For Discovery: Significant Factors for the Promotion of Tourist Attractions based on Individual Behaviour through Data-mining Techniques

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Abstract

As the expression goes, "Thailand is the definition of Exotic Leisure". This paper aimed to discover the significant factors necessary for tourist attractions to promote and encourage tourists to visit based on individual behaviour by using data-mining techniques. Three main processes were employed to identify the critical factors, composed of developing tools, collecting data, and analysing data. Sampling was collected from 617 tourists who had travelled to two separate areas, including those who had been to Wat Nong Waeng, a temple in Khon Kaen, and Wat Phrathat Nadun, a temple in Maha Sarakham. The methods used to discover the factors were decision tree and association rule. Based on the results and accuracy, 14 significant factors were identified, including 7 factors concerning tourist attractions, 4 factors concerning government policies and 3 factors concerning individual behaviour. Moreover, the model exhibited 76.99 % accuracy that the constructed model could reasonably reveal the relationship between tourist attractions and travellers' individual behaviour for the promotion of travel recommendations.

Keywords: Promotion of tourist attractions, Optimisation, Data-mining techniques

Introduction

Since the beginning of the Twenty-first Century, the tourism industry has achieved a higher profile than ever before with regard to public consciousness within developed and developing countries globally. At the same time, the tourism industry is challenged by various perspectives and issues, which can be summarised into three main dimensions including lack of knowledge, the transfer of culture and rapid economic progress. As can be seen from Lew's research (2008), there is a substantial body of literary work concerning tourism issues, as evidenced in various journals, books, conference proceedings, and electronic publications. As well, evidence of the problems related to migration is reflected in the work of Flavell (2001). The perspectives of tourism in terms of mobility and globalisation (Flavell, 2001) involve the creation and exchange of cultural tourism. Finally and importantly, tourism concerns the economy and societal development. With rapid economic development often comes neglect for maintenance of the original culture. Many valuable resources are destroyed for reasons of international development, both tangible and intangible. The study was a clear reference to the work of Zhang and Gao (2016), who studied the effects of international tourism on economic growth, energy consumption, and environmental pollution in China. The paragraph above demonstrates the lack of education, planning and promotion for sustainable

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tourism. Therefore, further analysis and study of tourism is necessary and prudent. Consistent with the information already provided, all challenges require finding reasonable solutions that include a variety of factors. Each study must begin from the specific factors that are important and relevant to tourism. In order to study the factors involved, the authors reviewed the conclusions and recommendations that are significant factors to promote tourist attractions, focusing on five separate domains including tourist satisfaction, tourist characteristics, tourist attractions, government policies, and the relationships between destination attributes and tourists' satisfaction. Of the importance mentioned, the research hypothesis is that finding the factors that are important and consistent with the characteristics of tourists can be used to forecast and promote effective tourism management. All of the details are provided in the next section and displayed in Fig. 1.

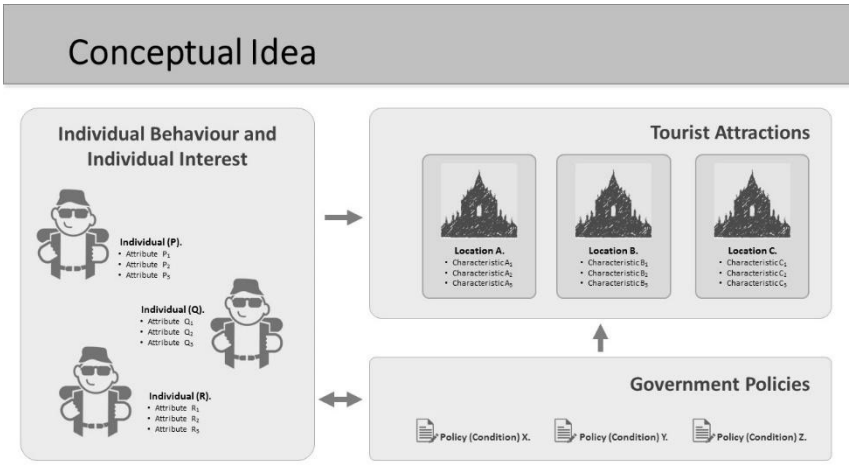

Figure 1. The relationship for tourism promotion

Relationship between Destination Attributes and Tourist Satisfaction

Literature suggests that the connection between lack of education, tourism and tourist behaviour are strongly connected. Thus, it is necessary to investigate the relationship between destination attributes and tourist satisfaction from the perspective of tourists in order to gain better understanding of the attitudes and behaviour of tourists after visiting cultural heritage destinations. All relationships and details are provided in Fig. 1 as well as subsequent topics.

