

# STUDY ON QUALITY OF SERVICE OF HOT SPRING HOTELS IN TAIWAN

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## Abstract

Due to its geographical features, Taiwan has many hot springs. Taiwanese have inherited the Japanese hot spring bathing culture and set up many hot spring hotels. Along with the attention to leisure and health maintenance in recent years, hot spring bath becomes a favorable option which can relieve your physical pain as well as daily work stress.

This study aims to explore the key factors influencing tourists' selection of hot spring hotels. This study adopted a questionnaire, regarded Taiwanese hot spring hotels as its subjects, and investigated the impression of tourists on the service quality of the hotels. Through literature review and Modified Delphi Method (MDM), it obtained the consensus of experts and the influencing factors and created a hierarchical framework based on the factors. Through Analytic Hierarchy Process (AHP), this study obtained the weights of the influencing factors of service quality of hot spring hotels.

The results suggest that the sequence of the dimensions concerned by tourists is hotel accommodation, hot spring quality, hotel food and beverage (F&B), and hotel catering staff. And the sequence of the influencing factors is neat and clean rooms, perfect safety facilities, overall comfort of hotels, freshness of ingredients, and clear signs. Taiwanese hot spring hotels require diversified, professional, and caring services so as to leave tourists with an impression of excellent quality and reasonable price. Therefore, the key factors influencing service quality are indispensable for Taiwanese hot springs hotels.

Keywords: hot spring hotels, hot spring quality, service quality

## Introduction

### A. Research Background

Taiwan is an island country, located at the junction of Eurasian Plate and Philippine Sea plate and circum-Pacific seismic belt with special structure of the crust. Geotherm runs through Taiwan with more than 120 locations. As shown in Table 1, except Yunlin, Changhua, and Penghu Counties, all the other counties in Taiwan have hot springs, thus Taiwan can be called the Country of Hot Spring.

Influenced by the Japanese hot spring bathing culture, bathing has gradually become a popular leisure option in Taiwan with fans throughout the country. Taiwanese pays

attention not only to leisure but also to health maintenance of bathing.

Table 1. List of hot springs in Taiwan (1)

Count/City	Name of Springs	Total (Locations)
Taipei City	Dahuangzui (Shuangchong River), Mt. Yang-Ming (including Chungshan Hall, Rear Mountain), Peitou, DingPeitou (including Hushanli, XiaoyinLake, Dingbi Bridge, Dragon and Phoenix Valley, Phoenix Valley springs), Xingyi Road, Xiaoyoukeng, Macao, Lengshuikeng	13
New Taipei City	Jinshan, Huanggang, Sihuangziping, Sanchong Bridge, Dayoukeng, Dpu, Ziping, Wulai, Jiakong, Jiatou	10
Taoyuan City	Ronghua, Siling, Xinxing, Baling	4
Hsinchu County	Xiuluan, Qingquan, Xiaojingping, Jinbei, Takaixin	5
Miaoli County	Taian, Tiangou, Xuejian	3
Taichung City	Guguan, Maling, Dajian	3
Nantou County	Coffee Garden, Ruiyan, Hongxiang, Shibachong River, Heshe, Dongpu, Lele, Danda, Yibahou, Malutalun, Aowanda, Aowanda North River, Aowanda South River, Chunyang, Lushan, Jingying	16
Chiayi County	Zhonglun	1
Tainan City	Guangzilin, Liuchong River, Guidan	3

Kaohsiung City	Dagangshan (Dawu), Duona, Bulao (Xintong), Baolai, Shidong, Fuyuan, Xiaotianyuan, Touzihuo No. 1, Touzihuo No. 2, Gaozhong, Taoyuan, Lehe, Fuxing, Meishan	14
Pingtung County	Sichong Rivere, Xuhai, Shoufan, Dawu, Shuangliu	5
Taitung County	Liji, Hongyegu, Taolin, Xinwu, Xinwulv North River, Jiemosi, Dalun, Dalun No. 1, Xiama, Wulu, Zhiben, Jinfeng, Daerpeng, Bilu, Jinlun No. 1, Jinlun No. 2, Jinlun No. 3, Jialuoban, Green Island	20
Hualien County	Wenshan, Erzi, Panshi, Wanli, Ruisui, Hongye, Antong, Dongli No. 1, Dongli No. 2, Fuyuan, Ruilin, Dafen	12
Yilan County	Jiaoxi, Yuanshan, Qingshui, Fanfan, Paigu River, Renze, Tuyang, Han River, Siji, Suao Cold Spring, Zone 4, Zone 5, Wumao, Yinggu, Dazhuo River, Chougan, Maobian, Toucheng, Guishan Island	19

