A Decision Support System Model in Evaluating Travel Agency

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Abstract: - In this paper, we present a decision support system method for travelers to find the best travel agency. In the beginning, the factors those were concerned by the travelers in evaluating the travel agency were submitted through the literature review. These factors are classified into three phases. These three phases are the price phase, the tour product characteristics and the travel agency image. Each phase owns its sub-factors. The findings of this research appear the understandings of decision key elemtns those influence consumers' purchasing may lead to the understanding of consumers' characteristics. The findings also appear the adoption of appropriate promotion method in keeping or expanding consumers group become the further key issues for travel agencies.

Key words: Decision support system, tour agency, optimal analysis

1 Introduction

1.1 Research Background
Travel is one of the outdoor leisure activities. Travel may release personal life pressure and increase personal general knowledge. Travel also creates positive effects for society environment in social life and entertainment [1]. The sightseeing tour must meet three conditions: affordable travel expenses, spare time and willing to travel [2].

1.2 Research Motivation
Facing the wide needs of travel market, the industry of travel appears a bright future. After Taiwan becomes a member of World Trade Organization (W.T.O.), all the international companies with huge capital and high efficiency enter the competing market. Under this circumstance, the travel agency must upgrade the consumer service mode. The travel agency strives to provide customized service and customized schedule service type toward travelers' requirements. This service type creates the specific competition advantage for the company. Today, the concept of the company operation is oriented by the consumers.

1.3 Research Purpose
The travel market becomes more and more competitive. The travel agency faces expanding needs in the travel market. Many new travel agencies are opened day by day. In order to be focused in the competitive market, the understanding of consumers' needs and consumers' selection standard is very important. In this research, the evaluating factors those travelers concern are submitted.

Therefore, we have to clearly realize the factors those consumers pay great attention. This change would provide high quality travel product and travel service for the consumers.

1.4 Paper Organization
In Section 2, we submit the Literature Review. In Section 3, we list the Research Methodology. And the Practical Research is listed in Section 4. Finally, we make a brief conclusion in Section 5.

2 Literature Review
In this session, we introduce the discussion issues toward decision support system and the evaluating factors of the excellence travel agency. The discussion items are the characteristics of travel industry, the definition of travel products, the consumers' behavior and major elements influencing consumers' behavior.

2.1 The characteristics of travel industry
The travel industry provide the public about the travel information and convenient service. Owning the profession knowledge, travel experience and

worldwide travel information, the main affairs of the travel industry is to provide its travel assistance and travel service to the travel consumers[3].

2.2 The definition of travel product

The travel product owns the following three parts [4], as shown in Fig.1.

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┌─────────────────────────────────────────────┐
│ Augmented Product                            │
│                                              │
│   The bonus conditio                         │
│   The promotion method                       │
│      ┌────────────────────────────────────┐  │
│      │              Formal Product         │  │
│      │              Characteristics        │  │
│      │  ┌──────────────┐  Style            │  │
│      │  │ Core Product │  Rreputation      │  │
│      │  │              │  Weighing         │  │
│      │  │  Experience  │                   │  │
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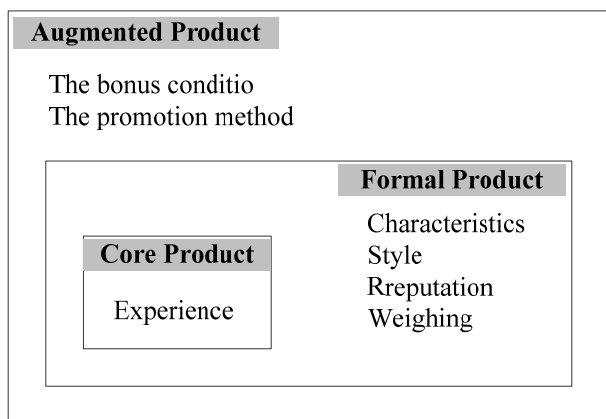
Fig.1 The Three Parts of Travel Product

In Fig.1, it appears that the product purchased by the traveler is not a single product, not a bed in the hotel, not a seat in the airplane cabinet, not a sightseeing tour with the guide, not a natural scene, but a whole image of one experiencing process.

In other ways, the travel product is linked stage by stage. The whole parts of the travel product include the meals quality, the living quality, the tour guide's experience and service, the willing to serve of the employees and their attitude, the safety of the tour program and the commitment to the consumers[5].

The introduction of these three parts are introduced below:

2.2.1 The core product
The core product means one time experience. That is the basic effect or the major effect and benefit which is provided by the seller and is seeking by the buyer.