From Figure 1, the conceptual idea of the relationship between tourist attractions and individual behaviour is compartmentalised into three dimensions including individual, tourist attractions, and governmental policies. The data collection methods and analysis processes employed for each dimension are varied and complex. Thus, the authors needed to separate the research in an effort to provide research that was both accurate and comprehensive. For this reason, this paper only aims to study the level of satisfaction towards the promotion of tourism in terms of individuals. The procedures and processes have been designed carefully, as presented in the section on materials and methods.

Tourist Satisfaction

One important factor for the promotion of tourism is the satisfaction of tourists. Tourist satisfaction is akey point for success by a destination because it influences the choices made by tourists to travel to

a destination or return to it. Several researchers have studied customer satisfaction and provided theories about tourism, such as the Expectation Perception Gap model (Parasiraman et al., 1985), expectations and product performance (Patterson, 1993), national heritage and global tourism in Thailand (Peleggi, 1996). It is also shown and presented how to find the satisfaction. Other examples that emphasise the importance of education for tourism and satisfaction include expressed satisfaction or dissatisfaction by tourists after buying products and services related to tourism (Fornell, 1992), tourist satisfaction and destination loyalty intention (Valle et al., 2006), and determination of tourist satisfaction with a holiday (Naidoo et al., 2010). However, the research proposed in this work only demonstrated how to measure the level of satisfaction among individual tourists. The most reasonable conclusion was that tourist satisfaction is an important factor in promoting tourism.

Tourist Characteristics

The characteristics of tourists are important factors when a researcher examines their level of satisfaction. Typically, data can explain the unique characteristics of an area known as individual behaviour. Such indicators are easy to identify and use to identify attitudes and satisfaction toward tourism, such as age, gender, and income, as well as marital status, occupation, education and ethnic background.

This paper provides information about respondents and their travel behaviour characteristics in order to explain the differences between tourist attributes and tourist satisfaction using four basic attributes including gender, age, region, and occupation. The indication is that the distribution of information does not bias the data, which is summarised in the following section.

Tourist Attractions

Cultural and historical attractions are the main features in an area that draw tourism and in fact are responsible for much of the stimulated growth of the tourism industry. Consequently, the behaviour of tourists and their visits to cultural heritage sites likely have a high level of influence on the surrounding society and economy. However, little research exists concerning this correlation. Moreover, a sensitive approach must be employed when asking questions involving how to promote attractions, how to control the role of retail, and how to develop sustainable resources, as well as how to maintain the local culture and knowledge. These questions have not yet been answered despite becoming a growing problem.

Examples of tourist attraction factors and issues can be seen in journeys to heritage attractions in the UK (Dickinson et al., 2004), ethnic and minority cultures as tourist attractions (Pyke, 2016), urban heritage tourism (Ginting and Wahid, 2015), and the modelling of tourist cities (Shoval and Raveh, 2004). Due to various restrictions, this paper focuses on the uniqueness and identity of Thailand.

Governmental Policies

The creation of policies and tourism products can increase the quality of service standards, while supporting the conditions needed for promotion of tourism contributes to increased competitiveness in the tourism market. Examples of research that illustrate the importance for creation and implementation of policies and strategies can be observed by a study of regional tourism development in Romania (Nicula et al., 2013), rural tourism development in Southeastern Europe (Hall, 2004), a study of local and regional tourism policies (Church, 2004), and research on the political economy of tourism (Williams, 2004). In the same way, promoting tourism through existing resources is a cost-effective investment and can be employed to realise rapid benefit. For example, a source of cultural capital for Thailand is its temples. Thailand has a large number of temples, through which religion and faith have spawned a deeply religious culture. Further, the government actively promotes eco-tourism along with learning about the local culture and the promotion of religious learning.