## B. Research Motives

In recent years, people pay increasing attention to the service quality of hotels. There are customer complaints because of some reasons. It is a key for the operators to create a sound environment and services so as to attract travelers! It is a topic worth of study how hot spring hotel owners can design perfect plans and offer perfect experience to tourists based on their needs, experiences, and values.

- (1) To learn Taiwanese expectations on hot spring hotels.
- (2) In recent years, Taiwanese pay increasing attention to the quality of service. Do they have high requirements in terms of the additional equipment of hot spring hotels?

## C. Research Purposes

Based on the above background and motives, this study aimed to learn whether visitors' impression of service quality would affect their consumption at a hot spring hotel or not. It analyzed the weights of the factors influencing the impression of facilities and service quality of hot spring hotels of visitors and established a weight system. The

results can serve as a reference for relevant units and industry practitioners so as to improve the service quality of hot spring hotels.

## D. Research process

Based on its motives and purpose, this study first determined the topic and scope of the study, established a framework and proposed hypotheses after collecting relevant domestic and foreign literature and experts' opinions, designed, distributed, collected, and analyzed a questionnaire, and finally offered feasibility assessment and suggestions based on the above analysis. The research process is shown in Figure 1:

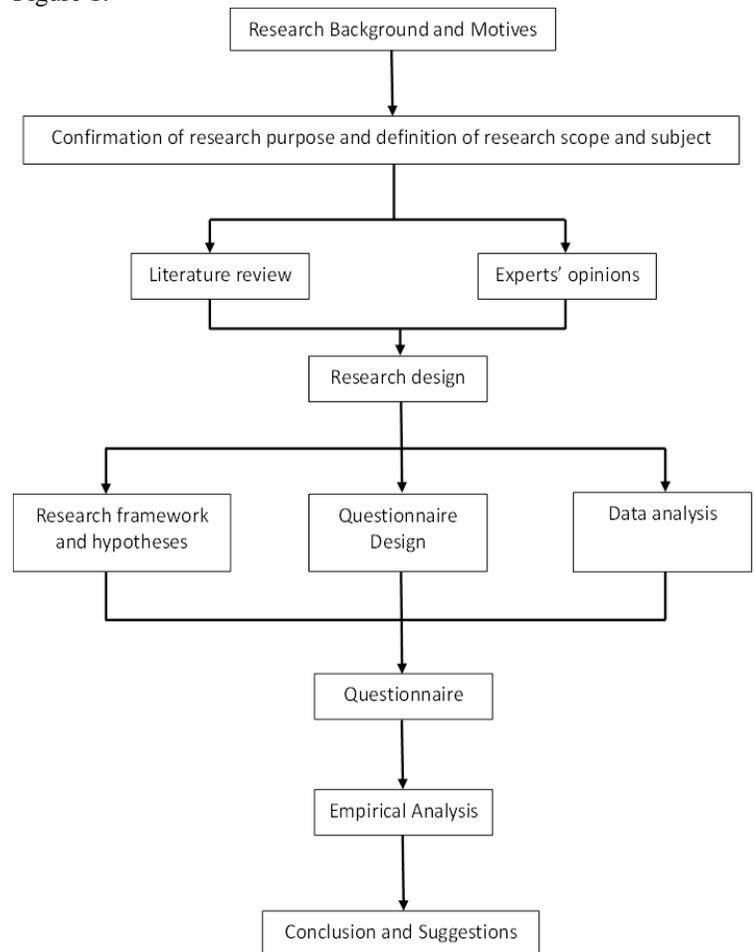


Figure 1. Research process

## Literature Review

### A. Definition of a hot spring hotel

Yao (1997), according to geographical features, classified resort hotels into hot spring hotels and beach hotels. Liao (2009) defined that a hot spring hotel was "located within

hot spring resource or hot spring scenic spot which could provide average hot spring facilities and services equivalent to a resort hotel as well as activities including hot spring bathing, SPA, accommodation, rest, F&B, meeting, social contact, and so on. [2-3]

## B. Service quality

Parasuraman, Zeithaml, and Berry (1985) proposed three key factors of service quality: 1) service quality was more difficult to assess than product quality; 2) the cognition of service quality came from the comparison between previous expectations and actual experiences; 3) service quality not only included the assessment of service results but also the assessment of delivery of services.

