707. After the varimax rotation, it was revealed that there are added variables and the new name of the new variables of Components Three is Accommodations. The last component, which is Component 4, has three items; culinary tour, natural attraction and ATM. These matters had been added in the new component variables' name as natural attraction. The largest value of rotation varimax of Component Four is 0.707, and the lowest is 0.550.

Table 4.23: Factor Analysis of Moderator

Rotated Component Matrix^a				
	Component			
	1	2	3	4
Facilities				
Features for ATM should state name or type of ATM	.692			.342
Transportation available should be featured to benefit mobility of tourist	.632		.389	
Emergency calls are one of the important features to ensure tourists' safety	.576			.303
Nearby aids tourists in having access to facilities and activities easily.	.550	.337		
Activities and Safety		.673		
Showing show time of event and entertainment				
Culinary tour should be included in apps		.656	.371	

Table 4.23 continue

Rotated Component Matrix^a				
	Component			
	1	2	3	4
Tourist can install their emergency call	.305	.626		
Searching helps tourists to use the apps systematically		.508		
Accommodations				
Hotel searching should be included in apps	.320		.733	
Hotel searching should be filtered according to the budget			.707	
Natural Attraction				.770
A culinary tour should show cultural food according to the race of community				
Natural attraction should be included in apps			.421	.607
ATM nearby should be included	.429			.550

4.7.3 Dependent Variables Factor Analysis (Attraction)

The tourist attractions evaluated by 384 respondents had been analysed using exploratory factor analysis. To determine the full validity of every item, the factor analysis has been conducted using KMO and Bartlett's test. There are 10 items in the dependent variables and there are 19 questions used to complete the process of data analysis.

Table 4.24: Items in the Dependent Variables

Attraction	
Tourist Attraction (Dependent Variables 1)	10 questions
• Beaches • National Park • Cultural • Historical Building • Event and entertainment	
Attraction	
Transportation (Dependent Variables 2)	Three questions
• Air • Road	
Accommodation (Dependent Variables 3)	Six questions
• Hotel • Motel • Homestay	

4.7.3.1 Tourist Attraction (Dependent Variables 1)

KMO and Bartlett's results shown in table 33 depict the features in the tourism apps factor analysis value, which is 0.738 and considered a great value for correlation of the research. The results of Bartlett's test of sphericity were 0.000, which is significant through the factor analysis process on the 13 items counted from the 384 valid respondents. These results answered the second objective of the research, which is to determine the influence of tourism apps on the tourists' travel needs and the management of tourism attractions.

Table 4.25: KMO and Bartlett's Test Dependent Variables 1

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.738
Bartlett's Test of Sphericity	Approx. Chi-Square	787.285
	Df	45
	Sig.	.000

The dependent variables factor analysis using varimax rotation revealed that arranged items change that will perform under the alternative names of variables. Before conducting the varimax rotation, there are five items under tourist attraction which are beaches, national parks, cultural, historical buildings, then events and entertainment. Then, after rotations after the rotation, this study identified only three components. It shows items events and entertainment combined with historical buildings in the same group of cultural items. That clearly explains the results of the factor analysis using the varimax rotation revealed that the existence of the four components with initial has a value of 0.704, which is greater than other values.

Table 4.26: Component Transformation Matrix of Dependent Variables 1

Component Transformation Matrix			
Component	1	2	3
1	.704	.538	.463
2	-.571	.817	-.080
3	.421	.208	-.883

The result of varimax rotation also shows in the scree plot as supported factor analysis. There are four components varimax rotation. This matter revealed that there are only 4 items after analysed which are before that have five items.

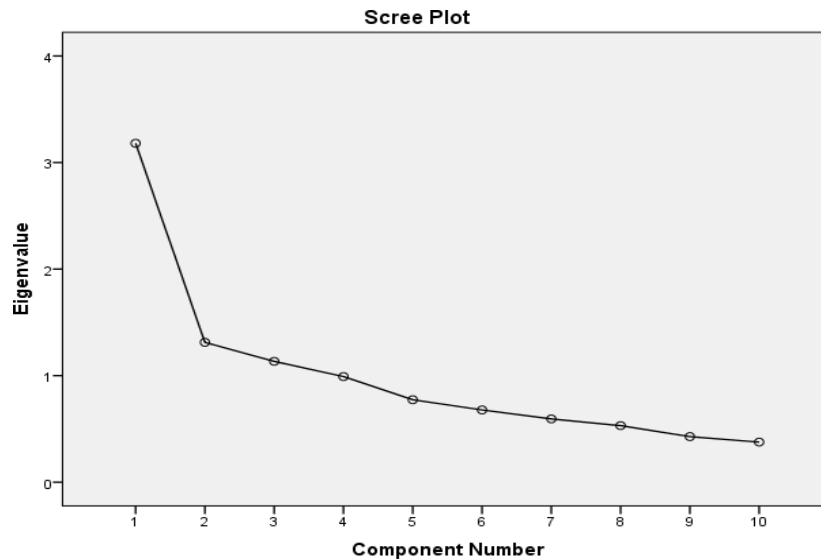


Figure 4.3: Scree Plot of Dependent Variables 1

After the rotation, the components matrix revealed that four components' items are related to the tourism attraction. Because of that, the change of variables arrangement will be only four components of tourism attraction. Before conducting the factor analysis, the tourism attractions have five items. However, after the factor analysis, it was revealed that there are three components. This analysed arranged item event and entertainment combined with historical building in the same component of the cultural item. Component one is cultural, component two national parks and component three beaches. In the first component, the rotation varimax factor's smallest value is 0.607 and the largest value of the factor is 0.697. Sarawak's national parks have the greatest value of the factor analysis varimax of component three, and the lowest is 0.812. The new name of the first component will be named as Cultural of Sarawak. While the last component is beaches attraction.

Table 4.27: Rotated Component Matrix of Dependent Variables 1

Rotated Component Matrix^a			
	Component		
	1	2	3
Cultural of Sarawak			
Every cultural attraction market Sarawak tourism	.697		
Historical building has its significance in attraction to history	.691		
Variety of cultural races in Sarawak become a major tourist attraction	.618		
Historical building with unique design attracts more tourist	.610		
Event and entertainment can influence a tourist to visit	.607		
National Park		.776	
Known national parks can promote Sarawak as the best travel location			
The preservation of national parks is important to ensure tourist satisfaction		.768	
The known national parks can attract tourist to visit Sarawak		.709	
Beaches Attraction			.845
Beaches as a natural attraction to be the main factor of tourist attraction			
Beaches can influence a tourist to visit Sarawak			.812

4.7.3.2 Transportation (Dependent Variables 2)

KMO and Bartlett's results shown in table 36 below depict the attraction that influences tourists and the result of factor analysis value, which is 0.588 and considered a

miserable for correlation of the research. The results of Bartlett's test of sphericity were 0.000, which is significant through the factor analysis process on the 3 items counted from the 384 valid respondents. These results answered the second objective of the research, which is to determine the influence of tourism apps on the tourists' travel needs and the management of tourism attractions.

Table 4.28: KMO and Bartlett's Test of Dependent Variables 2

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.588
Bartlett's Test of Sphericity	Approx. Chi-Square	160.555
	Df	3
	Sig.	.000

The moderator factor analysis using varimax rotation revealed that do not have any rotation. Before conducting the varimax rotation, two items were identified, but after the rotation, the results find only one component. Before conducting analysis, there are two items in transportation which are road and air. However, the results of the factor analysis using the varimax rotation revealed that the existence of only one component with an initial has a value of 0.842, which is greater than other values while the smallest values 0.640.

Table 4.29: Component Matrix of Dependent Variables 2

Component Matrix ^a	
	Component
	1
Efficient road transportation around Sarawak attracts tourists to visit	.842
Road transportation pick point is systematic	.779
Air transportation is important for tourists to access from one to another location and influence tourist to visit the place	.640
Extraction Method: Principal Component Analysis.	

The result of varimax rotation also shows in the scree plot as supported factor analysis. There is only one component varimax rotation. This matter revealed that there is only one item after analysed which is before that has two items.

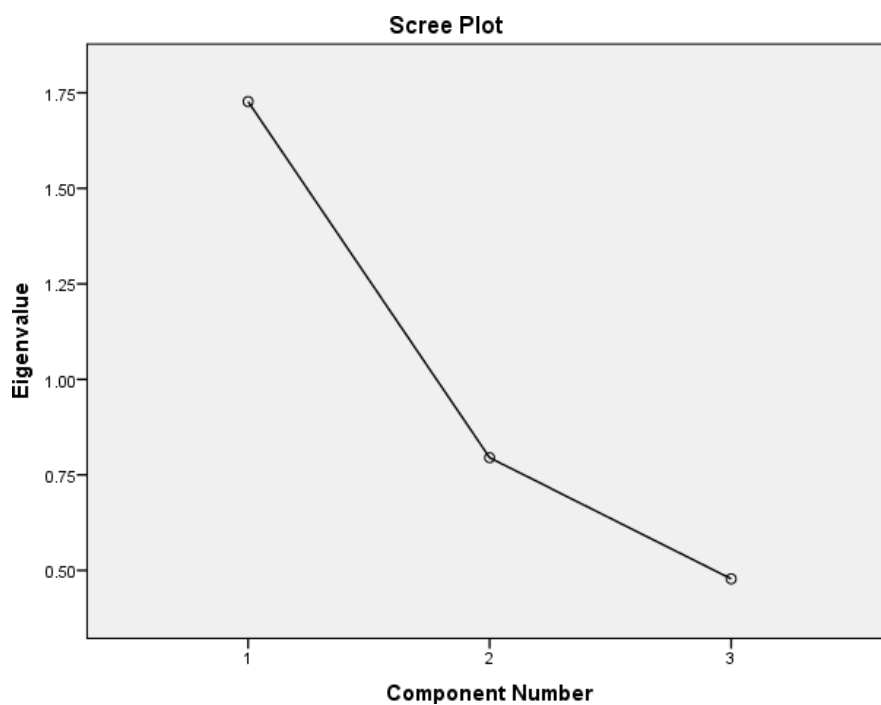


Figure 4.4: Scree Plot of Dependent Variables 2

4.7.3.3 Accommodation (Dependent Variables 3)

KMO and Bartlett's results are shown in table 4.30 on the attraction that influences tourists and the management of tourism attraction, which is 0.675 and considered a mediocre value for correlation of the research. The results of Bartlett's test of sphericity were 0.000, which is significant through the factor analysis process on the six questions counted answered from 384 valid respondents. These results answered the second objective of the research, which is to determine the influence of tourism apps on the tourists' travel needs and the management of tourism attractions.

Table 4.30: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.675
Bartlett's Test of Sphericity	Approx. Chi-Square	395.972
	Df	15
	Sig.	.000

The moderator factor analysis using varimax rotation revealed that only two items were identified. Before conducting the varimax rotation, there were three items which are hotels, motels and homestay. This study identified hotels and motels under one component while homestay stands itself under component two. The results of the factor analysis using the varimax rotation revealed that the existence of only two components with initial has a value of 0.851, which is greater than other values.

Table 4.31: Component Transformation Matrix of Dependent Variables 3

Component Transformation Matrix		
Component	1	2
1	.851	.525
2	-.525	.851

The result of varimax rotation also shows in the scree plot as supported factor analysis. There are two components varimax rotation. This matter revealed the combination of three components becomes only two components.

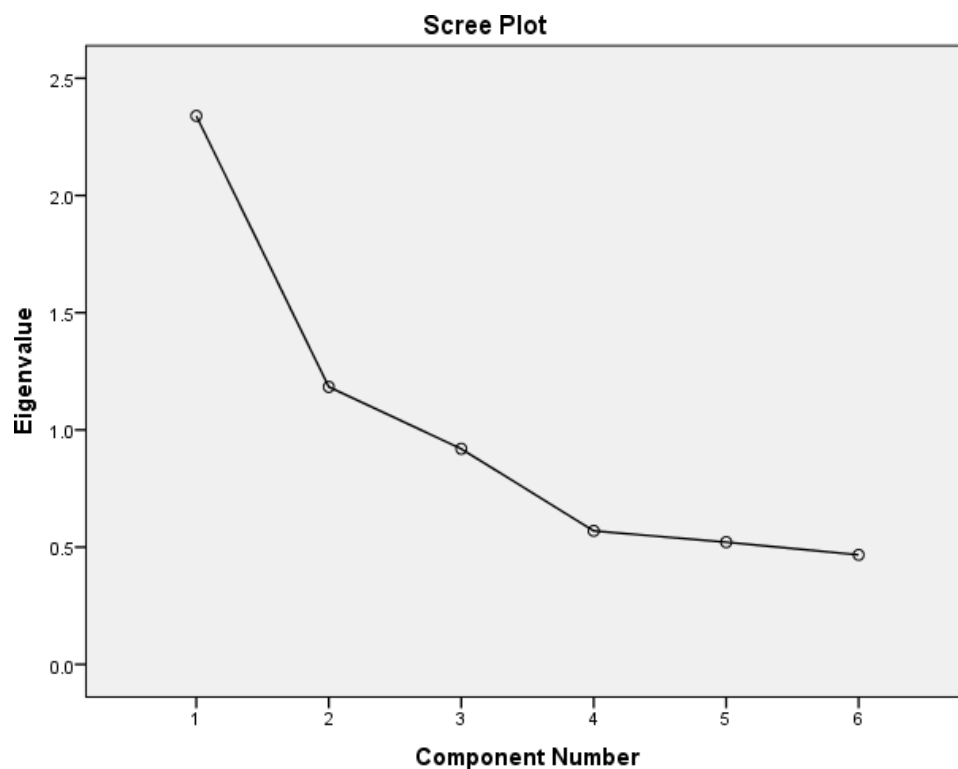


Figure 4.5: Scree Plot of Dependent Variables 3

After the rotation, the components matrix revealed that two components items are related to tourist accommodations as a tourism attraction. Before conducting the factor

analysis, the tourist accommodations have three items, which is hotels, motels and homestay. However, after the factor analysis, it was revealed that there are two components. This analysed combined hotels and motels combined become only one component. Component one is hotels and motels, while the component is homestay. In the first component, the rotation varimax factor's smallest value is 0.595 and the largest value of the factor is 0.781. The new name of the first component will be named Hotels and Motels. The second component is homestay have the greatest value of the items is 0.869 and the lowest is 0.823.

Table 4.32: Rotated Component Matrix of Dependent Variables 3

Rotated Component Matrix^a		
	Component	
	1	2
Hotels and Motels		
Choices of hotels around Kuching, Sarawak influence tourists to visit	.781	
Tourists can find motels or budget accommodation	.735	
The price of hotels in Kuching, Sarawak are acceptable to attract tourists to visit	.691	
The rate of motels can be linked to tourists' budget	.595	
Homestay		
The highlighted cultural way of life in homestays becomes an attraction		.823
Services and uniqueness of homestays attract tourists to stay		

4.8 New Framework with Rotated Items

After factor analysis, items are rotated to the indicated that the highest components, resulting in a new framework. The new framework has already been organised below after

the factor analysis rotated components in comparison to figure 4.6. The order is determined by the findings of the factor analysis, with the larger number of results going to the components that best match the items. Tourism applications provide benefits and advantages to travellers and provide tourist with a more enjoyable travel experience. Tourists frequently try to anticipate desires to ensure that travel agencies or tourism business can supply their needs. Sometimes, the information of needs, demands and desire of tourist between the producer of tourism apps and travel agencies business play vital role to supply good facilities such as accommodation, attraction, transportation: airline at the same time satisfied their needs of traveling

Since these tourism apps may help tourists plan their vacations more effectively, they can also forecast people's expectations in the domains of orienting, navigating, and communicating in unfamiliar locations. Typically, tourists use these tourism apps via smartphones, tablets, or computers to have better accessibility while travelling. These matter of fact, drive to several offer of tourism apps by tourism business that brings more advantages to the tourist and directly also to the travel agencies and business to improve the economic sector by providing tourists with the memorable travel experience. Their usage of applications without constraints can be before, during, and after travelling. On the other hand, based on the results from the new features of tourism apps, tourist traveling needs and tourism attractions can be discovered. These results helped to propose prototypes for tourism apps and revealed tourists' traveling needs by using tourism apps and how tourism apps help influence tourists' travel needs and tourism attractions.