A temple is a place of learning and has the resources and cultural deposition to impart wisdom.

As discussed from the beginning, this paper believes that it is possible to match varying individual behaviours with the most suitable tourist attractions. This can be accomplished using a matching method for all the relevant factors and issues that are required to study and find solutions.

Material and Methods

After identifying all the significant factors, this section demonstrates the research methodology, which was composed of three main processes to find the relationship between tourist attractions and individual behaviour. An overview of the methodology is shown in Figure 2.

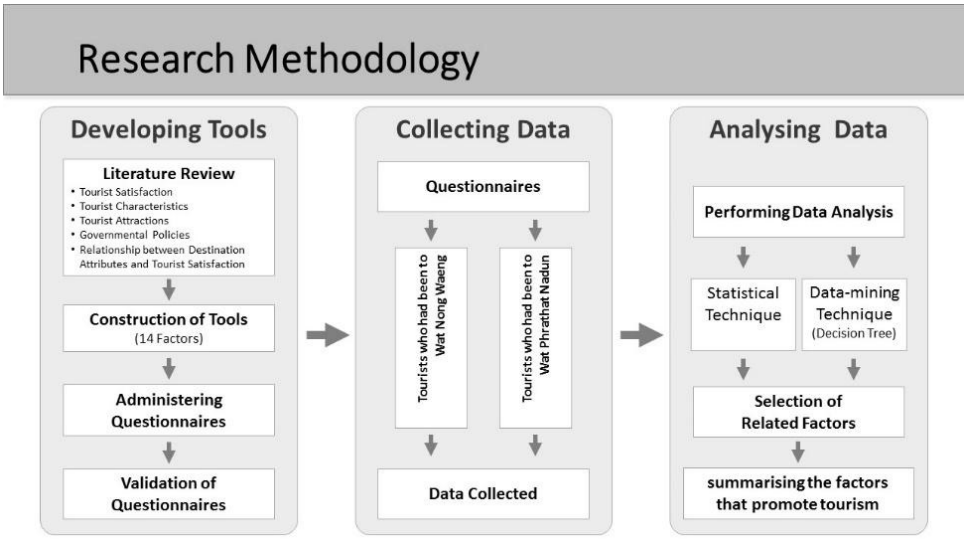

Figure 2. Research Methodology

The components for the materials and methods are provided in Figure 2, which contains three main processes including: developing tools, collecting data, and analysing data. In addition, each core process includes a sub-procedure to achieve ideal results, as detailed in the following sections.

I. Developing Tools

The destination of this section is to develop tools that used for collecting the data through a survey questionnaire. The process was composed of four steps, including a summary of the significant factors from literature reviews, the construction of tools, administering questionnaires, and validation of data obtained from the questionnaires.

Summary of Significant Factors

The first step was developed to gather the relevant factors and find out the factors necessary to promote tourist attractions using related literature. The factors contain four dimensions including tourist satisfaction, tourist characteristics, tourist attractions, and governmental policies. There are three groups of target factors including those for tourist attractions, factors for governmental policies, and factors for individual behaviour.

Construction of Tools

The second step involved the creation of tools. The process of constructing tools began by extraction and selection of the factors that affect and involve the target destination. The meaning of target

destination is the location for cultural and eco-tourism. In this paper, the selection of target destinations focused on well-known temples in the Northeastern-region of Thailand, including Wat Nong Waeng in Khon Kaen and Wat Phrathat Nadun in Maha Sarakham.

The factors used in the selection process that are important to this paper weretaken from the behaviour and characteristics of Thailand culture. The results of the process make it possible to select the factors that are critical for promoting tourist attractions. There were 14 factors considered, including 7 factors for tourist attractions, 4 factors for government policies, and 3 factors for individual behaviour, as shown in Table 1.