Cronin & Taylor (1992) assumed that service quality referred to the actual performance rather than expectation of a product or service assessed by a consumer.

Lehtinen and Lehtinen (1991) deemed that service quality could be classified into process quality and outcome quality. The former referred to the level of service judged by a consumer during the service, which was his/her subjective opinions, while the latter referred to the evaluation of the service results by a consumer:

Service quality = Process quality + Outcome quality

In their study on the perceived value of service quality and satisfaction and loyalty, Chen and Tseng et al. (2007) agreed that 1) service quality has a direct and positive influence on satisfaction, while perceived value had an indirect and positive influence on satisfaction; 2) satisfaction has a high, direct, and positive influence on satisfaction.

In their study on service quality and consumer satisfaction and loyalty, Chang and Yu (2008) pointed out that: 1) service quality has a positive influence on consumer satisfaction and loyalty; 2) consumer satisfaction has a positive influence on consumer loyalty; 3) service quality and consumer satisfaction could effectively predict consumer loyalty. [4-8]

## C. Modified Delphi Method

According to [www.mbalib.com](http://www.mbalib.com), Delphi Method was first proposed by Helmer and Gordon in 1940s. American Rand Corporation first adopted Delphi Method/Delphi Technique in 1950 to avoid the deficiency that collective discussion might succumb to authority or minority submitting to the majority blindly and make qualitative prediction. Later on, the method is widely applied and becomes one of the most common methods to solve complex policy issues. Murry and Hammons (1995) asserted that Delphi Method was a research method based on the following two hypotheses: 1) decisions resulted from collective discussion is more comprehensive and effective than from an individual; 2) though collective decision is more effective than individual

decision ideally, face-to-face group discussion has the due collective decision affected by various interference factors.

The implementation and statistic approach of MDM are roughly the same as that of Delphi Method, keeping the original spirit and advantages of Delphi Method. Experts communicate and express their ideas anonymously so as to simplify complex questionnaires, omit the complex steps of the first round open questionnaire which was replaced by a structural questionnaire based on the results of relevant literature review, researcher plans, or expert interviews.

This study employed MDM, collected literature and summarized data on relevant topics, adopted anonymous and collective decision of experts without interference, and processed and integrated the opinions of the experts in relevant fields through statistical analysis and systematic data processing so as to reach a consensus on the relevant indicators influencing the service quality of the hot spring hotels in Taiwan.

## D. Analytical Hierarchy Process (AHP)

Analytical Hierarchy Process (AHP) is a theory developed by Thomas L. Saaty of University of Pittsburgh in 1971. After 1980, the theory turned to be more perfect (Deng & Zeng, 1989). It decomposes issues systematically, sorts the issues into hierarchies, adopts pairwise comparison to find the relative importance ration among elements, prioritizes the order of options, and serves as the basis to select the best options (Saaty, 1990).

The researcher studied the issue with AHP, referred to literature, and implemented AHP by the following nine steps:

1. Confirmation of research questions:

While conducting AHP analysis and assessment, it is better to expand the system of the research questions, include the possible factors influencing the factors (dimensions) to the questions, and pay attention to the mutual and independent relationship among elements (which means elements are elements are mutually independent rather than two sides of the same picture).

2. Filtering of influencing elements:

There are no standard procedures to establish the hierarchical framework of AHP. All the relevant factors shall be listed through various appropriate methods, such as Brainstorming Method, Delphi Technique, and literature collection, which are then summarized as element criteria to form dimensions (factors).

3. Establishment of a hierarchical framework:

This step identifies the primary and secondary evaluation criteria influencing the questions and alternative options and establishes a hierarchical framework. The quantity of structural levels is determined by the complexity of the system and the analysis of a researcher.