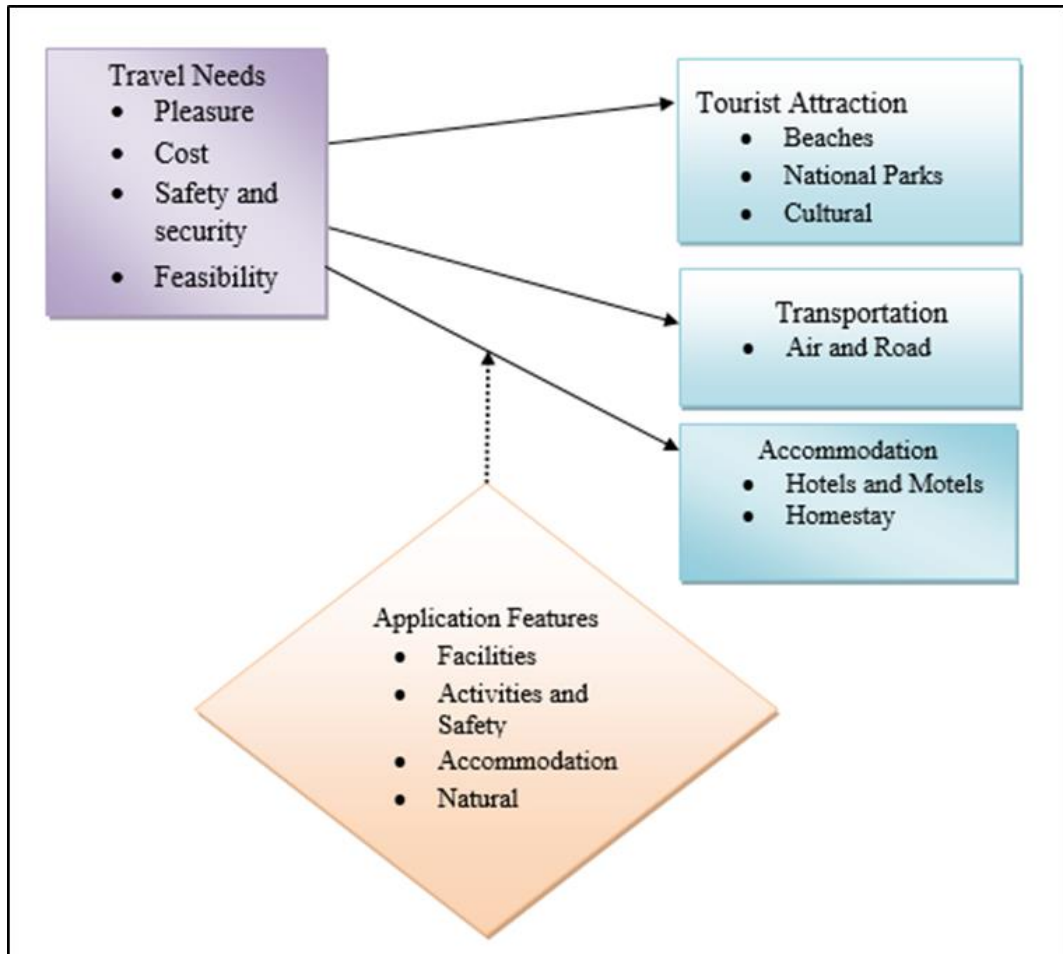


Figure 4.6: New Framework

4.9 Regression Analysis (Hypothesis Testing)

Regression analysis was conducted in this research to test the hypotheses formed, whether or not it can be supported. In accordance with that, regression analysis was further employed to test if these travel needs, tourism attractions and application features can result in a better outcome feature should be built-in tourism apps. Hypothesis one, two and three are analyzed first as this is to see the influence of the independent variables travel needs with the tourism attractions. Hypothesis four, five and six analyzed to determine the influence usage of tourism apps features on the travel needs and tourism attractions.

Table 4.33: Hypothesis Testing

H ₁	Satisfaction on travel needs by tourists will impact a tourist attraction supply by travel agencies
H ₂	Satisfaction of tourist travel needs will impact transportation supply by travel agencies
H ₃	Satisfaction on tourist travel needs will impact to higher demands of accommodation by tourist vice versa high supply by travel agencies
H ₄	The usage of tourism apps features guideline by travel agencies will generate higher satisfaction success rate of travel needs and higher demands tourist attraction by tourists
H ₅	The usage of tourism apps features as a guideline by travel agencies will moderate high satisfaction travel needs and demands of transportation by tourist
H ₆	The usage of tourism apps features as guideline by travel agencies will moderate high satisfaction with tourist travel needs and high accommodation demand by tourists.

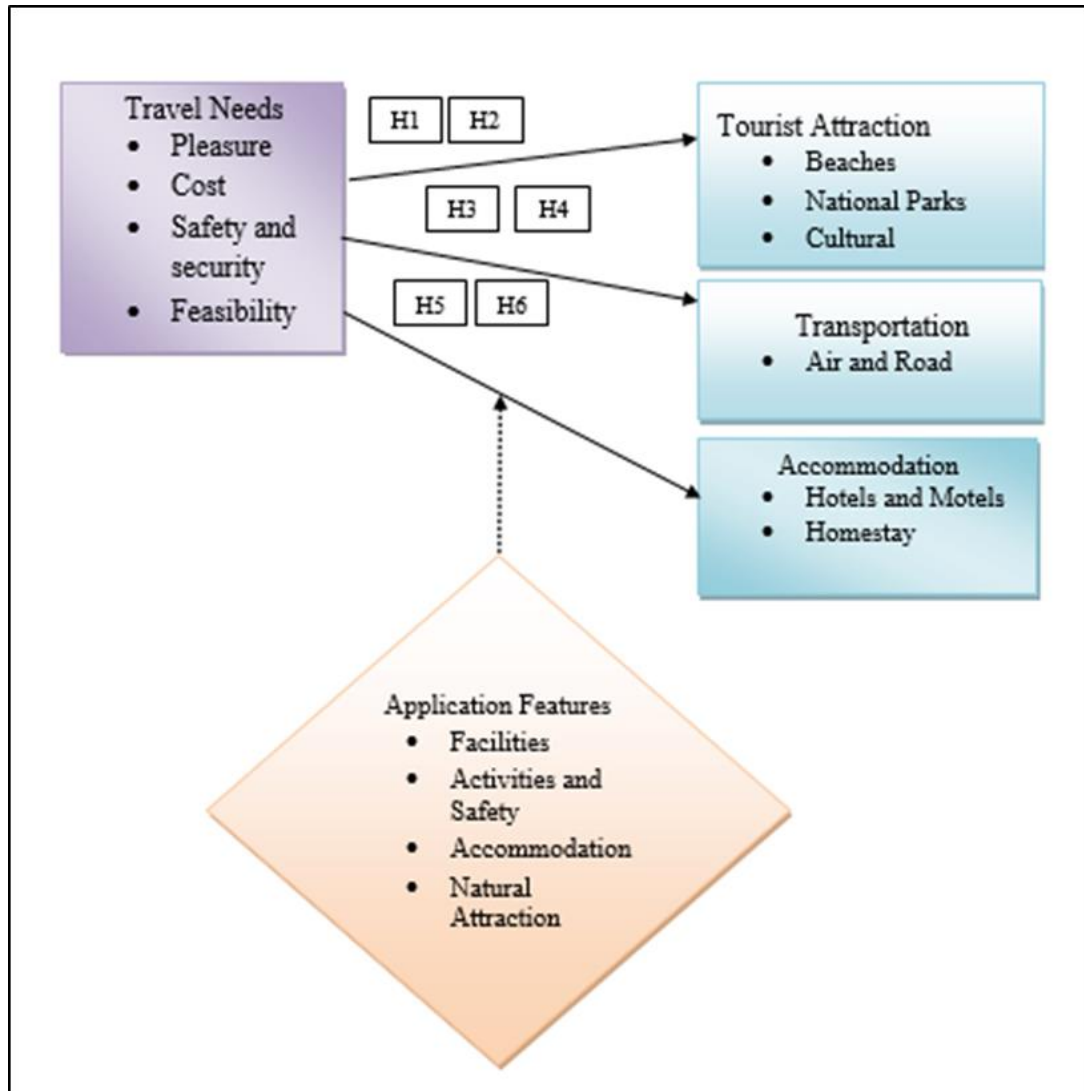


Figure 4.7: Hypothesis Testing

Hypothesis One (H₁)

Satisfaction on travel needs by tourists will impact a tourist attraction supply by travel agencies

To test the hypothesis as stated above, a regression analysis had been used for independent variables (Travel Needs) along with dependent variables (Tourism Attraction) to determine whether or not the hypothesis is accepted. This part of the hypothesis answers the objective of identifying tourist travel needs towards tourism attractions by using tourism

apps. Table 4.34 shows the summary of the relationship between independent variables (travel needs) and dependent variables (tourism attractions). The Independent variables contain the aspects of pleasure, cost, accessibility, feasibility, then safety and security. The dependent variables comprise modern accommodation, natural attraction, historical attraction, transportation, beaches attraction, traditional accommodation and cultural attraction. The value of R Square is 0.211, which means 2.11 percent of the variance in the tourist travel needs is influence by tourist attraction and the value of Durbin-Watson is 1.853.

Table 4.34: Summary of Relationship of Independent Variables (Travel Needs) and Dependent Variables (Tourism Attractions)

Model Summary^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.460 ^a	.211	.209	.29478	1.853
a. Predictors: (Constant), Independent					
b. Dependent Variable: DV1					

Table 4.35 displays the results of the coefficient hypothesis, one which is independent variables (travel needs) and another is the dependent variables (tourism attractions). The largest standardized coefficients beta, which is 0.460 which means the contribution between the travel needs and tourism attraction is the strongest. The significance also shows a great value of 0.000 for both of the variables.

Table 4.35: Coefficients of Hypothesis One

Coefficients ^a				
Model		Standardized Coefficients	T	Sig.
		Beta		
1	(Constant)		10.369	.000
	Independent	.460	10.119	.000

Hypothesis Two (H₂)

Satisfaction on tourist travel needs will impact transportation supply by travel agencies

To test the hypothesis as stated above, a regression analysis had been used for independent variables (Travel Needs) along with dependent variables (Transportation) to determine either the hypothesis is accepted or not. This part of the hypothesis answers the objective of determining the influence of tourism apps on the tourists' travel needs and the management of tourism attractions. Table 4.36 below shows the summary of the relationship between independent variables (travel needs) and dependent variables (transportation). The Independent variables contain the aspects of pleasure, cost, accessibility, feasibility, then safety and security. The Dependent variables comprise only one item, which is air and road. The model below shows that the value of R Square is 0.071, which means only 0.71 percent influence of travel needs toward supply transportation by tourist then the value of Durbin-Watson is 1.853 which is displayed as of great value.

Table 4.36: Summary of the relationship of independent variables (travel needs) and dependent variables (Transportation)

Model Summary^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
1	.267 ^a	.071	.069	.49976	1.772
a. Predictors: (Constant), Independent					
b. Dependent Variable: DV2					

Table 4.37 present the results of coefficient hypothesis two, which is independent variables (travel needs) and another is the dependent variable (transportation). Table 46 also shows the largest standardized coefficients beta, which is 0.267, which means the contribution between the travel needs and tourist attraction is the strongest. The significance also shows a great value of 0.000 for both of the variables. According to Pallant (2005), if the significance value is less than 0.5, for instance, .01, .0001, etc. That shows the variables making a significant strongest contribution to the prediction of the dependent variables.

Table 4.37: Coefficients of Hypothesis Two

Coefficients^a				
Model		Standardized Coefficients	T	Sig.
		Beta		
1	(Constant)		6.266	.000
	Independent	.267	5.411	.000
a. Dependent Variable: DV2				

Hypothesis Three (H₃)

Satisfaction on tourist travel needs will impact to higher demands of accommodation by tourist vice versa high supply by travel agencies

A regression analysis has been carried out to determine whether or not the hypothesis that apps and websites influence how tourists choose where and when to visit is correct. This part of the hypothesis answers the objective of determining the influence of tourism apps on the tourists' travel needs and the management of tourism attractions. Table 4.38 summarizes the results of multiple regression between independent variables (travel needs) and dependent variables (accommodation). Independent variables contain the aspects of pleasure, cost, accessibility, feasibility, then safety and security. Dependent variables comprise two components which are hotels motels and homestay. The model below shows that the value of R Square is 0.147, which means only 1.47 percent influence of travel needs toward the supply of accommodation by tourists.

Table 4.38: Summary of Relationship of Independent Variables (Travel Needs) and Dependent Variables (Accommodation)

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
1	.384 ^a	.147	.145	.33593	1.564

Table 4.39 present the results of coefficient hypothesis two, which is independent variables (travel needs) and another is the dependent variable (accommodation). Table 4.39 also shows the largest standardized coefficients beta, which is 0.384, which means the contribution between the travel needs and tourist attraction is the strongest. The significance

also shows a great value of 0.000 for both of the variables.

Table 4.39: Coefficients Hypothesis Three

Coefficients ^a				
Model		Standardized Coefficients	T	Sig.
		Beta		
1	(Constant)		9.546	.000
	Independent	.384	8.125	.000

Hypothesis Four (H₄)

The usage of tourism apps features guideline by travel agencies will generate higher satisfaction success rate of travel needs and higher demands tourist attraction by tourists

To test the hypothesis as stated above, a regression analysis had been used for the independent variables (Travel Needs) and (Tourism Attraction) together with the dependent variables (application features) in determining whether or not the hypothesis could be accepted. This part of the hypothesis answers the objective of determining the impact of tourism apps on tourists' travel needs and travel agencies. Table 4.40 shows the summary of the relationship between tourism apps (moderator) and tourist attraction (independent variables). The independent variables contain aspects such as pleasure, cost, accessibility, feasibility, then safety and security. Meanwhile, the dependent variables consist of beaches, natural parks and culture. The moderator includes aspects such as facilities, activities and safety, accommodations and tourism attractions. Table 4.41 shows the largest standardized coefficients beta, which is 0.414, which means the contribution between the travel needs and tourist attraction is the strongest. The model summary of application features and tourism

attraction identified R Square is 0.275 while Durbin-Watson is 1.795.

Table 4.40: Summary of the relationship of independent variables (travel needs) and dependent variables (tourism attractions) with the moderator (application features)

Model Summary^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1 (AF-TA)	.524	.275	.273	.26681	1.795
2 (TN-TA)	.460	.211	.209	.29478	1.853

*AF - Application Feature *TA – Tourism Attraction *TN – Travel Needs

Table 4.41: Coefficients Hypothesis Four

Model		Standardized Coefficients	t	Sig.
		Beta		
1	(Constant)		5.806	.000
	Independent	.414	9.354	.000
	DV1	.333	7.525	.000

Hypothesis Five (H₅)

The usage of tourism apps features as a guideline by travel agencies will moderate high satisfaction travel needs and demands of transportation by tourist

A regression analysis has been used to test the hypothesis that apps have an impact towards tourists' travel needs and travel agencies. Table 4.42 shows the summary of the relationship between tourism apps (moderator) on the relationship with travel needs (independent variables) and transportation (dependent variables). The independent variables

contain aspects such as pleasure, cost, accessibility, feasibility, then safety and security. Meanwhile, the dependent variables include air and road only one component. Table 4.43 shows the largest standardized coefficients beta, which is 0.518, which means the contribution between the travel needs and tourist attraction is the strongest. The model summary of application features and transportation identified R Square is 0.103, while Durbin-Watson is 1.577.

Table 4.42: Summary of the relationship of independent variables (travel needs) and dependent variables (transportation) with the moderator (application features)

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
AF-TR	.324	.105	.103	.29632	1.577
TN-TR	.267	.071	.069	.49976	1.772

*AF - Application Feature *TR – Transportation *TN – Travel Needs

Table 4.43: Coefficients Hypothesis Five

Model		Standardized Coefficients	t	Sig.
		Beta		
1	(Constant)		8.286	.000
	Independent	.518	12.132	.000
	DV2	.186	4.362	.000

Hypothesis Six (H₆)

The usage of tourism apps features as guideline by travel agencies will moderate high satisfaction with tourist travel needs and high accommodation demand by tourists.

Table 4.44 presents a summary of the relationship between tourism apps (moderator) on the relationship with travel needs (independent variables) and accommodation (dependent variables). A regression analysis had been used for the independent variables (Travel Needs) and (Accommodation) in determining whether or not the hypothesis could be accepted. This part of the hypothesis answers the objective of determining the influence of tourism apps on tourists' travel needs and management of tourist attractions. The moderator includes aspects such as the facilities, facilities, activities and safety, accommodations, and tourism attractions. The independent variable is based on factors such as pleasure, cost, accessibility, feasibility and feasibility, then safety and security. Model summary of application features and accommodation identified R Square is 0.172, which means a contribution to 1.72 percent to influence tourists using tourism apps, while Durbin-Watson is 1.514. Travel needs and tourism attraction relationship contribution R Square is 0.145, then Durbin-Watson is 1.564. Table 4.45 also shows the largest standardized coefficients beta, which is 0.479, which means the contribution between the travel needs and tourist attraction is the strongest.