Table 1. Summary of significant factors related to literature

Group of Target Factors	Factors Dimension			
	Condition A	**Condition B**	**Condition C**	**Condition D**
	Tourist Satisfaction	Tourist Characteristics	Tourist Attractions	Government Policies
Tourist Attractions				
- Resources for tourist attractions	✓		✓	
- Facilities encourage travel				✓
- Public relations of attractions				
- Standards and quality of attractions				
- Culture and identity of attractions				
- Recognition of attractions				
- Location and environment				
Government Policies				
- Economic and government policies		✓		✓
- Impact and uncertainty in the country				
- Security of life and property	✓		✓	
- Products and services at the attractions				
Individual Behaviour				
- Financial stability of tourists		✓		
- Health of travellers				
- Participation in the family	✓			✓
Total: 14 Factors	**5 Conditions**	**5 Conditions**	**9 Conditions**	**8 Conditions**

Administering Questionnaires

After identification of the significant factors, the third step involved design of an approved questionnaire. The construction of the questionnaire included 5 steps as follows:

Step 1: Target characteristics for the study

The target is characterised by division into two groups; tourists who have been to Wat Nong Waeng (Khon Kaen) and those who have been to Wat Phrathat Nadun (Maha Sarakham).

Step 2: Determine questions types

The questionnaire consists of three parts: Part I asks about general information, Part II involves questions about the level of satisfaction toward selected factors, and Part III concerns feedback. A rating scale was used for the questionnaire in order to collect opinions and attitudes with accuracy.

Step 3: Create a draft

After attainment of characteristics and question types, the authors developed a form to cover all the features and issues to be measured.

Step 4: Update the questionnaire

After creating the form, the questionnaire was reviewed by a third-party expert to identify any errors in the text and structure.

Step 5: Analyse quality of data

The questionnaire was updated for trial with a small sample group to check for the quality of survey results. Analysis and validation of the data from the questionnaire used two ways, including validity and reliability methods, to measure accuracy and confidence.

Validation of Questionnaires

Inspection of the questionnaire was completed in two phases: Phase I tested validity through investigation by a group of experts, while Phase II determined reliability through statistical analysis.

II. Collecting Data

The purpose of this section involved the gathering of data through a survey using questionnaires. The process consisted of two activities and two group targets. The activities included an online survey with questionnaires and a personal survey with questionnaires, while the targets consisted of two areas, including tourists who had been to Wat Nong Waeng (Khon Kaen), and those who had visited Wat Phrathat Nadun (Maha Sarakham). Table 2 provides a summary of data collection.

Table 2. Summary of data collection

Group Targets	Number of Respondents
● Tourists who had been to Wat Nong Waeng (Khon Kaen)	248
● Tourists who had been to Wat Phrathat Nadun (Maha Sarakham)	369
Total:	617

Table 2 shows the summary of data collection. There are two targets with 617 respondents in total, including 248 tourists from Wat Nong Waeng and 369 tourists from Wat Phrathat Nadun.

III. Analysing Data

The objective of this section was to perform and analyse the data used for finding the significant factors. The sub-process for analysing data was composed of three steps, which included performing data analysis, selecting related factors, and summarising the factors that encourage tourists to visit a location. Further details are provided in the next sections.

Performing Data Analysis

The first step was to find out about attitudes resulting from data collection using two techniques including statistics and data-mining.

Statistical Technique

The purpose of using a statistical technique was to find common norms among respondents. This process provides a summary and general information for respondents such as group target, gender, age, region and occupation. At the same time, the process was used to analyse data about opinions based on factors including mean and standard deviation (S.D.).

Data-mining Technique

The goal of using a data-mining technique was to identify the factors that are important to tourism promotion by using machine learning methods to discover the patterns and relationships hidden in the data set. The methods used to discover the factors are the decision tree and the association rule. In the final step of the data-mining process, this paper conducted a test of effectiveness for the model, which included the division of data for training, testing and measuring for effectiveness.

Decision Tree: Thisis a basic data-mining tool that is used to help decide the general data (Nuankaew and Temdee, 2015). Some of the research meaning in a decision tree is schematic, which is a tree-shaped diagram used to determine a course of action or show statistical probability. Each branch of the decision tree represents a possible decision, occurrence or reaction. The tree is structured to show how and why one choice may lead to the next, with the use of the branches indicating that each option is mutually exclusive.