2.2.2 The formal product
The formal product is also called the tangible product. The formal product represents the entity and service which were bought by the consumers, such as the characteristics, style, weight and reputation.

2.2.3 The augmented product
The augmented product means these factors which can be added to the travel product. Such as the bonus conditio or the promotion method.

2.3 The Consumers Behavior
The consumers behavior means the decision process and acitivities thoase are used in collecting, selecting, purchasing and using the travel products. The consumers' selecting behavior is the most important stage within the consumers' decision process. The consumers' purchasing behavior means the final purchasing behavior of the consumers [6]. We can realize the consumers from the 'Stimulus-response Mode'. The behavior and environment may stimulus consumers' mind and decision process, their selecting behavior might be affected in the following [7] [8].

2.4 The major elements influencing consumers' behavior
The elements those influence consumers' behavior are classified into four types:

2.4.1 The Culture Element
The culture element appears a deep and wide influence on the consumers. There is a discussion from consumers' culture, sub-culture and social levels.

2.4.2 The Society Element
The social element means the influence that is created from those people who are surrounded the consumer. The social element includes the reference group, the opinion leader, family, role and the position.

2.4.3 The Personal Element
The consumer's selecting behavior is influenced by personal elements. It includes consumer's age, life cycle stage, career, economic status, life mode, personal characteristics and self-concept.

2.4.4 The Psychology Element
The psychology element includes motivation, consciousness, learning, belief and attitude.

3 The Research Methodologies
In this section, we submit the research process, statistics mode and questionnaire design.

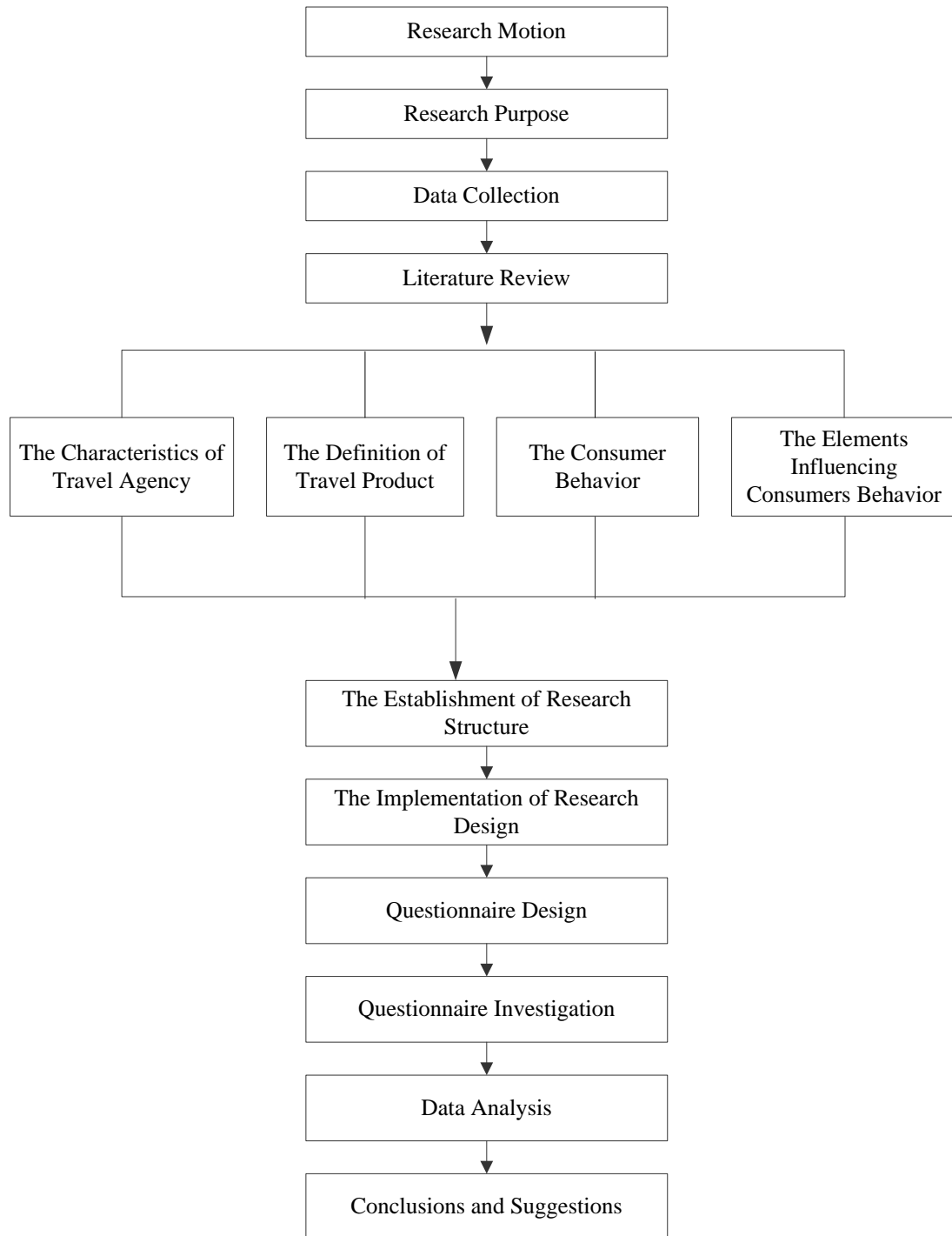## 3.1 Research Process
The Research Process is listed in Fig. 2.