Table 4.44: Summary of Relationship of Independent Variables (Travel Needs) and Dependent Variables (Accommodation) with Moderator (Application Features)

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
AF- ACC	.415	.172	.170	.28507	1.514
TN- ACC	.384	.147	.145	.33593	1.564

*AF - Application Feature *ACC - Accommodation *TN – Travel Needs

Table 4.45: Coefficients of Hypothesis Six

Model		Standardized Coefficients	T	Sig.
		Beta		
1	(Constant)		6.875	.000
	Independen t	.479	10.863	.000
	DV3	.231	5.228	.000
a. Dependent Variable: MD				

4.10 Summary

In this chapter, the researcher analyzed data using SPSS, which is from the first data cleaning followed by the demographic respondent analyse data. The analysis identified four components of the application features that are should be developed in a prototype: facilities, activities and safety, accommodations and natural attraction.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter concludes the overall research related to the topic investigated, each study objective's results are summarised in the chapter. The researcher also makes some suggestions for future studies and contributions to knowledge. Lastly, the conclusion of overall thesis is explored further. Summaries of the significant outcomes and the new research conceptual framework are also included. It is necessary to explore the relationship between one variable and the others. The hypothesis in the new framework is made up of three variables: independent variables (travel demands), dependent variables (tourist attraction), and app features (moderator). The first hypothesis has been evaluated between the independent factors (travel requirements) and the dependent variables to determine visitors' travelling demands (tourist attraction). The second six hypotheses will examine the influence of independent factors (travel requirements), dependent variables (tourist attraction), and the moderator (app features of tourism applications on tourists' travelling needs and tourist attraction). The hypothesis has been evaluated between the independent factors (travelling demands), the dependent variables (tourist attractions), and the moderator (tourism app features). All of the hypotheses have a significant value, indicating that they are supported. This research also created a tourist app prototype to serve as a guideline for travel companies' businesses, based on the data that was analysed and backed by the literature that was obtained. The data was collected from 384 respondents and analysed using descriptive analysis, which focuses on frequency and percentage counts. To determine the association between the variables in the conceptual framework, statistical tests such as

reliability, factor analysis, varimax, and regression were used. The findings were provided in Chapter 5 and demonstrated that they had addressed all of the study goals. The chapter concluded by discussing and making recommendations for more research and studies that should be done. Contributions to knowledge will be explored as well.

5.2 Discussion of Findings

This part of the thesis will discuss the achievements of the research objectives that had been set. The aims of the research had been elaborated in the research objectives. Three objectives had been set to achieve at the beginning of the research;

- i. To analyse travel needs features that satisfy tourist
- ii. To determine the impact of apps features have on travellers needs and travel agencies.
- iii. To propose the apps features as guideline for tourism agencies.

This research demonstrated that tourism in Malaysia is thriving in terms of utilising media to attract visitors. However, in order to maintain strong marketing in the tourist industry, the use of apps must become more accessible. This leads to research that blends the travel demands of visitors with the characteristics of tourism applications. The first goal is to analyse the fulfilment of visitors' travel demands on app features based on the set goals. The second goal is to ascertain the effect of app features on tourist travel demands and travel agents. Six hypotheses were supported based on the tested hypothesis. The supported hypothesis includes components of visitors' travel demands as independent factors, tourism attractions, transportation, and lodging as dependent variables, and application features as a moderator.

5.2.1 Travel Needs on Apps Features That Satisfy Tourist

The initial study goal is to determine visitors' travel requirements while utilising tourism applications. To determine tourist travel requirements, a factor analysis was performed to determine which needs best matched the tastes, preferences, and interests of visitors in Kuching, Sarawak. Carreira, Patricio, Renato, Magee, and Hommes (2013) argued that when products and services become commoditized, the experiences to organise the appropriate characteristics with tourist travel demands will produce the most. Thus, ideas for features of tourist apps for a good user or customer experience involve not only items but also satisfying user experience, as well as a guideline to tourism businesses in order to produce remarkable features of tourism apps in Kuching, Sarawak.

The travel needs of visitors are an extremely vital factor to investigate in order to design a medium that can attract tourists. The development of tourism applications will be influenced by the travel demands of tourists. Schneider (2013) proves this by stating that every visitor has different travel demands based on their desires and travel behaviour. This outlines how travellers choose activities, transportation, and lodging. Tourists' journey must be based on their desires, which will serve as the primary guidance in making choices or decisions. As a result, the visitors' travel requirements will have an influence on their trip experiences. Kim and Ritchie (2012) investigated the needs of golf travellers using a mixed method approach. However, in terms of economic possibilities, benefits, learning and challenging retreat or relaxation, and social involvement or kinship, their desires are pretty comparable to those previously articulated by others. The researchers identified the following tourist travel needs in Kuching, Sarawak after analysing the data using factor analysis:

- i. Pleasure
- ii. Cost
- iii. Accessibility
- iv. Feasibility
- v. Safety and security

The relationship between the effect of visitors' travel demands as independent factors and tourist attractions as dependent variables became a direct guidance in designing tourism app prototypes. This research also discusses the role of tourism apps as a mediator of travellers' travel demands and tourism attractions. Tourism applications affect travellers to suit their travel demands and demand for tourism attractions. According to Xiang, Wong, and Fesenmaier, tourists may assume that utilising tourism apps has a substantial influence on their experience, whether before, during, or after their vacation (2014). Tourism apps provide several benefits in terms of supporting travellers in organising their perfect holiday. Tourists may utilise tourism software to plan their visits more efficiently. Kang (2014) backs this up, claiming that a variety of factors impact tourists' adoption of tourism apps. The essential reason is that it may be inferred that visitors are happy with tourism applications for the improvement of their knowledge to plan their holiday, in addition to providing directional information while on vacation. The reason for this is that everything they want may be standardised based on their desires, preferences, and taste, such as when selecting transportation, activities, and lodging when travelling. Time limitations, distance, status, comfort, security, benefit, price, geographic location, and competition all influence a tourist's choice of transportation mode in the tourism business, according to Westlake and Robbins

(2005). According to the data research, there are five distinct categories of travel needs, three distinct types of tourist attractions, and five distinct types of application features.

The functionality of tourist applications is critical to the growth of the tourism sector. According to Sarawak Tourism Board (2018), the tourism sector in Sarawak is one of the most important economic development elements. As a result, the Sarawak government carefully planned how to progress the economy via the tourist sector. The Sarawak government also wishes to promote tourism via technology. Through technology and the ICT sector, the tourist industry has consistently evolved and experienced rapid alterations. To create exciting features for tourism applications, visitors' travel demands must be identified and linked to the app's features. Needs are things that tourists need when travelling in order to fulfil their desires. Tourists' travel requirements are determined by their tastes and manner of life. However, some travellers have demands dependent on the destinations they want to visit; various regions have varied requirements for tourists. The North American Industry Classification System (NAICS) (2007) identified five travel requirements, which are shown below:

- i. Accommodation
- ii. Food and beverage services
- iii. Recreation and entertainment
- iv. Transportation
- v. Travel services

While researching Kuching, Sarawak the researcher found out that there are five travel needs for the tourists. These needs are pleasure, cost, accessibility, feasibility and safety with security.

Tourists' Travel Needs

- i. Pleasure
- ii. Cost
- iii. Safety and security
- iv. Feasibility

Pleasure is the most important need of the tourist while travelling. That is proven by Weinman (2007), as he claims that pleasure is the push factor to the tourist to make them want to travel. The pleasure was the central conception to our ethical understanding. Tourists have the willingness to pay for anything for their satisfaction because it is really important for their needs.

5.2.2 Impact of apps features on the tourists' travel needs and travel agencies

The link between tourists' travel needs, application features, and tourism attractions influenced visitors' usage of tourism applications. The five travel needs are enjoyment, affordability, accessibility, feasibility, and safety & security. The application includes elements such as amenities, tourist attractions, lodging, activities, and safety, as well as a search button. Aside from that, tourist attractions, transportation, and lodging remain features as dependent variables have their things. To create a relationship that will encourage visitors to utilise tourism applications, each of the factors for travel needs, application

features, tourism attractions, transportation, and accommodation will be related to one another. The association between the variables demonstrates the impact of visitors who use tourism applications. This is shown by two assumptions that have been supported, which are:

H₁ Satisfaction on travel needs by tourists will influence a tourist attraction supply by travel agencies

H₂ Satisfaction of tourist travel needs will impact transportation supply by travel agencies

H₃ Satisfaction on tourist travel needs will impact to higher demands of accommodation by tourist vice versa high supply by travel agencies

H₄ The usage of tourism apps features guideline by travel agencies will generate higher satisfaction success rate of travel needs and higher demands tourist attraction by tourists

H₅ The usage of tourism apps features as a guideline by travel agencies will moderate high satisfaction travel needs and demands of transportation by tourist

H₆ The usage of tourism apps features as guideline by travel agencies will moderate high satisfaction with tourist travel needs and high accommodation demand by tourists.

Hypothesis One

H₁ Satisfaction on travel needs by tourists will influence a tourist attraction supply by travel agencies

The first hypothesis discusses how the tourist's high travel requirements will impact the visitor's high demands on tourist attractions. The availability of tourism attraction supply by tourism businesses must take vital notes on tourist travel demands. If tourist attractions can match their needs, they will notice an increase in demand. Tourist travel needs are an important tool for marketing tourism attractions, encouraging and improving awareness of how to fulfil tourist wants in vacation locations such as nature and history (Braga, 2006). As we can see, understanding tourist travel desires is a vital component of tourism operations and the success of many tourism firms. Understanding of tourist needs varies by travel destination, with significant implications for tourism product improvement, such as changing how services and products are offered in response to demand, allowing local stakeholders to develop a customised offer that better meets the diverse needs of tourists (Zoltan & McKercher, 2015).

When it comes to a variety of tourist attractions, such as natural, social, and cultural attractions, and the fact that the population is dispersed around the territory, with no human abandoned places, all of those attraction services must ensure visitor safety (Baldacchino, 2008). Tourist attractions, tourist sites, and tourist points of interest are places that tourists often visit. As shown, the tourist attraction is intrinsically linked to the tourist product, which travellers are likely to choose depending on their requirements. Tourists pick a destination based on facts and personal experiences. As a consequence, the tourist attraction should feature a wide range of visitors in order to provide tourists with new experiences. The

elements connected with the human condition attract visitors, while the physical site circumstances attract tourists (Lau & McKercher, 2007). Many factors might influence a person's desire to visit a certain site, and each has been categorised into separate categories. Each category may be related to tourist needs or physical conditions; moreover, natural, cultural, and social events are more directly related to tourist travel locations, fun and adventure to travel motives, and safety in tourism facilities.

Hypothesis Two

H₂ Satisfaction of tourist travel needs will impact transportation supply by travel agencies

As a consequence of their high travel requirements, tourists will impose large demands on transportation supply in tourism sites. Because transportation is one method of ensuring visitor safety while engaging in all activities. A diverse variety of transportation alternatives has become a tourist attraction in the tourism business in order to deliver excellent services at a reasonable cost. According to Khadaroo and Seetanah (2007), it is impossible to expand tourism without ensuring transportation availability due to the facilities and infrastructures that enable tourists to access and move about the region, such as airports, seaports, and highways. Tourists will research the local transportation choices before making a decision to visit. Similarly, as wages rise, so does tourist transportation demand when travelling, with some visitors opting for vehicle rental so they may explore everything without being limited by time constraints in public transit, such as decreased commute time. Tourists may also investigate environmental quality, which includes towns and cities as well as the natural environment. Litman (2008) concentrated on his research subject of 12 transportation components that influence a place's accessibility, especially:

- i. Modes of transportation
- ii. Transportation network connectivity
- iii. Travel cost or affordability
- iv. Mobility
- v. Integration of the links and modes within the transportation system
- vi. Transportation demands
- vii. User information
- viii. Mobility substitutes
- ix. Transportation management
- x. Land use factors
- xi. Prioritization of travel activities
- xii. The value inaccessibility or isolation.
- xiii. Improving these accessibility factors can contribute to the economic success of a tourist destination.

Hypothesis Three

- H₃ Satisfaction on tourist travel needs will impact to higher demands of accommodation by tourist vice versa high supply by travel agencies

According to the hypothesis stated above, there is a relationship between tourist travel needs and high demand for accommodation. We can say that there is a strong connection between them because each tourist needs a place to stay to travel more accommodation business care about tourist needs will affect demands on accommodation supply in terms of tourist pleasure, security and safety, feasibility, and accessibility. Before making a decision to suit their demands, travellers will evaluate the price of the purchase. There are many factors to consider when choosing lodging, such as the comfort of the bed, the size of the room, proximity to tourism activities and services (Noone & McGuire, 2013). Many elements might impact lodging decision, such as hotel costs, which are often seen as critical criteria when choosing a hotel. The primary necessities provided by the lodging industry will determine the rate at which visitors pick.

To choose a hotel to stay in, the proper pricing of lodging services must be based on tourist travel demands, behaviours, or desire to pay (Guillet, Liu & Law, 2014). Some of the motels provided tourist necessities like their own house at a premium price, while others provided basic conveniences at a moderate price. The lodging picked is based on what the visitor needs when travelling. Tourism enterprises provide a wide range of lodgings to meet the demands of tourists. According to Lew and McKercher (2006), there are five elements that visitors would evaluate in order to meet their travel requirements, which are as follows:

- i. The socioeconomic context, it is a low-cost activity that helps to civic formation.
- ii. Nature, through permitting direct interaction with nature on a long-term basic
- iii. Cultural and social events, which enable a strong iteration with cultural and

social local events by creating a tight interaction with the local community.

- iv. Leisure and adventure, the many pathways provide a diverse range of fresh experiences as well as a sense of rest
- v. Tourism and supporting infrastructure, such as lodging, food, and transportation routes, on which tourists rely.

Hypothesis Four

- H₄ The usage of tourism apps features guideline by travel agencies will generate higher satisfaction of travel needs and higher demands tourist attraction by tourists

The fourth hypothesis examines the use of tourism applications to moderate-high travel requirements and high demands on tourist attractions by tourists. Nowadays, there are a variety of functions added in tourism applications to directly serve tourist travel demands and sell tourist attractions by travellers. As a result, the use of mobile applications in tourism apps is becoming increasingly important, driven by the increasing use of mobile devices such as smartphones and tablets, to generate a good deal of information that tourist shows by tourist attraction business to generate a connection between tourist to fulfil their desire. The use of tourism applications alters how the travel industry operates and how consumers travel to meet their travel demands.

Airbnb for lodging, TripAdvisor for activity planning, and Skyscanner for airline transportation are examples of tourist apps that are expressly targeted and serve a particular purpose for visitors. Each tourism app has an influence on visitor travel demand and the management of tourist attractions. Because of the rising variety of travel apps accessible, people can now access information, make purchases, and share their trip experiences at any

time and from any place (Pedrana, 2013). The credibility of content offered on tourism apps contributes to the power marketing of the tourist attractions business. Such materials may provide travellers with trustworthy expertise and information about locations and tourist goods, helping them to satisfy their intended requirements while travelling (Yoo et al., 2011). Tourism researchers are interested in the influence of social media on travel decision-making. Social media is frequently utilised by consumers and companies because it enables individuals and businesses to disseminate information and reach and influence a huge number of people (Zeng & Gerritsen, 2014).

Hypothesis Five

H₅ The usage of tourism apps features as a guideline by travel agencies will moderate high satisfaction travel needs and demands of transportation by tourist

Tourists' use of tourism applications will moderate-high travel requirements and high transportation demands. This direct scenario of the features in tourism applications will influence a visitor to choose which transportation services meet their wants in terms of enjoyment, affordability, safety, and accessibility. As a result, the use of tourism apps plays a key role in an improved market of linked services and goods, particularly in the transportation domain, where information gathered in one app along with booking processes will help tourist planning their trip simpler. To meet tourist travel demands in terms of transportation, tourism applications will increase visitors' access to the location (Delaplace , Bazin, Pagliara & Sposaro, 2014)

As society has become more aware of the use of technology such as tourism apps, and the internet has made a significant contribution to influencing human life in every area,

tourism apps are being used to expand the marketing area for tourism businesses to promote their services by offering something that can satisfy tourist travel needs. There is no question that technology can assist individuals enhance the quality of their decision making, according to Wu, Ma, Wang, and Li (2022). However, before using a travel app, users must first establish a willingness to use, which is impacted by their desire. Thus, from a number of viewpoints, elements encouraging people's readiness and use of information technology in travel, including the usage of travel mobile applications, include requirements, demands, and recommendations from others.

Tourism apps are redefining what it means to have unrestricted access to travel information, and one of the most important pieces of information for tourist travel requirements is transportation. Simply expressed, 'travel' is to move through space, from one area to another, or to go on a trip. Accessibility is characterised not just as the ability of visitors to access places, but also by the utilisation of transportation services once they arrive. These accessibility elements impact visitors' perceptions throughout their journey and serve as deciding aspects of the overall appeal of the site (Truong & Shimizu, 2017)

Hypothesis Six

H₆ The usage of tourism apps features as guideline by travel agencies will moderate high satisfaction with tourist travel needs and high accommodation demand by tourists.