Association Rule: This procedure is meant to find frequent patterns, correlations, associations, or causal structures from data sets found in various kinds of databases such as relational databases, transactional databases, and other forms of data repositories. At the same time, association rule gives a set of transactions that finds rules that will predict the occurrence of an item based on the occurrence of others.

Measuring Effectiveness: This step aims to decide performance, while the process suggests a way to determine effectiveness and consists of three approaches including accuracy, precision and recall (Powers, 2011). All three performance measurements were tested to identify the most reasonable model for this paper.

Accuracy: This is the ability to find results, which can be computed by Equation (1), as from the confusion matrix (Townsend, 1971) shown in Table 3.

Table 3. Confusion Matrix

Predicted / Actual	**True Condition**		**Precision**
	Positive	**Negative**	
Predicted Positive	True Positive (TP)	False Positive (FP)	$\text{Precision}_{(\text{Positive})} = \frac{TP}{TP + FP}$
Predicted Negative	False Negative (FN)	True Negative (TN)	$\text{Precision}_{(\text{Negative})} = \frac{TP}{TP + FP}$
Recall	$\text{Recall}_{(\text{Positive})} = \frac{TP}{TP + FN}$	$\text{Recall}_{(\text{Negative})} = \frac{TN}{FP + TN}$	

In Table 3, TP is a total of true condition and true predicted positive, while TN is a total for true condition and true predicted negative. FP is a total of false condition and false positive, while FN is a total of false condition and predicted false negative.

$$Accuracy = \frac{TP + TN}{TP + TN + FP + FN} \quad (1)$$

Precision: It is a fragment of prediction that involves the retrieved sample. The precision formula is shown in Table 3.

Recall: It is the fraction for relevant samples retrieved. The recall formula is also shown in Table 3.

Selection of Related Factors

After having all the results from both techniques, this step was intended to discover relevant factors and ranking, summarising and presenting the factors that promote tourism.

Results

After processing, all results obtained from the two main techniques included statistics technique results and data-mining technique results.

I. Results of Statistical Technique

The statistical technique illustrated general norms for data collection. This section provides a summary and general information about respondents including group targets, gender, age, region and occupation, based on the answers shown in Table 4. At the same time, the data was computed to gather opinions on the factors including mean and standard deviation (S.D.), as shown in Table 5.

Table 4. Summary of data collection

Group of Targets	Respondents				
	Gender	Age	Region	Occupation	Total
Tourists who have been to Wat Nong Waeng (Khon Kaen)	92 Male 156 Female	171 Age: 16 - 22 52 Age: 23 - 30 21 Age: 31 - 45 4 Age: 46 - 60	59 Northern 35 Central 140 Northeastern 6 Eastern 8 Western	172 Student 15 Officer 26 Employee 35 Freelance	248
Tourists who have been to Wat Phrathat Nadun (Maha Sarakham)	165 Male 204 Female	106 Age: 16 - 22 92 Age: 23 - 30 75 Age: 31 - 45 78 Age: 46 - 60 18 Age: More than 60	18 Northern 91 Central 220 Northeastern 15 Eastern 20 Western 5 Southern	133 Student 55 Officer 83 Employee 98 Freelance	369
Total:	257 Male 360 Female	277 Age: 16 - 22 144 Age: 23 - 30 96 Age: 31 - 45 82 Age: 46 - 60 18 Age: More than 60	77 Northern 126 Central 360 Northeastern 21 Eastern 28 Western 5 Southern	305 Student 70 Officer 109 Employee 133 Freelance	617

Table 4 shows that the majority of respondents were females (360), with the most being aged between 16 to 22 years (277). Most females were from the Northeastern region (360), and most were students (305). The minority was males (257) aged more than 60 years (18) from the southern region (5) and occupation as an officer (70). Of note was the fact that tourists were mainly young workers in their teens.