Research Motion

Research Purpose

Data Collection

Literature Review

| The Characteristics of Travel Agency | The Definition of Travel Product | The Consumer Behavior | The Elements Influencing Consumers Behavior |

The Establishment of Research Structure

The Implementation of Research Design

Questionnaire Design

Questionnaire Investigation

Data Analysis

Conclusions and Suggestions

Fig. 2 Research Structure

3.2 Statistical Model

We submit the efficient algorithm to solve the following problem: the decision elements in selecting excellent travel agency is (P_k), the Decision Support System Model in Evaluating Travel Agency is b^i.

The Decision Support System Model is like:

$$\min_{m^i} \quad d_{Lm^i}^E = [\sum_{k=1}^{K}(P_k - b_k^i)^2]^{\frac{1}{2}} \ , \ i=1, 2, \ldots, I.$$

Among this,

I :	Represents the total numbers of the Decision Support System Model elements in Evaluating Travel Agency.
P_k :	Represents the Item k's SD (Standard Deviation) Value of the assigned Decision Support System Model (P) elements in Evaluating Travel Agency.
b^i :	Represents the Item i of the Decision Support System Model elements in Evaluating Travel Agency.
b_k^i :	Represents the Item k's SD (Standard Deviation) Value of the assigned travel agency candidate #i in evaluating elements (b^i).
$d_{Lm^i}^E$:	Represent the Minimum Distance between the Decision Support System Model in Evaluating Travel Agency Elements (P) and the travel agency candidate #i in evaluating elements (b^i).

3.3 Questionnaire Design

In this Section, we introduce the Questionnaire Implementation Process and the evaluating elements of excellent travel agency.

3.3.1 The Questionnaire Implementation Process

In our research, the Questionnaire Implementation Process is as following:

Step、1	Implement the Questionnaire: The 'Weighing Elements' of the excellent travel agency decision evaluation.
Step、2	Implement the 'Weighing Elements' of the decision evaluation toward 'the 1st candidate of travel agency'.
Step、3	Implement the 'Weighing Elements' of the decision evaluation toward 'the 2nd candidate of travel agency'.
Step、4	Implement the 'Weighing Evaluations' of the decision evaluation elements toward 'the 3rd candidate of travel agency'.
Step、5	Establish the summary table of the 'Weighing Elements' of the decision evaluation toward travel agency.
Step、6	Establish the summary table of the 'Weighing Distance' Between each candidate of travel agency and the weighing elements toward the decision evaluations of the travel agency.
Step、7	Create the graph of a decision support system model in evaluating the travel agency based under the sub-optimal selections of travel agency candidates.
Step、8	Create the graph of a decision support system model in evaluating the travel agency based under the optimal selection of travel agency candidates.
Step、9	Evaluate the results and make the final decision

3.3.2 The Questionnaire Design

The purpose of the questionnaire design is to collect the required information form the interviewers. The first thing is to point out and outline the required information, then the proposed interviewers' list. After a series of internal researches, many famous travel agencies' owners, business managers and scholar experts are interviewed. The results of these interviewes summarized three phases: the price phase, the tour product characteristics and the travel agency image. Each phase owns its sub-elements. As shown in table 1.