The fifth hypothesis is that the use of tourism app features will moderate-high travel requirements and high demand for rooms by tourists. According to Varkaris and Neuhofer (2017), it is critical for accommodations businesses to market their services using features

in tourism apps. Tourism apps are becoming more significant when picking where to stay, so having a solid online presence and presentation is essential. Furthermore, as previously said, conventional sources of information have been displaced in recent years by technologically savvy individuals who search for anything using apps and websites, while tourists rely on user-generated content (UGC) to influence their judgements. Travelers use the internet and technology in the tourism sector for a number of objectives, including sharing their travel-related experiences, engaging with other customers, connecting with people from other locations, and buying travel-related things and services. As a consequence, offering good accommodations will influence visitor demand since it will satisfy their needs while travelling. It is worth emphasising that substantial changes in tourist travel demands are reshaping the hospitality industry in terms of increasing expectations, technology that is defining the guest experience, and customization of service by detecting appropriate needs (Schaap, 2017). It is worth emphasising that technology in tourism applications has a substantial impact on tourist lodging demand. The traditional technique of obtaining information about locations and things, which was promoted in brochures and travel agency newsletters, was suddenly replaced by the internet, where customers could easily research their needs and offer opinions in a more efficient and unified manner.

Before	During	After
191	193	196

Figure 5.1: Influence of Tourism Apps on tourists

One notion that has been validated is that the satisfaction of travellers with their travel demands will impact the success of the tourist attraction. While hypothesis four, five, and six are app characteristics that will assist regulate the fulfilment of visitors' travel demands

in assessing the success of tourism attractions. Tourism attractions are the products that must be promoted in tourism applications in order to meet the travel demands of visitors. According to Benckendorff (2014), tourist attractions, both man-made and natural, are important in the tourism industry since they form the foundation of a tourism product. Tourism attractions are at the centre of the tourism sector. If there are no attractions, there is no need for further tourist services. It is reasonable to assume that without attractions, tourism as we know it would not exist. A tourist attraction is a long-term resource that relies on tourism for all or part of its revenue. It has become a source of cash for the developer, who gets money from tourists in return for administering the tourist attraction for the guests' leisure and enjoyment. Tourist demands must be connected to one another in order to be incorporated in the application features in order to meet visitors' travel needs. This is done to make the programme more appealing to users. The impact of tourism apps is critical in satisfying visitors' travel demands and determining the effectiveness of tourism attraction management. Tourism applications may help travellers determine and arrange their trip schedule by recommending destinations to see, places to stay, and modes of transportation to utilise.

Table 5.1: Impact of apps features on the tourists' travel needs and travel agencies

Travel needs	Application Features	Tourism Attractions
• Pleasure • Cost • Feasibility • Safety and security	• Facilities • Activities and Safety • Accommodations • Natural Attraction	Tourist Attractions
		• Cultural • Beaches • National Park
		Transportation
		• Air and Road
		Accommodation
		• Hotels and Motels • Homestay

5.2.3 Propose Features of Tourism Apps as Guideline for Travel Agencies

Tourism applications are moderating factors in the conceptual framework because they may influence tourists to satisfy their demands and also serve as marketing tools for tourism attractions such as activities, lodging, and transportation. This is supported by the remark that apps are the newest phenomena in the tourism industry and a reality of the twenty-first century, as mobile technologies have become crucial tools for travellers navigating an unpredictable environment. Tourism apps are a component of the industry, causing various changes that influence many sectors, including tourism, which has been greatly affected by the phenomena of mobile tourism, a relatively recent trend in the area of tourism. It is critical to comprehend the impact of smartphones and mobile travel apps (MTAs) on the tourist experience, as well as the primary motivations for using travel apps and their perceived utility and value: facilitating activities at the destination such as purchasing tickets, restaurants, guides, and maps (Dias & Afonso, 2020).

According to Liu, Mehraliyev, Liu, and Schukert (2019), there are six indicators of tourism apps as marketing tools used to influence the selection of tour destination, namely; a tour visit destination, transportation, accommodation, food, and tourism activities such as shopping and leisure activities. The comments on features that should be included will be considered as a guideline for travel companies on developing the features of tourism applications to become more efficient. After collecting data and analysing it using factor analysis, five tourist travel demands were identified. These demands, according to 384 visitors in Kuching, Sarawak, include the tourists' enjoyment, trip expense, accessibility, feasibility, and safety. Tourists' travel demands will impact the tourism attraction because tourist satisfaction with their travel needs will determine the tourism attraction's success. As independent variables, tourist attraction, transportation, and accommodation include cultural, national park, and beaches in tourism attraction, air and road transportation, and hotels, motels, and homestay in accommodation. This research also discovered that visitors' use of features in tourism applications would result in great satisfaction with their travel requirements and increased demand for tourism attractions.

Tourism applications that are systematic and efficient, as well as ideas and recommendations of application features based on the demands of visitors, have been developed. After analysing the data using factor analysis, the researcher determined that five primary features critical components of tourism apps suit the travel expectations of tourists in Kuching, Sarawak. The fact is that software in tourism app features is vital to boosting the effectiveness of tourist apps by providing consumers with solid information on any device. To design effective tourism apps, examine the place first, then provide goods and services that are related to tourist travel wants in that location. This manner, you can give a centralised resource for learning about attractions, hotels, and transportation. The push

factors for adopting tourist apps include ease, safety, accessibility, and cost, thanks to developments in technology, data supply, and user understanding. Proven by a research that concludes the overall usage of mobile applications by constructing a taxonomy of mobile apps in tourism from two angles. First, a taxonomy of service-related apps was developed, which identified seven categories: navigation, social, mobile marketing, security/emergency, transactional, entertainment, and information. The taxonomy based on the amount of involvement with mobile apps in tourism, on the other hand, is about personal choices, location, and security, through the web, content addition, aesthetic changes, and those applications that stay the same for everyone (Kennedy-Eden and Gretzel, 2012). The findings of this research determine the qualities of tourism applications required by a visitor in Kuching, Sarawak. Mobile applications are an efficient approach for travel-related businesses to create strong consumer connections. In today's business climate, mobile applications assist travel-related enterprises in providing clients with engaging, intriguing, and unique experiences (Ukpabi & Karjaluoto, 2017).



Figure 5.2: Application Features as Guideline

Specific requirements, such as an ATM nearby, transit, neighbouring amenities, and maps, will be met by the facilities. While events and entertainments with emergency calls

will be included in activities and safety. The lodging characteristics have been classified into three categories: homestay, hotel, and motel filters based on the cost of travel for visitors. Culinary or food attractions, beaches, national parks, cultural attractions, and historical structures are examples of tourism attractions. According to Smirnov, Shilov, Kashevnik, Teslya, and Shchekotov (2013), the information needed for tourist applications is comparable to an information centre in a paper of promotional tourism activities. This is due to the fact that when it comes to travel location information demands, transit alternatives, and intelligent guidance to organising activities to explore, the following significant challenges for a visitor occur. Tourist greetings should include important information such as regional police and ambulance phone numbers, consulate or embassy contact information to ensure safety and security, region-specific transportation information such as how to use public transportation and which mode of transportation should be used, and tourist safety information with price descriptions to join activities. The public transportation schedule, interactive map, route, taxi phones, and ridesharing options are all part of the transportation choices quandary. Intelligent guides give information about attractions and places of interest, as well as suggestions for which attraction to visit and how to get there, based on tourist preferences and the current circumstances in the area. This need must be built and incorporated into a single tourism app in order to make tourist travel more efficient. Following the inclusion of features, the following five are proposed: facilities, activities, accommodations, and natural attractions. To ensure that the prototype of tourism apps is simple to use and that the information is organised in a systematic way, sub-features are grouped into each feature of tourist apps.

The facilities section offers a list of banks in and around Kuching, Sarawak, to assist tourists in locating the closest bank. The maps of Kuching, Sarawak were then used to

guarantee that the visitor recognised the specific site where they wished to travel. According to Smirnov, Kashevnik, Shilov, Teslya, and Shabaev (2014), the four primary functionalities of mobile travel application categories that will concentrate on tourist activities, transportation, and lodging are online booking, information resource, location-based services, and trip journals. Furthermore, a list of emergencies is a unique feature designed to safeguard the safety and security of tourists visiting Kuching, Sarawak. There are contact information for security departments such as police, hospitals, and others. There is also a mechanism where tourists may enter their family phone numbers so that they can be reached if something happens to them. All four sub-menus in the facility have tourist app concepts. The activity section covers event and entertainment dates and times in and around Kuching, Sarawak. This section also includes appealing activities that tourists may enjoy when visiting Kuching, Sarawak, such as Bako National Park for trekking and Sarawak Cultural Village for learning more about Sarawak culture and tradition.

Tourism apps alleviate these constraints by sharing and promoting tourist activities. They are an efficient way for travel-related businesses to create strong client connections (Kuo, Huang, Nguyen & Nguyen, 2019). There are three types of accommodations: hotel, motel, and homestay. There are also maps where travellers may find out where they are and how much it costs. Finally, the graphic below depicts the characteristics included inside the tourist app prototype. Goal to proposed features of tourism apps for tourism business because of the impact of list travel needs needed by tourist in Kuching Sarawak for apps features that utilized by tourist according to tourist needs, preferences and also geographical factor which is as research location. Travel needs as features in apps important component of analysing market segment for tourism agencies to supply their services or product in the tourism industry. The impact of travel needs as app features connects to the tourist satisfaction,

consequently increase profitability of tourism agencies in part of guideline to develop their own tourism apps or in collaboration with others parties to know in depth about digital technology tourism application as an important tools to attract more customer. The most important this research finding on app features would be the results of the best features should be a references by tourism agencies.



Figure 5.3: Proposed Tourism Attraction Features

5.3 Recommendations for Future Research

There are a few recommendations for further study and for the Sarawak Ministry of Tourist, Arts, and Culture to promote the use of tourism applications in the tourism business to benefit the Sarawak Government indirectly. There are several areas for further study, particularly in rural regions, such as Gua Mulu National Park and Bukit Tiban National Park. Future scholars should be encouraged to do large-scale study not just in Kuching but across Sarawak.

A larger population may result in more responses in the database. Data gathering and analysis may be required for larger samples. Future researchers may also include another technique in the investigation, such as the qualitative approach, to assist the researcher

collect more data and improve the data quality. Researchers may also work with visual designers to improve the layout of tourist applications in terms of themes. Aside from that, suggestions in this study may concentrate on assisting small tourist firms in increasing their sales via the use of tourism applications.

The ministry of tourism, arts, and culture might do research to assist small tourist enterprises in becoming acquainted with the use of tourism applications to assist them in developing their company. Tourist applications may also be used by the Ministry to promote tourism businesses that provide goods and services such as cultural attractions, culinary attractions, activities, and events. The rural tourist business should also be promoted through tourism applications. For example, when they offer unique products, which may serve as a chance for travellers to learn more about Sarawak culture.

The new conceptual framework (**Figure 2.13**) of the study may also be used as a guide to create more systematic and efficient tourism applications, as well as to entice travellers to utilise them. Demonstrates travel needs, tourism attractions that might assist in attract more tourists. In order for the Ministry of Tourist's tourism applications to be updated, additional application features may be made available. Promoting travel apps to a wider audience is also necessary, not just in Sarawak but also throughout Malaysia and worldwide.

Proposed features of tourism apps for tourism agencies based on tourist needs needed by tourists in Kuching Sarawak also consider tourist preferences, and geographical element as the study site. Travel needs as features in apps are an essential component of market segment analysis for tourism organisations to sell their services or products in the tourism sector. Tourism agencies need to develop their own tourism apps or collaborate with other parties to learn more about digital technology tourism application as an important tool to

attract more customers. The impact of travel needs as app features connects to tourist satisfaction, thus increasing the profitability of tourism agencies.

REFERENCES

- Andrades, L. & Dimanche, F. (2015). Tourism Management. *Journal of Research Gate*, 302, 88-100.
- Altschuler, W. (2020). The Forbes: How to Help the Travel and Tourism Industry During the Coronavirus Crisis. [online] <https://www.forbes.com/sites/wendyaltschuler/2020/03/17/how-to-help-the-travel-and-tourism-industry-during-the-coronavirus-crisis/?sh=274bb7437235> [Assessed on 28 November 2022].
- Alves, B., Benavente, J., & Ferreira, Ó. (2014). Beach Users' Profile, Perceptions and Willingness to Pay for Beach Management in Cadiz (SW Spain). *Journal of Coastal Research*, 70, 521-526. [online] Available at: https://www.researchgate.net/publication/278115190_Beach_users'_profile_perceptions_and_willingness_to_pay_for_beach_management_in_Cadiz_SW_Spain [Assessed on 30 June 2021].
- Ayres, C. (2018). Advantages and Disadvantages of Purposive Sampling. Connect Us Fund. [online] Available at: <https://connectusfund.org/6-advantages-and-disadvantages-of-purposive-sampling>
- Arcy, D., Jacobs, L., Razavieh, A., & Sorensen, C. (2006). *Introduction to Research in Education*. Belmont: Thomson Wadsworth.
- Abdelal, R. Herrera, Y. M., Johnston, A. I., & McDermott, R. (2009). Introduction. *Measuring Identity: A guide for Social Scientists*. New York: Cambridge University Press.
- Arhippainen, L., & Tähti, M. (2003). Empirical Evaluation of User Experience in Two

- Adaptive Mobile Application Prototypes. *Proceedings of the 2nd International Conference on Mobile and Ubiquitous Multimedia*, 27-34.
- Benckendorff, P. (2014). *Attraction, Tourism*. Encyclopedia of Tourism. Cham, Switzerland: Springer International Publishing.1-4. [online] Available at https://doi.org/10.1007/978-3-319-01669-6_12-1 [Assessed on 07 July 2021]
- Baker, T.L. (1994). *Doing Social Research (2nd Ed)*., New York: McGraw-Hill Inc
- Bhasin, H. (2017). Needs Wants and Demands. *Marketing Management Articles*. [online]
Available at: <https://www.marketing91.com/needs-wants-and-demands/> [Assessed on 15 October 2018].
- Beliatskaya, I. (2013). “The Evaluation of Vilnius Tourism Mobile Application,” Pap. Tur., vol. 54, pp. 109–121.
- By (2018, August 14). Aiming to Make Sarawak a Preferred Tourist Destination. Sarawak Tribune: <https://www.newsarawaktribune.com.my/aiming-to-make-sarawak-a-preferred-tourist-destination/>
- Black, G. (2015). The Five Stages of Travel and the Digital Travellers: Digital Tourism of Scotland. *Summer Tourism Conference*, Edinburgh, Scotland, 23 June 2015. Cairngorms Business Partnership.
- Benckendorff, P, J. & Pearce, P, L. (2003). Australian Tourist Attractions: The Links between Organizational Characteristics and Planning. *Journal of Travel Research*, 42, 24-35.
- Bamford, W., Coulton, P., & Edwards, R. (2007). Space-Time Travel Blogging Using a Mobile. In Inakage, M, N., Lee, M., Tscheligi, R., Bernhaupt, S. & Natkin. *Proceeding of the International Conference on Advances in Computer Entertainment*

Technology Series, 203, 13-15.

Bartholomew, D. J. (1980). Factor Analysis for Categorical Data. *Journal of the Royal Statistical Society Series B Methodological*, 42(3), 293-321.

Buhalis, D. (2003). *E-Tourism: Information Technology for Strategic Tourism Management*. Harlow: Prentice Hall.

Bajada, T. & Titheridge, H., (2017). The Attitudes of Tourists Towards a Bus Service: Implications for Policy from a Maltese Case Study. *Transportation Research Procedia Journal*. 25, 29-41.

Bong, K. (2020). Sarawak Tourism Takes Next Step in Digitalization with Sarawak Travel App Web Portal. *The Dayak Daily*. [Online] Available at: <https://dayakdaily.com/sarawak-tourism-takes-next-step-in-digitalisation-with-sarawak-travel-app-web-portal/> [Assessed on 10 July 2021].

Böhmer, M., Hecht, B., Schoning, J., Kruger, A., & Bauer, G. (2011). Falling Asleep with Angry Birds, Facebook and Kindle: A large Scale Study on Mobile Application Usage. In *Mobile HCI 2011 - 13th International Conference on Human-Computer Interaction with Mobile Devices and Services* 47-56. [online] Available at: <https://doi.org/10.1145/2037373.2037383> [Assessed on 10 July 2021].

Baldacchino, G. (2008). Trains of Thought: Railways as Island Antitheses. *Shima: The International Journal of Research into Island Cultures*, 2(1), 29-40.

Burnett, J., & Baker, H. (2001). Assessing the Travel-Related Behaviors of the Mobility-Disabled Consumer. *Journal of Travel Research*. 40. 4-11. [online] Available at: [10.1177/004728750104000102](https://doi.org/10.1177/004728750104000102) [Assessed on 10 July 2021].

Björk, P. & Kauppinen-Räsänen, H. (2016), "Local food: a Source for Destination Attraction". *International Journal of Contemporary Hospitality Management*.