Table 5. Satisfaction values toward factors

Group of Factor / Factors	Respondents		Overall	
	Target 1 (Wat Nong Waeng)	Target 2 (Wat Phrathat Nadun)	Mean	S.D.
Tourist Attractions				
State 1.1 Resources for tourist attractions	4.185	4.038	4.097	0.822
State 1.2 Facilities encourage travel	4.093	3.827	3.934	0.771
State 1.3 Public relations of attractions	4.274	3.534	3.831	0.844
State 1.4 Standards and quality of attractions	4.161	3.493	3.762	0.855
State 1.5 Culture and Identity of attractions	4.339	3.943	4.102	0.752
State 1.6 Recognition of attractions	3.923	3.753	3.822	0.924
State 1.7 Location and environment	4.069	3.599	3.788	0.817
Average:	4.149	3.741	3.905	0.838
Government Policies				
State 2.1 Economic and government policies	4.089	3.279	3.605	0.891
State 2.2 Impact and uncertainty in the country	4.133	2.835	3.357	1.124
State 2.3 Security of life and property	3.960	3.477	3.671	0.933
State 2.4 Products and services at the attractions	4.226	3.488	3.784	0.830
Average:	4.102	3.270	3.604	0.963
Individual Behaviour				
State 3.1 Financial stability of tourists	4.089	3.347	3.645	0.932
State 3.2 Health of traveller	3.911	3.228	3.502	0.969
State 3.3 Participation in the family	4.169	3.821	3.961	0.838
Average:	4.056	3.465	3.703	0.934
Total Average:	4.116	3.547	3.776	0.906

From Table 5, the respondents agreed that overall data collection was correct as a critical factor in the “agree” level, with an average value equal to 3.776. It shows the results for satisfaction values toward the factors from the respondents’ viewpoint. It can be seen that the respondents agreed that tourist attractions are reasonable as a significant factor in the “agree” level, as the average value is equal to 3.905. Meanwhile, government policies are suitable as a critical factor in the “agree” level, as the average value is equal to 3.604. Individual behaviour is appropriate as a critical factor in the “agree” level, as the average value is equal to 3.703.

Factor Ranking for Satisfaction

This step indicated and sorted the factors that are important from the perspective of the respondents according to the attitude results gained from the statistical technique. The results are shown in Table 6.

Table 6. Factor rankingsfor satisfaction

Topics	Ranking / Weight		
	No. 1	No. 2	No. 3
Groups of Factors Ranked	Tourist Attractions	Individual Behaviour	Government Policies
Factor Rankings for Groups of Factors	Culture and identity of attractions Resources for tourist attractions Facilities encourage travel Public relations of attractions Recognition of the attractions Location and Environment Standards and quality of attractions	Participation in the family Financial stability of tourists Health of traveller	Products and services at attractions Security of life and property Economic and government policies Impact and uncertainty in the country
Factor Rankingsfor Satisfaction related to priority	State 1.5 Culture and identity of attractions		Priority = 1
	State 1.1 Resources for tourist attractions		Priority = 2
	State 3.3 Participation in the family		Priority = 3
	State 1.2 Facilities encourage travel		Priority = 4
	State 1.3 Public relations of attractions		Priority = 5
	State 1.6 Recognition of the attractions		Priority = 6
	State 1.7 Location and environment		Priority = 7
	State 2.4 Products and services at attractions		Priority = 8
	State 1.4 Standards and quality of attractions		Priority = 9
	State 2.3 Security of life and property		Priority = 10
	State 3.1 Financial stability of tourists		Priority = 11
	State 2.1 Economic and government policies		Priority = 12
	State 3.2 Health of traveller		Priority = 13
	State 2.2 Impact and uncertainty in the country		Priority = 14

Table 6 shows the summary for factor rankings related to satisfaction. It shows that the first priority factor is State 1.5 “Culture and identity of attractions”, with satisfaction equal to 4.102. Conversely, the last priority factor is State 2.2 “Impact and uncertainty in the country”, with satisfaction equal to 3.357.