4. Questionnaire design and survey:

Assessment follows the completion of the hierarchical framework. The upper level of evaluation elements serve as

the evaluation bases of the lower evaluation elements. Pairwise comparison among elements is then conducted to simplify the complexity of the questions so that the decision-makers can focus on the relationship between two elements. According to the measurement scale proposed by Saaty (1980) and in order to obtain the relative importance of elements and convert pairwise qualitative comparison into quantitative comparison, a nine-grade scale was adopted, including five major levels and four threshold levels (see table 2).

Table 2. Significance and Instruction for Evaluation Scale of AHP

Evaluation Scale	Definition	Description
1	Equally important	The contribution degree for two factors has the equal importance.
3	Slightly important	One factor is thought to be slightly more important based on experience and judgment.
5	Quite important	One factor is strongly preferred based on experience and judgment.
7	Extremely important	It is shown that one factor is thought to be strongly preferred.
9	Absolutely important	There is sufficient evidence to affirm that one factor is absolutely important.
2,4,6,8	Intermediate value for adjacent scales	The compromise importance lies between the two judgments.

Source: Saaty (1990)

5.Establishment of pairwise comparison matrices

6.Calculation of max. eigenvector and eigenvalue

7.Consistency tests:

The priority of factors is obtained from pairwise comparison.

It is possible that the comparison, judgment, and priority concluded by experts are not consistent. Hence, consistency ratio shall be adopted for the purpose of verification.

8. Calculation of the overall hierarchical weights:

The overall hierarchical weights can be calculated after the requirement of consistency is met. The overall weights of each level of elements against the final goal determine the priority of each factor.

9. Selection of the most suitable option:

The options with weights calculated, referring to the weights of all the element criteria of the hierarchical framework, and with referential value could be analyzed and selected by a decision-maker as best options.

## Research Method

### A. Research subjects

This study selected 11 subjects, including practitioners in hotel industry (e.g. hotel managers, special assistants) and professors of recreation department at colleges and universities for over eight years. The subjects of the hierarchical questionnaire were the customer service staff of hot spring hotels and tourist guides.

### B. Research Structure

In terms of the research structure, this study first confirmed its research topic, summarized the assessment criteria and properties related to the service quality of hot spring hotels through literature discussion, collected the experts' opinions through MDM, proposed a questionnaire, obtained the consensus of the experts to determine important dimensions and properties, and integrated the needs into a preliminary framework with the levels of goal, classification, and criteria. After the confirmation of the framework, AHP expert questionnaire was adopted to make face-to-face interviews with the experts. Emails containing the questionnaire were sent to experts. Decision analysis software was employed to analyze the weights of each evaluation criterion. A rating scale of the service quality of hot spring hotel was established based on the weights calculated.

The research could be classified into three steps:

1.First, this study adopted MDM to design an expert questionnaire integrating the literature related to the service quality of hot spring hotels. Then, combined with brainstorming and expert interviews, it summarized a semi-open questionnaire containing relevant evaluation dimensions and criteria. The experts could fill in their suggestions in the field of "New Suggestions" to serve as a reference of improvement of this study. The questionnaire was conducted via anonymous and collective decision of experts. The experts' opinions were integrated via statistical analysis. Then, this study established the effectiveness of the evaluation dimensions and criteria of service quality of hot spring hotels in Taiwan.

2.After a semi-open expert questionnaire and a closed questionnaire, evaluation dimensions and criteria which were not important or influential were removed to establish the hierarchical framework.

3.Lastly, this study calculated the weights of the hierarchical expert questionnaire. The experts rated each evaluation criteria based on the rating scale.

This study conducted two rounds of questionnaire with MDM and converted the results into the AHP framework. The AHP framework was classified into four dimensions and 17 criteria and served as the research framework to evaluate tourists' perception of the service quality of hot spring hotels, as shown in Figure 2.