- 28(1), 177-194. [online] Available at: <https://doi.org/10.1108/IJCHM-05-2014-0214> [Assessed on 12 July 2021].
- Carreira, R., Patricio, L., Renato, N, J., Magee, C,. & Hommes, Q, V, E. (2013). Understanding the Travel Experience and its Impact on Attitudes, Emotions and Loyalty towards the Transportation Provider: A quantitative study with mid-distance bus trips. *Journal of Transport Policy*, 31, 35-46. [Online] Available at: <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.951.7145&rep=rep1&type=pdf> [Assessed on 10 September 2021].
- Cristescu, C, G. (2016). *The Significance of Tourist Apps on a Tourist Experience*. Master Thesis., Aalborg: Aalborg University Denmark.
- Child, D. (2006). *The Essentials of Factor Analysis*, 3rd ed., New York: Continuum International Publishing Group.
- Cenamor, J, D., Rönnerberg, S., & Parida, V. (2017). Adopting a Platform Approach in Servitization: Leveraging the Value of Digitalization. *International Journal of Production Economics*, 192, 54-65,
- Chaisawat, M. (2006). Travel and Tourism Education in Thailand, *Journal of Teaching in Travel & Tourism*, 5(3), 197-224.
- Currie, R.R. (1997) ‘A Pleasure-Tourism Behaviors Framework’. *Annals of Tourism Research* 24, 884–897.
- Dian, R., Kasuma, J., Adenan, M, A., Nordin, J. & Masjar, D, N. (2017). Identifying Factor of E-Business Adoption among Home Stay Operators in Kuching, Sarawak: Qualitative Study. *Voice of Academia*. 13(2), 11-22.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319–340. [Online] Available at:

<https://doi.org/10.2307/249008> [Assessed on 10 July 2021].

- Department of Statistics Malaysia. (2018). *Sarawak Population From year 2014 to year 2017.*, Putrajaya: DOSM Archive.
- Darr, K. (2015). *Introduction to Management, Leadership, Concepts, Principles and Practices.*, Burlington: Woods Hole: Jones & Barlett Learning.
- Dolnicar, S. (2017). *Peer-to-peer Accommodation Networks: Pushing the Boundaries.*Oxford: Goodfellow Publishers Ltd.
- Dias, S. F., & Afonso, V. A. (2020). Impact of Mobile Applications in Changing the Tourist Experience. *European Journal of Tourism, Hospitality and Recreation*, 113-120. [online] <https://doi.org/10.2478/ejthr-2021-0011>
- Delaplace, M., Bazin, S., Pagliara, F., & Sposaro, A. (2014). High Speed Railway System and the Tourism Market: Between Accessibility, Image and Coordination Tool. *54th European Regional Science Association Congress*. 26 -29.
- Dickinson, J, E., Ghali, K., Cherrett, T, J., Speed, C., Davies, N., & Norgate, S, H. (2014). Tourism and The Smartphone App: Capabilities, Emerging Practice and Scope in The Travel Domain. *Current Issues in Tourism*. 17, 101 – 84. [online] Available at: <http://eprints.bournemouth.ac.uk/21155/1/Dickinson%20et%20al%202013%20Current%20Issues.pdf> [Assessed on 17 July 2021].
- Dickinson, J, E. & Lumsdon, L. (2010). *Slow Travel and Tourism*. London: Earthscan.
- Eugenio-Martin, J.L., & Inchausti-Sintes, F. (2016). Low-cost Travel and Tourism Expenditures. *Annals of Tourism Research*, 57, 140-159.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American journal of theoretical and applied statistics*, 5(1), 1- 4.

- Fodness, D. (1994) Measuring Tourist Motivation. *Annals of Tourism Research. Journal of Travel Research*, 33(2), 65–65. [Online] Available at: <https://doi.org/10.1177/004728759403300294> [Assessed on 14 July 2021].
- Garin-Munoz, T., & Montero-Martin, L, F. (2007). Tourism in the Balearic Islands: A Dynamic Model for International Demand Using Panel Data. *Journal Tourism Management*, 28(5), 1224-1235.
- Guillet, B, D., Liu, W. & Law, R. (2014). Can Setting Hotel Rate Restrictions Help Balance the Interest of Hotels and Customers? *International Journal of Contemporary Hospitality Management*. 26(6), 948-973.
- Gretzel, U., Sigala, M., Xiang, Z. & Koo, C. (2015). Smart Tourism: Foundations and Developments. *Electron Markets*, 25, 179–188. [Online] Available at: <https://doi.org/10.1007/s12525-015-0196-8> [Assessed on 21 July 2021].
- Gunawan, H. (2018). The Use of Mobile Technology for Tourism Development. *Journal of Physics*. 1, 953. [online] Available at: [10.1088/1742-6596/953/1/012032](https://doi.org/10.1088/1742-6596/953/1/012032) [Assessed on 15 July 2021].
- Galdini, R. (2007), ‘‘*Tourism and the City: Opportunity for Regeneration*’’, MPRA Munich Personal RePEc Archive University Library of Munich, Germany. 6370. [Online] Available at: https://mpra.ub.uni-muenchen.de/6370/1/MPRA_paper_6370.pdf [Assessed on 10 July 2021].
- Goh, D, H., Ang, R, P., Lee, C, S., & Lee, C, K. (2010). Determining Services for the Mobile Tourist. *Journal of Computer Information Systems*, 51(1), 31.
- Ghorbani H., Mohammadzadeh, M, S., & Ahmadzadegan, M, H. (2020). "Modeling for Malicious Traffic Detection in 6G Next Generation Networks,". *2020 International*

- Conference on Technology and Entrepreneurship - Virtual (ICTE-V)*. 1-6. [online]
Available at: 10.1109/ICTE-V50708.2020.9113777 [Assessed on 17 July 2021].
- Google Maps. (2022). *Maps of Kuching District*. [online] Available at:
<https://www.google.com/maps/place/Kuching,+Sarawak/@1.6181615,110.0458717,10z/data=!3m1!4b1!4m5!3m4!1s0x31fb0784258cbf11:0xd37257591ab17e72!8m2!3d1.553504!4d110.3592927> [Assessed on 10 October 2018].
- George, D. & Mallery, P. (2003). *SPSS for Windows Step by Step: A Simple Guide and Reference, 11.0 Update.*, Boston: Allyn and Bacon.
- Gunawan, H. (2018). The use of Mobile Technology for Tourism Development. *Journal of Physics*. 953(1).
- Hundson, G, S. & Bendon, T. (2010). *Our Mobile Future: How Smartphones Will Transform Visiting Experience.*, London: Horizon Digital Economy Research.
- Hajjar, S. T. (2018). Statistical Analysis: Internal-consistency Reliability and Construct Validity. *International Journal of Quantitative and Qualitative Research Methods*, 6(1), 46-57.
- Hendrik, H., & Perdana, D. H. F. (2014). Trip guidance: A Linked Data Based Mobile Tourists Guide. *Advanced Science Letters Journal*, 20(1), 75–79.
- Holden., A. (2006). *Tourism Studies and The Social Sciences*. New York. Routledge.
- Hughes, K. (1989). “Diehards Say the Experience Feels Too Good,” *The Wall St. Journal*.,212, 1-2.
- Inskeep, E. (1991). *Tourism Planning: An Integrated and Sustainable Development Approach*. New York: Wiley.
- Johnrose, J. (2014) Safety and Security in The Tourism Industry-A Regional Perspective on Tourism Security. *DA Academy*. [online] Available at <http://da-academy>.

- org/johnson46.html [Assessed on 20 July 2021].
- Jensen, S. S. (2007), “The Roles of Culture and Creativity within Urban Development Strategies: Scandinavian Cities’’, *Centre for Strategic Urban Research*. 8.
- Kang, S. (2014). Factors Influencing Intention of Mobile Application Use. *International Journal Mobile Communications*, 12(4), 360-379.
- Kim, J. H., & Ritchie, B. W. (2012). Motivation-Based Typology: An Empirical Study of Golf Tourists. *Journal of Hospitality and Tourism Research*, 36(2), 251–280.
- Krejcie, R.V., & Morgan, D.W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement Journal*, 30, 607-610.
- Kennedy-Eden, Heather and Gretzel, (2012). Ulrike: A taxonomy of Mobile Applications in Tourism, 47-50. [online] Available at <https://ro.uow.edu.au/commpapers/2510>
- Kaplan, L., Szybillo, G., & Jacoby, J. (1974). Components of Perceived Risk in Product Purchase: A Cross-validation. *Journal Applied Psychology*, 59, 287–291.
- Kim, A.K. and Brown, G. (2012), “Understanding the Relationships between Perceived Travel Experiences, Overall Satisfaction, and Destination Loyalty”, *Anatolia: An International Journal of Tourism and Hospitality Research*, 23(3), 328-347.
- Khazai, B., Mahdavian, F., & Platt, S. (2014). Tourism Recovery Scorecard (TOURS)—Benchmarking and Monitoring Progress on Disaster Recovery in Tourism Destinations. *International Journal Disaster Risk Reduction*, 27, 75–84.
- Karim. (2017, November 16). Increase in Visitors to National Parks Noted. Sarawak Tribune: <https://www.newsarawaktribune.com.my/increase-in-visitors-to-national-parks- noted/>
- Kim, D. Y., Park, J., & Morrison, A M. (2008). A Model of Traveller Acceptance of Mobile Technology. *International Journal of Tourism Research*, 10(5), 393-407.

- Khoo, D. (2021). *Telcos Expected to Keep Growing despite High Mobile-phone Penetration Rate*. [online] Available at:
<http://www.thestar.com.my/Story/?file=%2F2012%2F10%2F29%2Fbusiness%2F12227178&sec=business> [Assessed on 13 September 2021].
- Khadaroo, J., & Seetanah, B. (2007). Transport Infrastructure and Tourism Development. *Annals of Tourism Research*, 34(4), 1021-1032.
- Kenteris, M., Gavalas, D. & Economou, D. (2008). “Evaluation of Mobile Tourist Guides.” *Communications in Computer and Information Science Springer Verlag*. 19, 603– 610. [online] Available at: 10.1007/978-3-540-87783-7_77.
- Litman, T. (2008). “Evaluating Accessibility for Transportation Planning,” *Victoria Transport Policy Institute Journal*. 3-31. [Online] Available at:
<http://trid.trb.org/view.aspx?id=859513> [Assessed on 2 July 2021].
- Leiper, N. (1990). Tourist Attraction Systems. *Annals of Tourism Research*, 17(3), 364-410
- Lee, C, F. (2015), "Tourist Satisfaction with Factory Tour Experience". *International Journal of Culture, Tourism and Hospitality Research*, 9(3), 261-277. [Online] Available at: <https://doi.org/10.1108/IJCTHR-02-2015-0005> [Assessed on 17 July 2021].
- Lu, E, H, C., Fang, S, H. & Tseng, V, S. (2016). Integrating Tourist Packages and Tourist Attractions for Personalized Trip Planning Based on Travel Constraints. *Geoinformatics Journal*. 20, 741–763.
- Lin, V. S., R. Mao, & H. Song. (2015). “Tourism Expenditure Patterns in China.” *Annals of Tourism Research* 54, 100-117
- Lee, U, I. (2005). Developing the Travel Career Approach to Tourist Motivation. *Journal of Travel Research*, 43, 226–237.

- Ling, R. (2004). *The Mobile Connection: The Cell Phone's Impact on Society*. San Francisco: Morgan Kaufmann.
- Lau, G., & McKercher, B. (2007). Understanding Tourist Movement Patterns in a Destination: A GIS approach. *Tourism and Hospitality Research*, 7(1), 39-49.
- Lew, A., & McKercher, B. (2006). Modeling Tourist Movements: A Local Destination Analysis. *Annals of Tourism Research*, 33 (3), 403-423.
- Louis, N, A. (2020). Int'l Conference on Design for Sustainable Living to Boost Sarawak's Tourism Industry. Dayak Daily: <https://dayakdaily.com/intl-conference-on-design-for-sustainable-living-to-boost-sarawaks-tourism-industry/>
- Liu, X., Mehraliyev, F., Liu, C., & Schuckert, M., (2019). "The Roles of Social Media in Tourists: Choices of Travel Components,". *Tourism Studies Journal*, 1–12.
- Liu, X., Mehraliyev, F., Liu, C., & Schukert, M. (2019). The Roles of Social Media in Tourists' Choices of Travel Components. *Journal Sage Publications*. 27-48.
[online] Available at: <https://journals.sagepub.com/doi/pdf/10.1177/1468797619873107> [Assessed on 5 January 2022].
- Marcus, A., Maletic, J.I. & Lin, K, I. 2001. Ordinal Association Rules for Error Identification in Data Sets pp. *10th ACM Conference on Information and Knowledge Management*. New York, United State. Association for Computing Machinery
- Ministry of Tourism, Arts and Culture Sarawak (2018). *Tourist Population at Sarawak from year 2013 until year 2017, Sarawak Visitor Arrival*. [online] Available at: <https://mtac.sarawak.gov.my/page-0-176-47-Statistic.html> [Assessed on 16 November 2018].
- Meyers, D., (2013). *When Conversation Still Trumps the Web, can Websites Really Inspire People to Travel?* [online] Available at: <http://www.tnooz.com/article/when-->

conversation--still--trumps--the--web--can--websites--really--inspire--people--to--travel/> [Assessed on 5 January 2019].

Maxwell., J. (2012). *Reason and Rigor: How Conceptual Frameworks Guide Research*. Los Angeles: Sage Publication.

Manat, C. (2005). Travel and Tourism Education in Thailand. *Journal of Teaching in Travel & Tourism*, 5(3), 197-224.

Moscardo, G. (2011). Exploring Social Representations of Tourism Planning: Issues for Governance. *Journal Sustainable Tourism*, 19, 423–436.

McKercher, B. (2018). The Impact of Distance on Tourism: A Tourism Geography Law. *Tourism Geographies*, 20(5), 905-909.

Mahika, E. C. (2011). Current Trends in Tourist Motivation. *Cactus Tourism Journal*, 2(2), 15–24.

Mansfeld, Y., & Pizam, A. (2006). *Tourism, Security and Safety: From Theory to Practice*. New York: Routledge.

Noone, M, B. & McGuire, K. A. (2013) “Pricing in Social World: The Influence of Non-Price Information on Hotel Choice”. *Journal of Revenue and Pricing Management*, 12(5), 385-401

Neuhofer, B., Buhalis, D., & Ladkin, A. (2012). Conceptualising Technology Enhanced Destination Experiences. *Journal Destination Marketing Management*, 1, 36–46.

Nielsen. (2014). Smartphones: So Many Apps, So Much Time. [Online] Available at: <http://www.nielsen.com/us/en/insights/news/2014/smartphones-so-many-apps--so-muchtime>. [Assessed on 01 July 2021].

Nair, P. K., & Thomas, T, K. (2013). Sustainable Tourism in Malaysia. *Mondes du Tourisme Journal*, 8, 60-69. [online] Available at: <http://tourisme.revues.org/88>;

- 10.4000/tourisme.88. [Assessed on 2 February 2019].
- North American Industry Classification System. (2007). *Travel Needs and Travel Services*. [online] Available at: <http://stds.statcan.gc.ca/naics-scian/2007/cs-rc-eng.asp?criteria=5615>. [Assessed on 7 January 2019].
- Ortúzar, J. d. D., & Willumsen, L. G. (2011). *Modelling Transport*. Chichister, UK: John Wiley & Sons, Ltd.
- Ostdick., N. (2016). *Going Small: How Mobile Apps Impact the Travel and Tourism Industry*. [online] Available at: <http://www.dcsplus.net/going-small-how-mobile-apps-are-changing-the-travel-industry>. [Assessed on 10 September 2018].
- Okumus, B., & Bilgihan, A. (2014). Proposing A Model to Test Smartphone Users' Intention to Use Smart Applications When Ordering Food in Restaurants. *Journal of Hospitality and Tourism Technology*, 5(1), 31-49. [Online] Available at: 10.1108/JHTT-01-2013-0003 [Assessed on 20 July 2021].
- Olimpiew, E., & Gomaa, H. (2005). Model-Based Testing for Applications Derived from Software Product Lines. *SIGSOFT Software Engineering Notes*, 30(4), 1-7. [Online] Available at: <https://doi.org/10.1145/1082983.1083279> [Assessed on 10 July 2021].
- Okwemba, Rose & Nambiro, Alice. (2020). Emerging Trends In E-Tourism and Its Impact on Tourism Sector. *International Journal of Scientific Research in Science, Engineering and Technology*, 7(5), 131-141. [Online] Available at: 131141.10.32628/IJSRSET20744. [Assessed on 23 November 2022].
- Oh, H., Jeong, M., & Baloglu, S. (2013). Tourists' Adoption of Self-Service Technologies at Resort Hotels. *Journal of Business Research*, 66(6), 692-699.