II. Results of Data-Mining Technique

This section provides the results of calculations made through the data-mining technique and is composed of four sub-processes, including creation of the decision tree model, applying the model with the association rule, benchmarking the models, and ranking the factors. All results and data are presented in the following sections.

Model of Decision Tree

Normally, decision trees are useful for focusing the discussion when a group must make a decision. This section displays the model for the decision tree that has been calculated and analysed, as shown in Figure 3.

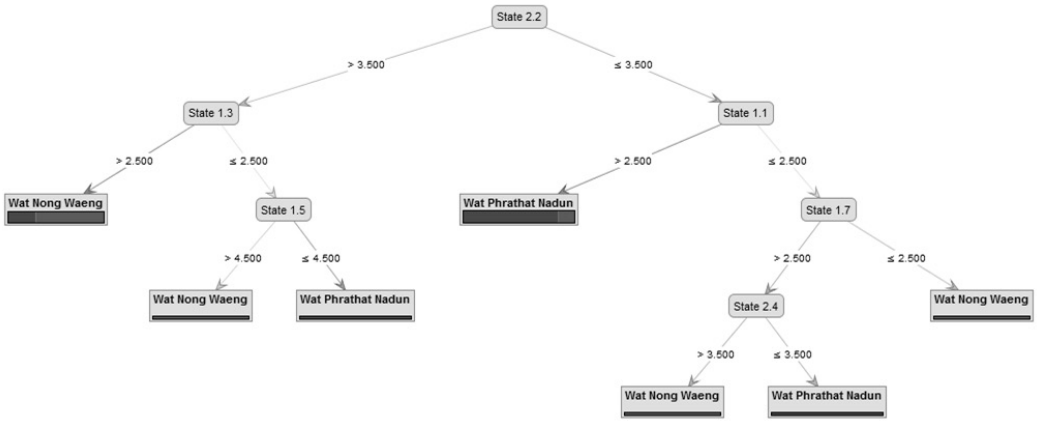

Figure 3. Decision tree model

Figure 3 illustrates the decision tree obtained from a reasonable model. Among the total 14 factors, 6 factors are able to determine whether travel is appropriate and, if so, to which tourist attraction, as shown in Table 7.

Table 7. Significant factors

Depth levels	Significant factors related to the model
Level 1:	State 2.2 (Impact and uncertainty in the country)
Level 2:	State 1.1 (Resources for tourist attractions) State 1.3 (Public relations of attractions)
Level 3:	State 1.5 (Culture and identity of attractions) State 1.7 (Location and environment)
Level 4:	State 2.4 (Products and services at attractions)

From Fig. 3, the association rules used to classify tourists for travel to tourist attractions can be constructed as 7 rules. Various examples are shown in Table 8.

Association Rule with the Model

An association rule from the decision tree could correctly predict 474 out of 617 training and testing example sets. Some examples of the rules are listed in Table 8.

Table 8. Association rules

Association Rules	
Rule 1:	If satisfaction towards factors with State 2.2 is greater than 3.50 and State 1.3 is greater than 2.50, then the most appropriate tourist attraction is Wat Nong Waeng.
Rule 2:	If satisfaction towards factors with State 2.2 is greater than 3.50, State 1.3 is less than or equal to 2.50, and State 1.5 is less than or equal to 4.50, then the most appropriate tourist attraction is Wat Phrathat Nadun.
Rule 3:	If satisfaction towards factors with State 2.2 is less than or equal to 3.50 and State 1.1 is greater than 2.50, then the most appropriate tourist attraction is Wat Phrathat Nadun.

Model Measurement

This section provides the results of benchmarking for three measurements including accuracy, precision and recall. The testing was divided into two parts to test the models, including training and testing data. Two methods were used to test for cross validation, namely 10-fold and leave-one-out, with the results shown in Tables 9 and 10, respectively.

Table 9. Cross validation with 10-fold

	True Wat Phrathat Nadun	True Wat Nong Waeng	Class Precision
Pred. Wat Phrathat Nadun	286	60	82.66 %
Pred. Wat Nong Waeng	83	188	69.37 %
Class Recall	77.51 %	75.81 %	

From Table 9, it is reasonable to apply the model from suggestions to visitors, which has accuracy equal to 76.83 %, precision equal to 69.71 %, and recall equal to 75.83 %.