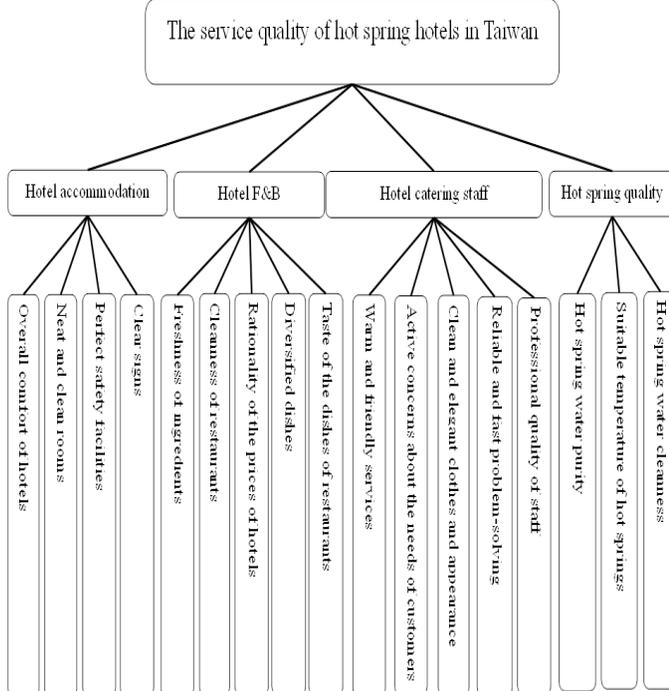


Figure 2. AHP diagram on the perception of the influencing factors of the service quality of hot spring hotels in Taiwan

### Empirical Analysis

Based on AHP, this study designed an AHP questionnaire with tourist guides with over five years of experiences and the customer service staffs of hot spring hotels as its subjects. Then, it converted the feedbacks of the questionnaire into quantitative scale so as to establish the pairwise comparison matrices of the evaluation factors.

After it obtained the weights of the pairwise comparison matrices which all met the requirement of consistency, it calculated the relative weights of the overall hierarchical evaluation items so as to determine the priority of the evaluation factors, as shown in Table 3:

Table 3.Importance analysis integrating various factors

Dimension	Dimension Weight	Criterion	Criterion Weight	Overall Weight	Ranking
Hotel accommodation	0.4093	Overall comfort of hotels	0.1961	0.0803	3

		Neat and clean rooms	0.3778	0.1546	1
		Perfect safety facilities	0.3272	0.1339	2
		Clear signs	0.0990	0.0405	5
Hotel F&B	0.1108	Freshness of ingredients	0.4480	0.0496	4
		Cleanliness of restaurants	0.3239	0.0359	7
		Rationality of the prices of hotels	0.0753	0.0083	14
		Diversified dishes	0.0609	0.0067	16
		Taste of the dishes of restaurants	0.0918	0.0102	13
Hotel catering staff	0.0806	Warm and friendly services	0.2561	0.0206	10
		Active concerns about the needs of customers	0.2439	0.0197	11
		Clean and elegant clothes and appearance	0.0558	0.0045	17
		Reliable and fast problem-solving	0.3450	0.0278	9
		Professional quality of staff	0.0993	0.0080	15
Hot spring quality	0.3993	Hot spring water purity	0.4563	0.0368	6
		Suitable temperature of hot springs	0.3552	0.0286	8
		Hot spring water cleanliness	0.1885	0.0152	12

Based on the above calculation results, it can be seen that in terms of the influencing factors of the service quality of hot spring hotels, tourists attach the greatest importance to hotel accommodation which is proved by its high score of 0.4093

in the main dimension of "hotel accommodation". As of the criteria of a single dimension (hotel accommodation), the most important is "neat and clean rooms". In the basic analysis of hotel F&B, "freshness of ingredients" receives the highest attention. In terms of hotel catering staff, the most important is "reliable and fast problem-solving". And in terms of hot spring quality, "hot spring water purity" receives the highest attention.

Overall speaking, the analysis of the four major dimensions and 17 criteria has shown that top 1 to five factors in terms of overall weights are neat and clean rooms (0.1546), perfect safety facilities (0.1339), overall comfort of hotels (0.0803), freshness of ingredients (0.0496), and clear signs (0.0405). The five criteria account for 67.4% of the total weight. This study classified the five criteria as the factors of service quality of hot spring hotels in Taiwan receiving "high attention" from tourists. Top 6 to 11 factors in terms of overall weights are hot spring water purity (0.0368), cleanness of restaurants (0.0359), suitable temperature of hot springs (0.0286), reliable and fast problem-solving (0.0278), warm and friendly services (0.0206), and active concerns about the needs of customers (0.0197). The six criteria account for 24.9% of the total weight. This study classified the six criteria as the factors of service quality of hot spring hotels in Taiwan receiving "moderate attention" from tourists. The rest criteria are classified as the factors receiving "low attention" from tourists, as shown in Table 4.