- Page, S.J., & Connell, J. (2020). *Tourism: A Modern Synthesis (5th ed.)*. Routledge. [Online]
Available at: <https://doi.org/10.4324/9781003005520> [Assessed on 21 July 2021].
- Purnaya, I., Semara, I., & Saputra, I. (2019). Analysis Of Feasibility of Park Kumbasari as Attraction Friendly Tourism to Tourists. *Journal of Business on Hospitality and Tourism*, 5(2), 201. [Online] Available at:
<http://dx.doi.org/10.22334/jbhost.v5i2.166> [Assessed on 18 July 2021].
- Pedrana, M. (2013). Location-based Services and Tourism: Possible Implications for Destination. *Current Issues in Tourism Journal*, 17(9), 1–10.
- Park, S., Nicolau, J, L., & Fesenmaier, D, R. (2013). Assessing Advertising in a Hierarchical Decision Model. *Annals of Tourism Research*, 40, 260-82.
- Pender. L. & Sharpley, R. (2015). *The Management of Tourism*. London: Sage Publications Ltd.
- Pallant, J. (2005). *SPSS Survival Manual (2nd Ed)* Sydney: Allen & Unwin.
- Palan, R. & Putit, S. (2010). *People Development: A Leader's Journey in The Transformation of Sarawak – Taib Mahmud*. Kuala Lumpur: SMR HR Group Sdn Bhd.
- Ren. G, Vedso, J. & S. Schrauf. (2016). *Industry 4.0: Building the Digital Enterprise*. [online] Available at: <https://www.pwc.com/gx/en/industries/industries-4.0/landing-page/industry-4.0-building-your-digital-enterprise-april-2016>. [Assessed on 7 February 2019].
- Ramos, C, M, Q. & Rodrigues, P, M, M. (2013). The Importance of Online Tourism Demand. *Journal of Tourism Economics*, 19(6), 1443-1447. [online] Available on <https://ideas.repec.org/a/sae/toueco/v19y2013i6p1443-1447.html>. [Assessed on 23 November 2018].

- Ravinder, E. B., & Saraswathi, A. B. (2020). Literature Review of Cronbach alpha Coefficient (α) and McDonald's Omega Coefficient (Ω). *European Journal of Molecular & Clinical Medicine*, 7(6), 2943-2949.
- Ryan, C (2003). "Recreational Tourism— Demands and Impact" Sydney: Multilingual Matters Ltd.
- Rajamani, A. & Rizal, P., (2013). Role of Transportation in Tourism Industry in Sikkim State, India. *International Journal of Innovative Research & Development*, 2(6), 336-46.
- Royo-Vela, M. (2009). Rural-Cultural Excursion Conceptualization: A Local Tourism Marketing Management Model Based on Tourist Destination Image Measurement. *Tourism Management Journal*, 30, 419-428. [Online] Available at: 10.1016/j.tourman.2008.07.013. [Assessed on 2 August 2021].
- Ravitch, S. M. & Carl, N. M. (2016). Qualitative Research: Bridging the Conceptual, Theoretical and Methodological. Los Angeles: SAGE Publications.
- Ravitch, S, M., & Riggan, M. (2012). *Reason and Rigor: How Conceptual Frameworks Guide Research*. Los Angeles: Sage Publication.
- Singleton, P, A. (2013). A Theory of Travel Decision-Making with Application for Modeling Active Travel Demand. *Journal of Tourism*, 16(3), 702-734.
- Sucheta, R. (2015). "Tech and Tourism: 11 People Changing the Way We Travel.". [online] Available at: <http://edition.cnn.com/2015/07/01/travel/people-changing-travel-industry/>. [Assessed on 13 April 2019].
- Suhaimi, N. (2021, June 16). Sarawak Tribune: Technology-based Tourism Next Step Forward. [online] <https://www.newsarawaktribune.com.my/technology-based-tourism-next-step-forward/> [Assessed on 28 November 2022]

- Sarawak Government. (2022). *Kuching, Sarawak Population 2013 and 2021*. [online] Available at: https://www.sarawak.gov.my/web/home/article_view/240/175/ [Assessed on 18 November 2022].
- Smirnov, A., Shilov, N., Kashevnik, A., Teslya, N., & Shchekotov, M. (2013). Intelligent Tourist Guiding Service Based on Smart-M3 Platform, *Proceedings of 13th Conference of Open Innovations Association FRUCT*, 21–131.
- Statista. (2013). *Worldwide Mobile App Revenues 2017--2025*. [online] Available at: <http://www.statista.com/statistics/269025/worldwide--mobile--app--revenue--forecast/> [Assessed on 9 November 2018].
- Statista. (2015). *Worldwide Mobile App Revenues 2017--2025*. [online] Available at: <http://www.statista.com/statistics/269025/worldwide--mobile--app--revenue--forecast/> [Assessed on 9 November 2018].
- Statista. (2018). *Worldwide Mobile App Revenues 2017--2025*. [online] Available at: <http://www.statista.com/statistics/269025/worldwide--mobile--app--revenue--forecast/> [Assessed on 9 November 2018].
- Sebastia, L., Garcia, I., Onaindia, E. & Guzman, C. (2009). E-Tourism: A Tourist Recommendation and Planning Application. *Journal of Tourism*, 18(5), 717-738.
- Sarawak Tourism Board. (2018). *Development of Tourism Industry in Sarawak*. Sarawak: Tourism Board Archive.
- Sarawak Tourism Board. (2015). *Sarawak Visitor Guide: Attraction Place in Kuching, Sarawak*. Kuching: The Borneo Travel Publication.
- Shove, E. (2010). Beyond the ABC: Climate Change Policy and Theories of Social Change. *Journal Environment and Planning*, 42, 1273-1285.
- Smith, V. (1989). *Host and Guest: The Anthropology of Tourism*. Philadelphia: The

- University of Pennsylvania Press.
- Swanson, S., & Taylor, M. B. (2011). Green Droid: Exploring the Next Evolution in Smartphone Application Processors. *IEEE Communications Magazine*, 112-119.
- Suwantoro, G. (2004). *Basics of Tourism*, Yogyakarta: Andi Yogyakarta
- Schaap, J. (2017) These Major Trends are Changing Hospitality Industry, As You Know It. *Hospitality Net Article*. [Online] Available at: <http://bit.ly/2zE8nc0> [Assessed on 21 July 2021].
- Saayman, M. (2006). *Marketing Tourism Products and Destinations: Getting Back to Basics, 2nd ed.* Potchefstroom: Leisure C Publications.
- Terkenli, T, S. (2002). Landscapes of Tourism: Towards a Global Cultural Economy of Space? *Tourism Geographies*, 4, 227 - 254. [Online] Available at: 10.1080/14616680210147409 [Assessed on 10 August 2021].
- Truong, N.V., & Shimizu, T. (2017). The Effect of Transportation on Tourism Promotion: Literature Review on Application of the Computable General Equilibrium (CGE) Model. *Transportation Research Procedia*, 25(3096-3115).
- Travel Daily News. (2021), "Most Popular Mobile Apps for Travel", [Online] Available at: <https://www.traveldailynews.com/post/most-popular-mobile-apps-for-travelers>. [Accessed on 23 July 2021].
- Tan, G.W.-H., Lee, V.H., Lin, B. and Ooi, K.-B. (2017), "Mobile Applications in Tourism: the Future of the Tourism Industry?", *Industrial Management & Data Systems*, 117(3), 560-581. [Online] Available at: doi.org/10.1108/IMDS-12-2015-0490 [Assessed on 10 August 2021].
- Tasci, A, D, A., & Ko, Y, J. (2015). Travel Needs Revisited. *Journal of Vacation Marketing*, 23(1), 20-36. [Online] Available at:

- <https://doi.org/10.1177/1356766715617499>[Assessed on 13 July 2021].
- Tourism Malaysia (2017). *Malaysia Tourism Statistics in Brief: Statistics of Tourist Arrival*.
Tourism Malaysia Archive. [online] Available at:
<https://www.tourism.gov.my/statistics> [Assessed on 7 November 2018].
- Tavakol, M., & Dennick, R. (2011). Making Sense of Cronbach's Alpha. *International Journal of Medical Education*, 2(3), 53-55. [online] Available at:
<https://www.ijme.net/archive/2/cronbachs-alpha.pdf> [Assessed on 7 November 2018].
- United World Tourism Organization (UNWTO). (2013). *Tourism Highlights 2013: Tourism Gives an Impact to Economic in The World*. Madrid: UNWTO Publication.
- United World Tourism Organization. (2007). *International Recommendations on Tourism Statistics*. Madrid: World Tourism Organization Publication.
- Varkaris, E. and Neuhofer, B. (2017) The Influence of Social Media on the Consumers' Hotel Decision Journey. *Journal of Hospitality and Tourism Technology*, 8(1), 101-118.
- Vincent, D. (2013). *Effect of Tourism Disasters on Tourist- A Case Study on Japan*. [Online] Available at www.academia.edu/4818144/EFFECTS_OF_NATURAL_DISASTERS_ON_TOURISM_A_CASE_STUDY_ON_JAPAN? [Assessed on 15 August 2021].
- Wong, C.-H., Tan, G, W, H., Loke, S, P., & Ooi, K, B (2014). Mobile TV: A New Form of Entertainment. *Journal of Industrial Management and Data system*, 114(7), 1050 - 1067.
- Wang, D., & Xiang, Z. (2012). The New Landscape of Travel: A Comprehensive Analysis of Smartphone Apps. In M. Fuchs, F. Ricci, & L. Cantoni (Eds.), *Information and Communication Technologies in Tourism 2012*, 308-319. New York: Springer: New

- York.
- Westlake, J. & Robbins, D. (2007). "*Transportation*" in Cooper., Fletcher, J., Fyall, A., Gilbert, D. & Wanhill, S. (2005), *Tourism: Principles and Practice*, 3rd Ed. Essex: Pearson Education Limited.
- Wu, S., Ma, E., Wang, J. & Li, D. (2022). "Experience with Travel Mobile Apps and Travel Intentions—The Case of University Students in China," *Sustainability. MDPI Open Journal*. 14(9) 1-16. [online] Available at: <https://ideas.repec.org/a/gam/jsusta/v14y2022i19p12603-d933017.html>
- Weinman, M. (2007). *Pleasure in Aristotle's Ethics*. London: Bloomsbury Academic. [online] Available at [dx.doi.org/10.5040/9781472597991](https://doi.org/10.5040/9781472597991). [Assessed on 30 May 2019].
- Xiang, Z., Wang, D., & Fesenmaier D.R. (2014). Smartphone Use in Everyday Life And Travel. *Journal of Travel Research*, 55(1), 1-12. [online] Available at: <http://jtr.sagepub.com/content/early/2014/05/16/0047287514535847> [Assessed on 19 December 2018].
- Yoo, K, H., Lee, Y., Gretzel, U., & Fesenmaier, D, R. (2009) *Trust in Travel-related Consumer Generated Media*. In: Hopken, W., Gretzel, U., & Law, R. (eds) *Information and Communication Technologies in Tourism 2009*. Springer, Vienna. [Online] Available at: https://doi.org/10.1007/978-3-211-93971-0_5 [Assessed on 14 August 2021].
- Yoo, C., Kwon, S., Na, H., & Chang, B. (2017). Factors Affecting the Adoption of Gamified Smart Tourism Applications: An Integrative Approach. *Sustainability Journal*, 9(12), 2162. [online] Available at: <http://dx.doi.org/10.3390/su9122162>
- Zhang, H. (2005). Impact of the Tsunami on Chinese Outbound Tourism. *International*

- Journal of Contemporary Hospitality Management*, 17(5), 433-435.
- Zha, X. F. & Sriram, R. D. (2004) Feature-based Component Model for Design of Embedded Systems. *Intelligent Systems in Design and Manufacturing*, 226. [Online] Available at: 10.1117/12.571612. [Assessed on 20 July 2021].
- Zabkar, V., Brencic, M. M., & Dmitrovic, T. (2010). Modelling Perceived Quality, Visitor Satisfaction and Behavioural Intentions at the Destination Level. *Journal Tourism Management*, 31(4), 537–546.
- Zeng, B. & Gerritsen, R. (2014). What Do We Know about Social Media in Tourism? A Review. *Tourism Management Perspectives*, 10, 27–36.
- Zoltan, J., & McKercher, B. (2015). Analyzing Intra-Destination Movements and Activity Participation of Tourists Through Destination Card Consumption. *Tourism Geographies: An International Journal of Tourism Space, Place and Environment*, 17 (1), 19-35.
- Zadel, H. (2016). Beaches in the Function of Primary Resource of the Beach Tourism Product. *Annals of Maritime Studies*, 51(1), 117-130

APPENDICES

Appendix A (Questionnaire form)



Research Topic: The Significance of Using Tourism Apps to Influence Tourist Travel Experience

Dear Respondent,

This research is being conducted as a partial fulfilment to the Masters Research in Arts Management Program, University Malaysia Sarawak. Please provide your opinions based on the statements in the space provided. Your participation is crucial to the success of this study. Please be assured that all answers you provide will be confidential. We recognize the value of your time, and sincerely appreciate your efforts on our behalf.

Thank you in advance. Best regards,

Aimuni Athirah Binti Latif Master in Arts, UNIMAS

Section A: Demographic Respondent

Instrument: Please tick ☒ on the appropriate answer below.

1. You are a/an:

☐ Local

☐ Foreigner/International tourist

2. Your Gender:

☐ Male

☐ Female

3. Your Age:

☐ 20 or below

☐ 41 - 50

☐ 21 – 30

☐ Above 50

☐ 31 – 40

4. Ethnicity:

☐ Asian

☐ European

☐ Australian

☐ Other: _____

☐ Middle eastern

5. Education level:

☐ Primary Education and below

☐ Degree

☐ Secondary Education

☐ Post Graduate and higher

☐ Diploma/Higher diploma

6. Occupation

☐ Public Sector

☐ Private Sector

☐ Self-Employed

☐ Student

☐ Unemployed

☐ Other: _____

7. This is my _____ travelling to Sarawak:

☐ First time

☐ Third time

☐ Second time

☐ More than three times

8. How often do you travel?

☐ Every Year

☐ Every Two Years

☐ Every Three Year

☐ Other (Specify): _____

☐ I did not keep track

9. Purpose of travelling to Sarawak: **(You may choose more than one)**

☐ Pleasure

☐ Education

☐ Business

☐ Other: _____

10. Where did you hear about tourism of Sarawak? **(You may choose more than one)**

☐ Social media (Fb, Instagram, Twitter)

☐ Travel ☐ Media (Magazine, Radio, TV)

☐ Friend/relative

☐ Travel Agency ☐ Other:_____

11. How much do you spend for travelling? In Ringgit Malaysia.

☐ 0-1000 ☐ 5001-10000

☐ 1001-5000

☐ 10001 and above

In this section, we intend to measure your perception on the significance of using tourism apps for travelling

Please circle your rating on each of following variables based on the rating scale of 1-5, where 1 is 'strongly disagree' and 5 is 'strongly agree'.

1	Strongly Disagree
2	Somewhat disagree
3	Neutral
4	Somewhat Agree
5	Strongly Agree

Section B: Independent Variables (Travel Needs/Benefits)					
Pleasure					
12	Tourism apps ensure tourists' pleasure to plan their activities	1	2	3	4 5
13	Tourism apps satisfy tourists' pleasure with suggestions or tips	1	2	3	4 5
Cost					
14	The cost to travel can be estimated while using tourism apps	1	2	3	4 5
15	Tourism apps helps tourist to reduce the cost of travelling	1	2	3	4 5
16	Tourism apps help tourist to filter the price of facilities and Activities	1	2	3	4 5
Accessibility					

Section B: Independent Variables (Travel Needs/Benefits)						
17	Digital maps in tourism apps help tourist to access the accurate location	1	2	3	4	5
18	Digital maps help tourists' accessibility to plan their trips systematically	1	2	3	4	5
Feasibility						
19	The apps help tourist to find information	1	2	3	4	5
20	Searching for facilities become easier	1	2	3	4	5
21	Comparison between one to other facilities become easier	1	2	3	4	5
Safety and Security						
22	Help tourist to access to nearest security and emergency department	1	2	3	4	5
23	Helps tourist to ensure their safety	1	2	3	4	5
24	To find information of places' safety level	1	2	3	4	5

In this section, we intend to measure your perception on the significance of using tourism apps for travelling.

Please circle your rating on each of following variables based on a rating scale of 1-5, where 1 is ‘strongly disagree’ and 5 is ‘strongly agree’.

Section C: Moderator (Apps)					
Features					
25	Natural attraction should be included in apps	12	3	4	5
26	Hotel searching should be included in apps	12	3	4	5
27	Hotel searching should be filtered according to the budget	12	3	4	5
28	Culinary tour should be included in apps	12	3	4	5
29	Culinary tour should show cultural food according to the race of community	12	3	4	5
30	ATM nearby should be included	12	3	4	5

Section C: Moderator (Apps)						
31	Features for ATM should state name or type of ATM	1	2	3	4	5
32	Emergency calls are one of the important features to ensure tourists’ safety	1	2	3	4	5
33	Tourist can install their own emergency call	1	2	3	4	5
34	Showing show time of event and entertainment	1	2	3	4	5
35	Nearby aids tourists in having access to facilities and activities easily.	1	2	3	4	5
36	Transportation available should be featured to benefit mobility of tourist	1	2	3	4	5
37	Searching helps tourist to use the apps systematically	1	2	3	4	5

In this section, we intend to measure tourist attraction. Please circle your rating on each of following variables based on a rating scale of 1-5, where 1 is ‘strongly disagree’ and 5 is ‘strongly agree’.