Table 10. Cross validation with leave-one-out

	True Wat Phrathat Nadun	True Wat Nong Waeng	Class Precision
Pred. Wat Phrathat Nadun	281	54	83.88 %
Pred. Wat Nong Waeng	88	194	68.79 %
Class Recall	76.15 %	78.23 %	

From Table 10, there is conferment in the decision tree model for potential execution in the future, which has accuracy equal to 76.99 %, precision equal to 68.79 %, and recall equal to 78.23 %.

Ranking factors from the results of the decision tree technique

This section shows the priority of factors from data analysis using the results of the decision tree technique. Based on Table 7, the significant factors having relation to the priority of factors are shown in Table 11.

Table 11. Summary of factor rankings from decision tree technique

Depth levels	Significant factors	Priority
Level 1:	State 2.2 Impact and uncertainty in the country	Priority = 1
Level 2:	State 1.1 Resources for tourist attractions	Priority = 2
	State 1.3 Public relations of attractions	Priority = 2
Level 3:	State 1.5 Culture and identity of attractions	Priority = 3
	State 1.7 Location and environment	Priority = 3
Level 4:	State 2.4 Products and services at attractions	Priority = 4

Discussion

After obtaining the results, this section presents the two dimensions for the resulting aspects of interest, comprised of how to select the significant factors and how to identify the factors that encourage tourists to visit.

Significant Factors

The meaning of "significant" entails the important factors that influence satisfaction in the models. However, the factors could be determined as significant by priority. Thus, the results of statistical analysis and data-mining have been employed for comparison of the priority of factors, as shown in Table 12.

Table 12. Summary for priority of factors

Statistical Analysis		Decision Tree Analysis	
Factor / State	Priority	Factor / State	Priority
State 1.5 Culture and identity of attractions*	1	State 2.2 Impact and uncertainty in the country	1
State 1.1 Resources for tourist attractions*	2	State 1.1 Resources for tourist attractions*	2
State 3.3 Participation in the family	3	State 1.3 Public relations of attractions*	2
State 1.2 Facilities encourage to travel	4	State 1.5 Culture and identity of attractions*	3
State 1.3 Public relations of attractions*	5	State 1.7 Location and environment	3
State 1.6 Recognition of attractions	6	State 2.4 Products and services at attractions	4
State 1.7 Location and environment	7		
State 2.4 Products and services at the attractions	8		
State 1.4 Standards and quality of attractions	9		
State 2.3 Security of life and property	10		
State 3.1 Financial stability of tourists	11		
State 2.1 Economic and government policies	12		
State 3.2 Health of traveller	13		
State 2.2 Impact and uncertainty in the country	14		
Significant Factors:	State 1.1 Resources for tourist attractions State 1.3 Public relations of attractions State 1.5 Culture and identity of attractions		

From Table 12, the most important factors are comprised of three states, all of which appear near the top of the list of factors for both techniques. They include State 1.1 "Resources for tourist attractions", State1.3 "Public relations of attractions", and State 1.5 "Culture and identity of attractions". In the end, it is apparent that these factors are the most significant for encouraging tourists to visit.

Conclusions

Based on the research hypothesis is that finding the factors that are important and consistent with the characteristics of tourists can be used to forecast and promote effective tourism management. Thus, the objective of this research was to study the relationship between tourist programs and tourist behaviour through design and use of the decision tree and association rule method to develop a prototype model. The goal was aimed at gaining understanding of the specific and most significant factors that encourage tourists to choose travel destinations. The dataset was collected from 617 tourists at two attractions: Wat Nong Waeng, a Buddhist temple in Khon Kaen, and Wat Phrathat Nadun, a Buddhist temple in Maha Sarakham. The high accuracy obtained indicated that the factors were consistent with the model at 76.99%. The results showed that the factors employed for promoting tourist attractions and influencing tourist behaviour play significant roles in their relationship. It is important to note that the proposed model used to determine how to encourage tourists to choose travel destinations offered many different perspectives.

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