Table 4. Attention of tourists on each evaluation criteria

Order of Weight	Attention Degree	Evaluation Criteria	Distribution of Overall Weight	Subordinate Dimension
1	High emphasis degree	Neat and clean rooms	0.1546	Hotel accommodation
2		Perfect safety facilities	0.1339	Hotel accommodation
3		Overall comfort of hotels	0.0803	Hotel accommodation
4		Freshness of ingredients	0.0496	Hotel F&B
5		Clear signs	0.0405	Hotel accommodation
6	Middle emphasis degree	Hot spring water purity	0.0368	Hot spring quality
7		Cleanness of restaurants	0.0359	Hotel F&B
8		Suitable temperature	0.0286	Hot spring quality

		of hot springs		
9		Reliable and fast problem-solving	0.0278	Hotel catering staff
10		Warm and friendly services	0.0206	Hotel catering staff
11		Active concerns about the needs of customers	0.0197	Hotel catering staff
12	Low emphasis degree	Hot spring water purity	0.0152	Hot spring quality
13		Taste of the dishes of restaurants	0.0102	Hotel F&B
14		Rationality of the prices of hotels	0.0053	Hotel F&B
15		Professional quality of staff	0.0080	Hotel catering staff
16		Taste of the dishes of restaurants	0.0067	Hotel F&B
17		Clean and elegant clothes and appearance	0.0045	Hotel catering staff

The overall research results show that "hotel accommodation" has an extremely high influence, accounting for four items among the top five criteria, indicating that neat and clean rooms, perfect safety facilities, overall comfort of hotels, overall comfort of hotels, and clear signs have great influences on tourists' selection of hot spring hotels in Taiwan. Hence, the dimensions and criteria have influences, predictive power, consistency, and continuity, which will directly impact the decision-making model of an individual and become the most elements influencing participation.

## Conclusion

In contemporary society, the concepts of leisure and health maintenance become increasingly popular. Due to heavy daily work pressure, people desire to relax during holidays. Consequently, hot spring hotels, inns, and leisure centers spring up like mushrooms. Their service quality is

emphasized by tourists. The studies related to the service of hot spring hotels cannot be ignored. The subjects of this study were mainly front-line staff of tourist industry (tourist guides with over five years of experiences) and customer service staff of hot spring hotels because they had direct contact with tourists' complaints and could have deeper perception of the psychology of tourists so as to facilitate the discussion of this study on the importance of hotel accommodation, hotel F&B, hotel catering staff, and hot spring quality for tourists. This study adopted questionnaires to collect data and then analyzed and discussed the data. The research results are described as follows:

1. The criteria of neat and clean rooms have the highest weight: It refers to the requirements of tourists to hotel rooms. Sleep is vital to human. Neat and clean rooms will make tourists feel at home.

2. Perfect safety facilities: The safety facilities in a hotel must be perfect so as to bring the sense of safety to tourists.

3. Overall comfort of hotels: The appearance and reception hall of a hotel leaves a tourist with the first impression. If the design of a hotel makes a tourist feel comfortable before entering the hotel, the tourist may have high evaluation on the first impression of it.

4. Freshness of ingredients: Food is the paramount necessity of the people. The freshness of ingredients affects the quality of dishes. Good dishes bring about good moods to tourists for a whole day. Hence, the freshness of ingredients is important.

5. Clear signs: The overall signs of a hotel shall be clear so that a tourist may know where he/she is and is heading to.

From the above comprehensive analysis and the results of the AHP questionnaire, it can be seen that the sequence of the dimensions concerned by tourists is hotel accommodation, hot spring quality, hotel food and beverage (F&B), and hotel catering staff. And the sequence of the influencing factors is neat and clean rooms, perfect safety facilities, overall comfort of hotels, freshness of ingredients, and clear signs. Taiwanese hot springs hotels require diversified, professional, and caring services so as to leave tourists an impression of excellent quality and reasonable price. Therefore, the key factors influencing service quality are indispensable for Taiwanese hot springs hotels.

Due to region, research grant, and time limit, this study only regarded university professors and hotel directors as the subjects of its questionnaire. The evaluation results can only reflect the elements emphasized by the experts and hardly reflect the needs of average tourists. This study suggests that future study can center on front-line staff having direct contact with tourists, such as, reception staff of hotels, customer service staff of travel agents, and even tourists.

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