Section D: Dependent Variables (Tourist Attraction)					
Beaches					
38	Beaches can influence tourist to visit Sarawak	1	2	3	4 5
39	Beaches as a natural attraction to be a main factor of tourist attraction	1	2	3	4 5
National Parks					
40	The known national parks can attract tourist to visit Sarawak	1	2	3	4 5
41	Known national parks can promote Sarawak as a best travel location	1	2	3	4 5
42	The preservation of national parks is important to ensure tourist satisfaction	1	2	3	4 5
Cultural					

Section D: Dependent Variables (Tourist Attraction)					
43	Variety of cultural races in Sarawak become a major tourist attraction	1	2	3	4 5
44	Every cultural attraction market Sarawak tourism	1	2	3	4 5
Historical Building					
45	Historical building has its own significance attraction by history	1	2	3	4 5
46	Historical building with unique design attracts more tourist	1	2	3	4 5
Event and Entertainment					
47	Event and entertainment can influence tourist to visit	1	2	3	4 5

In this section, we intend to measure your perception on significance of using tourism apps for travel

Please circle your rating on each of following variables based on a rating scale of 1-5, where 1 is ‘strongly disagree’ and 5 is ‘strongly agree’.

Section E: Dependent Variables (Transportation)					
Air					
48	Air transportation is important for tourist to access from one to another location and influence tourist to visit the place	1	2	3	4 5
Road					
49	Efficient road transportation around Sarawak attracts tourist to visit	1	2	3	4 5
50	Road transportation pick point is systematic	1	2	3	4 5

In this section, we intend to measure your perception on significance of using tourism apps for travel

Please circle your rating on each of following variables based on a rating scale of 1-5, where 1 is ‘strongly disagree’ and 5 is ‘strongly agree’.

Section D: Dependent Variables (Accommodation)					
Hotels					
51	Price of hotels in Kuching, Sarawak are acceptable to attract tourist to visit	1	2	3	4 5
52	Choices of hotels around Kuching, Sarawak influence tourist to visit	1	2	3	4 5
Motels					
53	Tourist can find motels or budget accommodation	1	2	3	4 5
54	Rate of motels can be linked with tourists’ budget	1	2	3	4 5
Homestay					
55	Services and uniqueness of homestays attract tourist to stay	1	2	3	4 5
56	Highlighted cultural way of life in homestays become an attraction	1	2	3	4 5

In this section, we intend to measure your perception on the significance of using tourism apps for travel

Please circle your rating on each of following variables based on a rating scale of 1-5, where 1 is ‘strongly disagree’ and 5 is ‘strongly agree’.

Section E: Others					
Apps					
57	Tourism apps influence tourists to plan vacation before the trip.	1	2	3	4 5
58	Tourism apps influence tourist to choose their trips activities during the trip.	1	2	3	4 5
59	Tourism apps influence tourist to provide suggestions to the others after trip.	1	2	3	4 5

Section E: Others					
60	Use hand phone to access travel apps.	1	2	34	5
61	Use laptop to access travel apps.	1	2	34	5
62	Travel apps help tourist to organize their travel trip systematically	1	2	34	5
63	Travel apps restrict the freedom of tourist	1	2	34	5
64	The features inside the travel apps attract tourist to use it	1	2	34	5
65	Design of travel apps attract tourist to use it	1	2	34	5
66	The background colour of tourism apps should be a solid colour	1	2	34	5
67	Use photos for background wallpaper	1	2	34	5
68	Using fancy fonts	1	2	34	5
69	Using formal fonts	1	2	34	5

The End Thank You

Appendix B (SPSS DATA)

Travel Needs

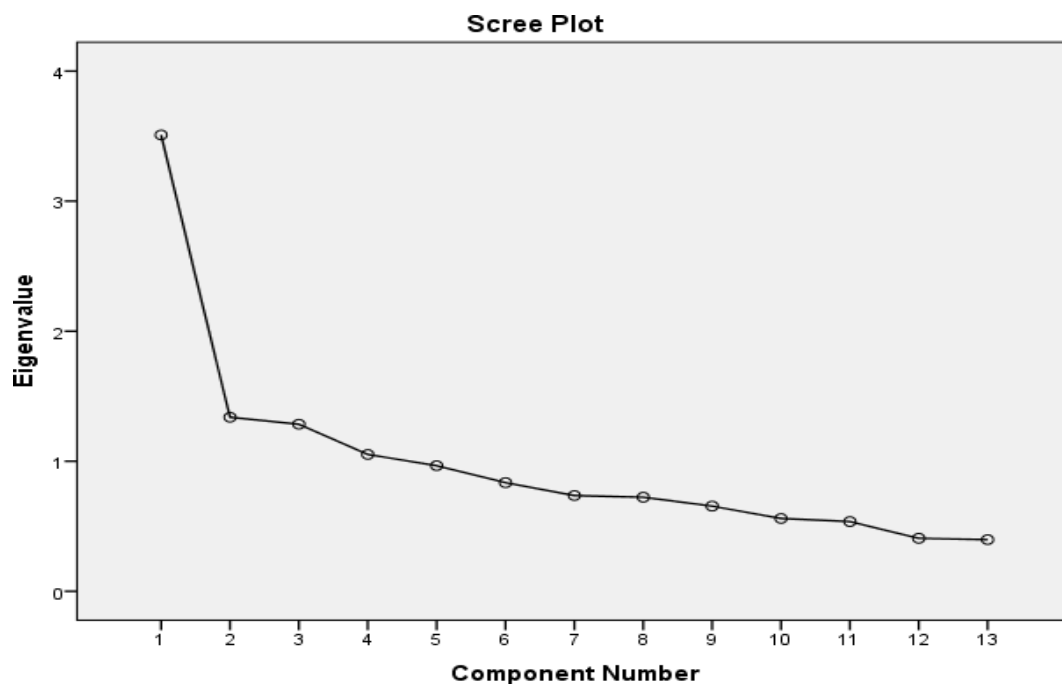
Case Processing Summary			
		N	%
Cases	Valid	384	100.0
	Excluded ^a	0	.0
	Total	384	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.772	.773	13

Descriptive Statistics			
	Mean	Std. Deviation	Analysis N
Tourism apps ensure tourists' pleasure to plan their activities	4.36	.631	384
Tourism apps satisfy tourists' pleasure with suggestions or tips	4.29	.540	384
The cost to travel can be estimated while using tourism apps	4.28	.569	384
Tourism apps helps tourist to reduce the cost of travelling	4.36	.574	384
Tourism apps help tourist to filter the price of facilities and Activities	4.46	.585	384
Digital maps in tourism apps help tourist to access the accurate location	4.42	.581	384
Digital maps help tourists' accessibility to plan their trips systematically	4.34	.588	384
The apps help tourist to find information	4.50	.569	384
Searching for facilities become more easier	4.46	.577	384
Comparison between one to another facilities become more easier	4.45	.576	384
Help tourist to access to nearest security and emergency department	4.36	.615	384
Helps tourist to ensure their safety	4.32	.589	384
To find information of places' safety level	4.31	.623	384

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.754
Bartlett's Test of Sphericity	Approx. Chi-Square	924.051
	Df	78
	Sig.	.000



Rotated Component Matrix ^a				
	Component			
	1	2	3	4
Pleasure				
Digital maps help tourists' accessibility to plan their trips systematically	.677			
Tourism apps satisfy tourists' pleasure with suggestions or tips	.659			
Tourism apps ensure tourists' pleasure to plan their activities	.646			
Digital maps in tourism apps help tourist to access the accurate location	.532			
Safety and security				
Helps tourist to ensure their safety		.850		
To find information of places' safety level		.695		
Help tourist to access to nearest security and emergency department		.651		

Rotated Component Matrix ^a				
	Component			
	1	2	3	4
Cost of travel				
The cost to travel can be estimated while using tourism apps			.736	
Tourism apps help tourist to filter the price of facilities and activities			.727	
Tourism apps helps tourist to reduce the cost of travelling			.669	
Feasibility				
Searching for facilities become easier				.740
The apps help tourist to find information				.715
Comparison between one to other facilities become easier				.689
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. ^a				
a. Rotation converged in 5 iterations.				

Total Variance Explained			
Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	1.877	14.437	14.437
2	1.799	13.842	28.279
3	1.759	13.531	41.810
4	1.749	13.453	55.263
Extraction Method: Principal Component Analysis			

Component Transformation Matrix				
Component	1	2	3	4
1	.565	.466	.504	.458
2	-.369	.773	-.478	.195
3	-.091	-.430	-.277	.854
4	-.733	.024	.664	.149
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				

Tourism Application

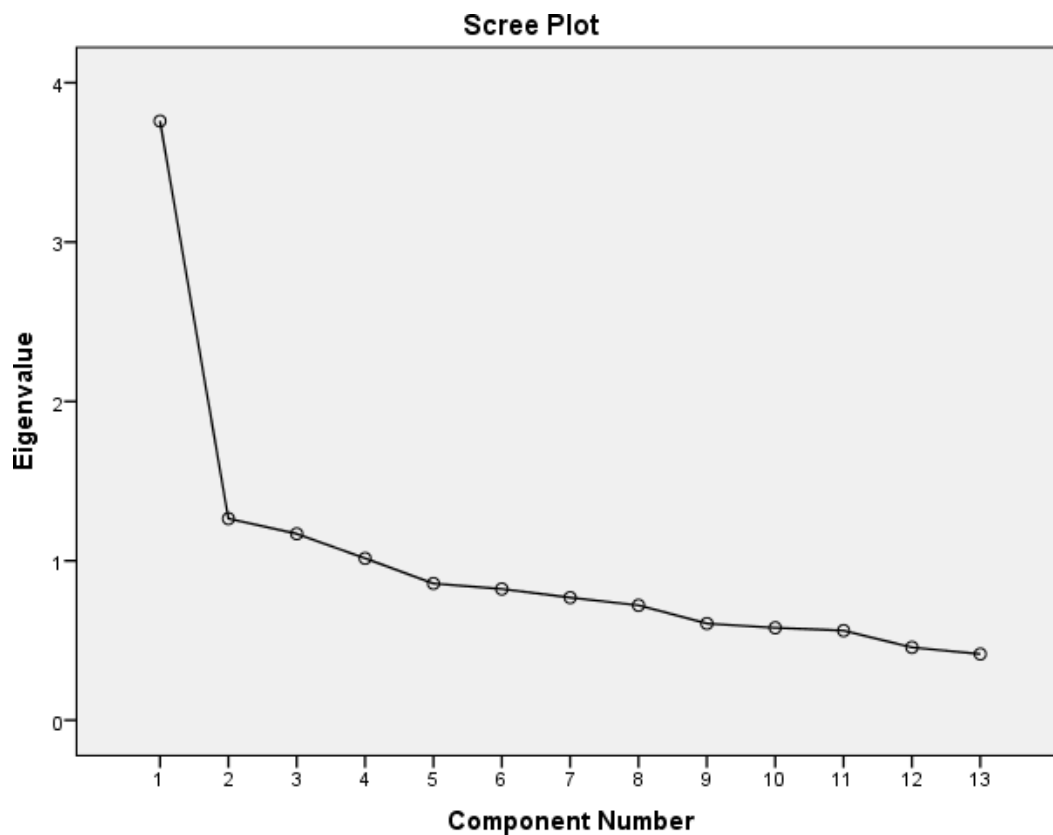
Case Processing Summary			
		N	%
Cases	Valid	384	100.0
	Excluded ^a	0	.0
	Total	384	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.791	.793	13

Descriptive Statistics			
	Mean	Std. Deviation	Analysis N
Natural attraction should be included in apps	4.49	.591	384
Hotel searching should be included in apps	4.46	.585	384
Hotel searching should be filtered according to the budget	4.49	.605	384
Culinary tour should be included in apps	4.40	.646	384
Culinary tour should show cultural food according to the race of community	4.48	.600	384
ATM nearby should be included	4.48	.564	384
Features for ATM should state name or type of ATM	4.39	.591	384
Emergency calls are one of the important features to ensure tourists' safety	4.46	.567	384

Descriptive Statistics			
	Mean	Std. Deviation	Analysis N
Tourist can install their own emergency call	4.40	.587	384
Showing show time of event and entertainment	4.39	.576	384
Nearby aids tourists in having access to facilities and activities easily.	4.36	.578	384
Transportation available should be featured to benefit mobility of tourist	4.48	.555	384
Searching helps tourist to use the apps systematically	4.49	.560	384

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.808
Bartlett's Test of Sphericity	Approx. Chi-Square	941.414
	Df	78
	Sig.	.000



Rotated Component Matrix ^a				
	Component			
	1	2	3	4
Facilities				
Features for ATM should state name or type of ATM	.692			.342
Transportation available should be featured to benefit mobility of tourist	.632		.389	
Emergency calls are one of the important features to ensure tourists' safety	.576			.303
Nearby aids tourists in having access to facilities and activities easily.	.550	.337		
Activities and Safety				
Showing show time of event and entertainment		.673		
Culinary tour should be included in apps		.656	.371	
Tourist can install their own emergency call	.305	.626		
Searching helps tourist to use the apps systematically		.508		
Accommodations				
Hotel searching should be included in apps	.320		.733	
Hotel searching should be filtered according to the budget			.707	
Natural Attraction				
Culinary tour should show cultural food according to the race of community				.770
Natural attraction should be included in apps			.421	.607
ATM nearby should be included	.429			.550
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. ^a				
a. Rotation converged in 18 iterations.				

Total Variance Explained			
Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	2.044	15.726	15.726
2	1.9054	14.643	30.369
3	1.669	12.835	43.204
4	1.593	12.252	55.456
Extraction Method: Principal Component Analysis			

Component Transformation Matrix				
Component	1	2	3	4
1	.565	.466	.504	.458
2	-.369	.773	-.478	.195
3	-.091	-.430	-.277	.854
4	-.733	.024	.664	.149
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				

Attraction

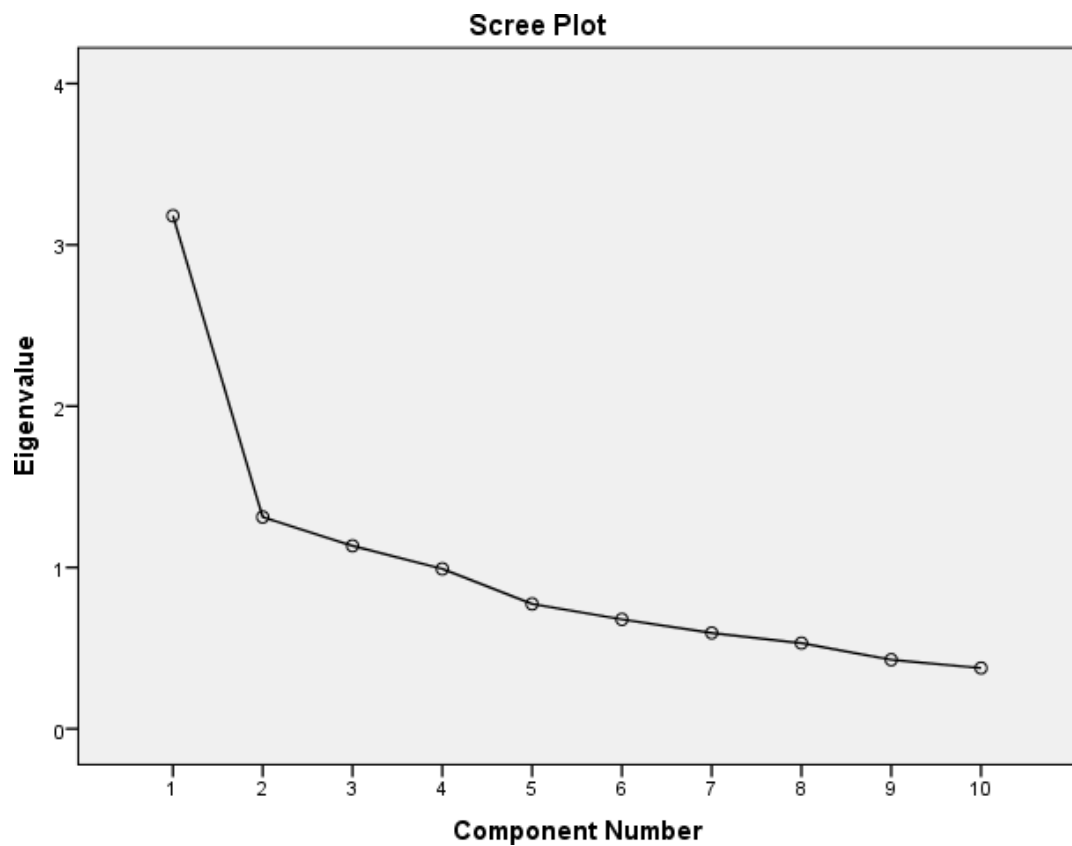
Case Processing Summary			
		N	%
Cases	Valid	384	100.0
	Excluded ^a	0	.0
	Total	384	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.815	.817	19