Table 1 The PC Purchase Decision Factor Items

PHASES		DECISION FACTOR ITEMS
I	the price	Tour fee
		Free gift
		Group discount or family discount
		Early registration discount
		Tour discription meeting
II	the tour product characteristics	Meal quality
		Hotel quality
		Transportation quality
		Signtseeing views
		Schedule arrangement
III	the travel agency image	The travel agency's reputation
		The visiting city's reputation
		The tour guide's experience

4   Simulations and Conclusions

In this research, we use a Decision Support System Model in Evaluating Travel Agency. We collected interviewers' data through the questionnaire method. Then, we made a series of data operation and analysis. The result of 'weighing evaluations' toward the decision sub-elements of selecting excellent travel agency is also concerned. We also made the evaluation of the optimal candidate match of the travel agency—'Set Tour Agency' toward the decision sub-elements. The evaluation result of the sub-optimal candidate of the travel agency—'Lion Tour Agency' toward the decision sub-elements is

also discussed. Furthermore, we also study the 'decision sub-elements analyses of selecting excellent travel agency. After numerous simulations, the proposed method is efficiently for travelers to find the best travel agency. Finally, we stated the research conclusion and research suggestions.

4.1 Research Conclusions

In this paper, we made a research analysis toward the consumers who takes participate in the travel agency tour program. We realize those consumers who are willing to take participate in the tour program may gather lots of selecting factors toward travel agencies.

The findings appear that consumers pay high attention on the following elements while they are selecting travel agencies: tour fee, meal quality and travel agency reputation. Following are the minor elements, they are: the safety of tour program, the commitment between the consumer and the travel agency (The commitment indicates the tour date, tour program, hotels, and etc.) and the travel agreements and insurance between the consumer and the travel agency.

Based on the group analysis, the consumer's selecting behavior classifies the market into three segments: 'service promise type', 'priority on tour program type' and 'overall priority type'.

The regression analysis is used in understanding the loyalty influences relationships between the consumer behavior and overall satisfaction degree. The overall satisfaction degree, tour program elements and service environment elements reflect the influence toward loyalty. Among these, the overall satisfaction degree and service environment elements appear positive influence. The loyalty is high influenced by the overall satisfaction degree. The higher the consumer satisfaction degree, the higher the loyalty is!

4.2 Research Suggestions

Today, there is a wide need in the travel market. The travel industry represents a bright future. In the mean time while Taiwan attends the W.T.O., many companies with huge capital or high efficiency attend the competitive market. Under this circumstance, the travel agencies must upgrade their service mode. The new service mode must be oriented by the customer requirements. The travel agency must provide consumers the customized service and schedule service those may develop the specific competitive advantages for the travel agency. Today, those who focus on consumers' operation concept, together with

the understandings of consumers' preference elements will provide high quality travel products and service.

According to the purpose of this research and practical statistics analysis, the research conclusions submit the following suggestions view points for the travel agencies:

4.2.1 On Personal Tour Program

i. Strengthen travel agency's service equipments and democrate service environment.

Those travelers who belong to the leisure tour group concentrate on the travel agency's 'tangible' service quality elements. The citizen travel programs focus on the leisure purpose. Therefore, the travel agency should first upgrade service equipments and decorate service environment those would leave a good image to the consumers.

ii. Provide suitable travel service for travelers with different travel motivation. The travel agency should encourage its employees aggressively understanding travelers' special requirements and assisting travelers in solving travelers' problems. The various motivations examples are introduced in the following :

Those travelers with 'shopping' motivation, the travel agency should arrange the shopping routes for those travelers.

Those travelers who plan to arrange a 'honey moon', the travel agency should arrange the suitable sightseeing points for the new couples. The new couples also deserve the special service, such as: the limozine service, the flowers preparation, and etc.

Those travelers with 'visiting relatives in foreign countries' motivation belong to the 'purpose orientation' group. In order to successfully achieve travelers' visiting purpose, the travle agency should strengthen its employees professional knowledge. The professional image establishments also help in arousing the traveler's re-consumption.

Those travelers with 'studying tour' in the foreign countries, the travel agency also has to upgrade its service quality levels under the considerations of cost and reasonable profit.

4.2.2 On Group Tour Program

There are two view points on group tour programs:

i. Special designs on group tour program should be considered. Two examples are listed below:

Example 1: While the travel agency is designing the 'business tour', the price discount, the coverage of tour information and the tour promotion method should included.

Example 2: While the travel agency is designing the 'employee's tour', the service convience should be emphasized.

ii. Strengthen employees' professional ability and the appropriate operation ability of the travel agency.
While the travel agency takes the case of group tour, the following key items should be focused: employees' good service attitude, employees' actively caring attitude and the employees' problem solving ability. Following, the travel agency's financial structure, the complete of organization structure, the control of operation expenses and increasing the well-known reputation of the travel agency should be emphasized, too.

Acknowledgement

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