Item Statistics			
	Mean	Std. Deviation	N
Beaches can influence tourist to visit Sarawak	4.45	.632	384
Beaches as a natural attraction to be a main factor of tourist attraction	4.39	.619	384
The known national parks can attract tourist to visit Sarawak	4.47	.525	384
Known national parks can promote Sarawak as a best travel location	4.48	.559	384
The preservation of national parks is important to ensure tourist satisfaction	4.52	.550	384
Variety of cultural races in Sarawak become a major tourist attraction	4.50	.564	384
Every cultural attraction market Sarawak tourism	4.43	.579	384
Historical building has its own significance attraction by history	4.49	.564	384
Historical building with unique design attract more tourist	4.48	.573	384
Event and entertainment can influence tourist to visit	4.40	.678	384
Air transportation is important for tourist to access from one to another location and influence tourist to visit the place	4.33	.649	384
Efficient road transportation around Sarawak attracts tourist to visit	4.32	.657	384
Road transportation pick point is systematic	4.27	.746	384
Price of hotels in Kuching, Sarawak are acceptable to attract tourist to visit	4.42	.600	384
Choices of hotels around Kuching, Sarawak influence tourist to visit	4.35	.604	384
Tourist can find motels or budget accommodation	4.31	.568	384
Rate of motels can be linked with tourists' budget	4.37	.600	384
Services and uniqueness of homestays attract tourist to stay	4.40	.560	384
Highlighted cultural way of life in homestays become an attraction	4.43	.565	384

Tourism Attraction (Dependent Variables 1)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.738
Bartlett's Test of Sphericity	Approx. Chi-Square	787.285
	Df	45
	Sig.	.000



Rotated Component Matrix ^a			
	Component		
	1	2	3
Cultural of Sarawak			
Every cultural attraction market Sarawak tourism	.697		
Historical building has its own significance attraction by history	.691		
Variety of cultural races in Sarawak become a major tourist attraction	.618		
Historical building with unique design attract more tourist	.610		

Rotated Component Matrix ^a			
	Component		
	1	2	3
Event and entertainment can influence tourist to visit	.607		
National Parks		.776	
Known national parks can promote Sarawak as a best travel location			
The preservation of national parks is important to ensure tourist satisfaction			
The known national parks can attract tourist to visit Sarawak		.709	
Beaches Attraction			.845
Beaches as a natural attraction to be a main factor of tourist attraction			
Beaches can influence tourist to visit Sarawak			
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			

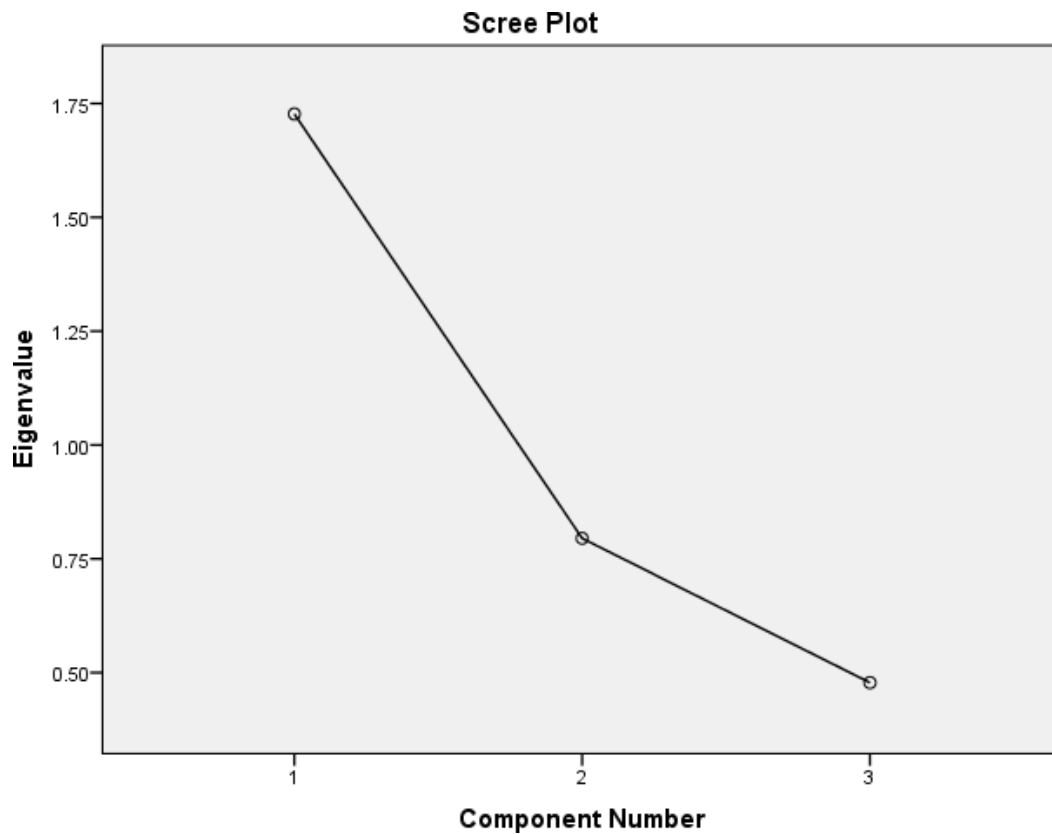
Total Variance Explained				
Component	Rotation Sums of Squared Loadings			
	Total	Total	% of Variance	Cumulative %
1	3.180	2.208	22.075	22.075
2	1.313	1.846	18.458	40.534
3	1.134	1.574	15.739	56.273
Extraction Method: Principal Component Analysis.				

Component Transformation Matrix			
Component	1	2	3
1	.704	.538	.463
2	-.571	.817	-.080
3	.421	.208	-.883
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			

Transportation (Dependent Variables 2)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.588
Bartlett's Test of Sphericity	Approx. Chi-Square	160.555
	Df	3
	Sig.	.000

Component Matrix ^a	
	Component
	1
Efficient road transportation around Sarawak attracts tourist to visit	.842
Road transportation pick point is systematic	.779
Air transportation is important for tourist to access from one to another location and influence tourist to visit the place	.640
Extraction Method: Principal Component Analysis.	
1 component extracted.	
Only one component was extracted. The solution cannot be rotated	

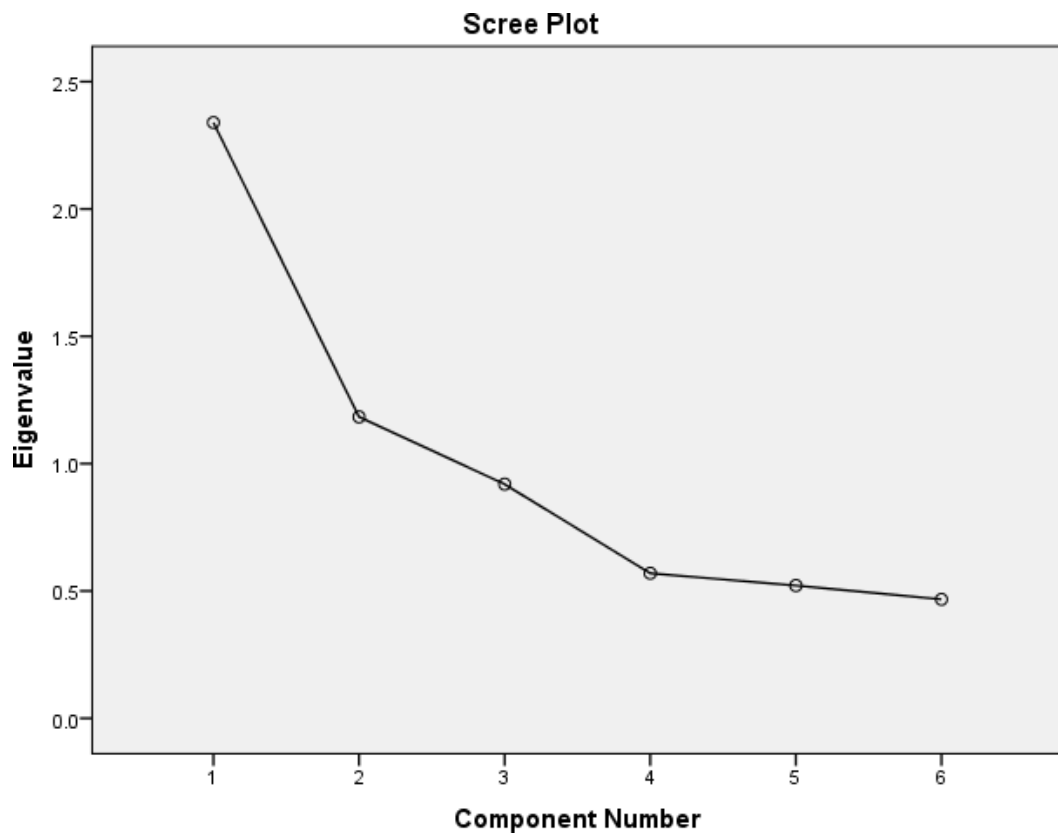


Accommodation (Dependent Variables 3)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.675
Bartlett's Test of Sphericity	Approx. Chi-Square	395.972
	Df	15
	Sig.	.000

Component Transformation Matrix		
Component	1	2
1	.851	.525
2	-.525	.851

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.



Rotated Component Matrix ^a		
	Component	
	1	2
Hotels and Motels		
Choices of hotels around Kuching, Sarawak influence tourist to visit	.781	
Tourist can find motels or budget accommodation	.735	
Price of hotels in Kuching, Sarawak are acceptable to attract tourist to visit	.691	
Rate of motels can be linked with tourists' budget	.595	
Homestay		.823
Highlighted cultural way of life in homestays become an attraction		
Services and uniqueness of homestays attract tourist to stay		.869
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. ^a		

Total Variance Explained			
Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	2.021	33.688	33.688
2	1.502	25.026	58.714
Extraction Method: Principal Component Analysis.			

REGRESSION ANALYSIS

Travel Needs

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.378	4.284	4.500	.216	1.050	.005	13
Item Variances	.344	.292	.398	.106	1.364	.001	13
Inter-Item Covariances	.071	.021	.172	.151	8.078	.001	13
Inter-Item Correlations	.208	.063	.475	.412	7.566	.008	13

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
56.92	15.573	3.946	13

Hotelling's T-Squared Test				
Hotelling's T-Squared	F	df1	df2	Sig
69.765	5.647	12	372	.000

Application Features

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.443	4.357	4.490	.133	1.030	.002	13
Item Variances	.343	.308	.418	.110	1.357	.001	13
Inter-Item Covariances	.077	.023	.142	.119	6.148	.001	13
Inter-Item Correlations	.228	.060	.401	.340	6.633	.006	13

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
57.75	16.542	4.067	13

Hotelling's T-Squared Test				
Hotelling's T-Squared	F	df1	df2	Sig
41.699	3.375	12	372	.000

Attraction

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.411	4.268	4.518	.250	1.059	.005	19
Item Variances	.362	.276	.557	.281	2.020	.005	19
Inter-Item Covariances	.068	.010	.246	.236	23.631	.001	19
Inter-Item Correlations	.190	.031	.541	.510	17.578	.009	19

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
83.80	30.149	5.491	19

Hotelling's T-Squared Test				
Hotelling's T- Squared	F	df1	df2	Sig
81.882	4.347	18	366	.000

REGRESSION ANALYSIS

Hypothesis One (H₁)

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Travel Needs	.	Enter
a. Dependent Variable: Tourism Attraction			
b. All requested variables entered.			

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.460 ^a	.211	.209	.29478	1.853
a. Predictors: (Constant), Independent					
b. Dependent Variable: Tourism Attraction					

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.258	.218		10.369	.000	1.830	2.686
	Independent	.502	.050	.460	10.119	.000	.405	.600
a. Dependent Variable: Tourism Attraction								

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.9576	4.7687	4.4566	.15242	384
Residual	-.90416	.77203	.00000	.29439	384
Std. Predicted Value	-3.274	2.048	.000	1.000	384
Std. Residual	-3.067	2.619	.000	.999	384
a. Dependent Variable: Tourism Attraction					

Hypothesis Two (H2)

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Travel Needs	.	Enter
a. Dependent Variable: Transportation			
b. All requested variables entered.			

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.267 ^a	.071	.069	.49976	1.772
a. Predictors: (Constant), Independent					
b. Dependent Variable: Transportation					

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.314	.369		6.266	.000	1.588	3.039
	Independent	.455	.084	.267	5.411	.000	.290	.621
a. Dependent Variable: Transportation								

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.8541	4.5894	4.3064	.13817	384
Residual	-1.97592	1.00586	.00000	.49911	384
Std. Predicted Value	-3.274	2.048	.000	1.000	384
Std. Residual	-3.954	2.013	.000	.999	384
a. Dependent Variable: Transportation					

Hypothesis Three (H3)

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Independent ^b	.	Enter
a. Dependent Variable: Accommodation			
b. All requested variables entered.			

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
1	.384 ^a	.147	.145	.33593	1.564

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.369	.248		9.546	.000	1.881	2.857
	Independent	.459	.057	.384	8.125	.000	.348	.571
a. Dependent Variable: Accommodation								

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.9240	4.6662	4.3806	.13947	384
Residual	-1.38350	.79322	.00000	.33549	384
Std. Predicted Value	-3.274	2.048	.000	1.000	384
Std. Residual	-4.118	2.361	.000	.999	384
a. Dependent Variable: Accommodation					

Hypothesis Four (H4)

Correlations			
		MD	DV1
Pearson Correlation	Application Feature	1.000	.524
	Tourism Attraction	.524	1.000
Sig. (1-tailed)	Application Feature	.	.000
	Tourism Attraction	.000	.
N	Application Feature	384	384
	Tourism Attraction	384	384

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	DV1 ^b	.	Enter
a. Dependent Variable: MD			
b. All requested variables entered.			

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1 (AF-TA)	.524	.275	.273	.26681	1.795
2 (TN-TA)	.460	.211	.209	.29478	1.853

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.239	.184		12.181	.000
	DV1	.495	.041	.524	12.025	.000
a. Dependent Variable: Application Features						

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.294	1	10.294	144.596	.000 ^b
	Residual	27.194	382	.071		
	Total	37.488	383			
a. Dependent Variable: MD						
b. Predictors: (Constant), DV1						

Coefficient Correlations ^a			
Model			DV1
1	Correlations	Tourism Attraction	1.000
	Covariances	Tourism Attraction	.002
a. Dependent Variable: Application Features			

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.9420	4.7112	4.4425	.16394	384
Residual	-.74419	.78329	.00000	.26647	384
Std. Predicted Value	-3.053	1.639	.000	1.000	384
Std. Residual	-2.789	2.936	.000	.999	384
a. Dependent Variable: Application Feature					

Hypothesis Five (H5)

Correlations			
		Application Feature	Transportation
Pearson Correlation	Application Feature	1.000	.324
	Transportation	.324	1.000
Sig. (1-tailed)	Application Feature	.	.000
	Transportation	.000	.
N	Application Feature	384	384
	Transportation	384	384

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Transportation	.	Enter
a. Dependent Variable: Application Feature			
b. All requested variables entered.			

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
AF-TR	.324	.105	.103	.29632	1.577
TN-TR	.267	.071	.069	.49976	1.772

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.598	.127		28.376	.000
	DV2	.196	.029	.324	6.705	.000
a. Dependent Variable: Application Feature						

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.947	1	3.947	44.958	.000 ^b
	Residual	33.541	382	.088		
	Total	37.488	383			
a. Dependent Variable: Application Feature						
b. Predictors: (Constant), Transportation						

Coefficient Correlations ^a			
Model			DV2
1	Correlations	Transportation	1.000
	Covariances	Transportation	.001
a. Dependent Variable: Application Feature			

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	4.0557	4.5785	4.4425	.10152	384
Residual	-.89774	.81359	.00000	.29593	384
Std. Predicted Value	-3.810	1.339	.000	1.000	384
Std. Residual	-3.030	2.746	.000	.999	384
a. Dependent Variable: Application Feature					

Hypothesis Six (H6)

Correlations			
		Application Feature	Accommodation
Pearson Correlation	Application Feature	1.000	.415
	Accommodation	.415	1.000
Sig. (1-tailed)	Application Feature	.	.000
	Accommodation	.000	.
Application Feature	Application Feature	384	384
	Accommodation	384	384

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	DV3 ^b	.	Enter
a. Dependent Variable: Application Feature			
b. All requested variables entered.			

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin- Watson
AF- ACC	.415	.172	.170	.28507	1.514
TN- ACC	.384	.147	.145	.33593	1.564

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.878	.176		16.333	.000
	DV3	.357	.040	.415	8.905	.000
a. Dependent Variable: Application Feature						

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.445	1	6.445	79.306	.000 ^b
	Residual	31.043	382	.081		
	Total	37.488	383			
a. Dependent Variable: Application Feature						
b. Predictors: (Constant), Accommodation						

Coefficient Correlations ^a			
Model			DV3
1	Correlations	Accommodation	1.000
	Covariances	Accommodation	.002
a. Dependent Variable: Application Feature			

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.9496	4.6636	4.4425	.12972	384
Residual	-.75073	.87191	.00000	.28470	384
Std. Predicted Value	-3.800	1.705	.000	1.000	384
Std. Residual	-2.633	3.059	.000	.999	384
a. Dependent Variable: Application Feature					