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**Causal modeling of tourist satisfaction: Application to
Michigan's northwestern coastal tourism region**

Yokoyama, Fumito, Ph.D.

Michigan State University, 1991

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CAUSAL MODELING OF TOURIST SATISFACTION: APPLICATION
TO MICHIGAN'S NORTHWESTERN COASTAL TOURISM REGION

By
Fumito Yokoyama

A DISSERTATION

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1991

ABSTRACT

CAUSAL MODELING OF TOURIST SATISFACTION: APPLICATION TO MICHIGAN'S NORTHWESTERN COASTAL TOURISM REGION

By

Fumito Yokoyama

This research was designed to investigate the process underlying tourists' degree of satisfaction with Michigan's northwestern coastal resort region. The objectives of the study included: (1) a comparison and evaluation of the discrepancy and the performance-based change models of tourist satisfaction, and (2) the identification of the key tourism constructs used to explain levels of tourist satisfaction.

The data used for this study were collected in a separate study, the Michigan Travel Perception Study, between the summer of 1987 and early winter of 1988. The original study was a longitudinal panel study. The design of the study was a pre-post-post survey used to examine shifts in tourists' perceptions of Michigan's northwestern coastal resort area before and after their travel. The sample was 107 respondents who completed the pre-travel and the first post-travel surveys.

Correlation analysis and path analysis were employed to evaluate the two alternative satisfaction models. Based on the results of the analyses, the performance-based change model was found to be the better model and was used to explain tourist satisfaction. The performance-based change model fit the data well, based on the results of path analysis.

Fumito Yokoyama

Confirmatory factor analysis and multiple regression analysis were used to investigate key tourism constructs which explained levels of tourist satisfaction. The confirmatory factor analysis identified and refined the following three tourism constructs: (1) local tourism distinction, (2) hospitality, and (3) outdoor recreation. The multiple regression analysis of tourist satisfaction on these three tourism constructs revealed that hospitality ($\text{Beta}=0.52$) explained the largest amount of tourist satisfaction compared to the other two constructs. The analysis also showed that these three tourism constructs together predicted levels of tourist satisfaction with some degree of accuracy (multiple regression coefficient=0.78; $R\text{-square}=0.60$). Based on these findings, implications for tourism planning and management and future research are presented and discussed: (1) tourism planners and managers should focus upon the quality of hospitality issues and services, (2) path analysis is a useful tool to evaluate alternative causal models, and (3) confirmatory factor analysis is an effective technique for the measurement of underlying factors.

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CHAPTER I

INTRODUCTION

Significance of Tourism

Tourism can be defined as a composite of activities, services, and industries that delivers travel experiences (McIntosh and Goeldner, 1984) to people visiting a travel destination. Types of tourism facilities include parks, resorts, ski areas, camps, hotels and motels, restaurants, and entertainment centers. Many activities and behaviors of tourists are included in tourism such as fishing, boating, swimming, sightseeing, and the art of traveling itself. In addition, tourism involves the providers and their activities. Providers include facility owners, advertising companies, travel offices, hospitality services, consultants, and researchers. Related activities include magazine advertising, travel guide book, promotion, sponsoring local traditions and publishing culture festivities, and developing regulations and standards related to tourism. Thus, tourism is a complex, comprehensive, and dynamic phenomenon related to the temporary movement of people away from their normal places of work and residence (Mathieson and Wall, 1982).

Tourism has become an important and significant industry, both domestically and internationally. In 1990, total worldwide domestic and international travel and tourism revenue was estimated to be \$2 trillion; total travel and tourism revenue spending in the U.S. was estimated to be \$377 billion. Forty million foreign travellers visited the U.S., spending \$52.8 billion, directly supporting over 700,000 U.S. jobs, and generating \$6 billion in federal, state and local tax revenue in 1990 (U.S. Travel & Tourism Administration, 1991).

Tourism is associated with economic, social, cultural, and environmental impacts--both positive and negative (Gunn, 1988). First, positive tourism economic impacts include: increasing income within a community, area or region, generating business and government tax receipts, and producing jobs. These can be expressed as both direct and secondary benefits. Direct benefits occur as a direct consequence of tourism activity in the local area. For instance, tourist expenditures become business receipts which in turn are used to pay wages, taxes, and purchase goods. The secondary benefits include indirect and induced benefits. The indirect benefits can be generated by primary business outlays. Local businesses spend part of their receipts on necessary goods and services to serve customers, including new equipment investments. Their suppliers in turn have to purchase certain items and additional supplies from other distributors and

suppliers, some local, others not. The induced benefits may be generated by the spending of primary income by tourists. Some of the wage and salary income directly generated by tourist expenditures are spent by local people on goods and services produced in the local area. These benefits also include government expenditures in the local area which were induced by the tax revenue generated by tourist spending (Frechtling, 1987).

Second, various social and cultural impacts are associated with tourism. Gunn (1988) stated that cross-cultural exchange is probably the greatest social value of tourism. People can be exposed to different political, religious, economic, cultural, and environmental systems by traveling to another country or region. Tourists can enrich a local area by providing new ideas, new social norms, and inducing a greater respect for local culture and traditions. Therefore, tourism can facilitate international understanding and broaden the views of both local residents and tourists.

Third, tourism can contribute to environmental improvements within the local area. Local residents can take advantage of improvements in transportation systems, water and sewage systems, health services, and recreation facilities generated by the need to serve tourists. Local farmers may access markets more easily through new roads and may even develop new markets serving tourist needs directly. Thus, tourism may result in improving the living standard of local

residents (Crandall, 1987).

Additionally, some tourists exposed to cultural heritage and natural beauty have become friends of conservation and provide financial support for preservation of these precious local traditions and natural environments to the local area (Gunn, 1988). For instance, some of the people visiting Yosemite National Park in California may be impressed by its natural beauty and wildlife, and they start to recognize the importance of preserving these precious natural resources for generations to come. They may provide financial donations for the conservation of Yosemite, or for their own local parks.

If not planned correctly, tourism can produce negative impacts--economic, social, and environmental (Gunn, 1988). With respect to economic impact, tourism development requires more costs for constructing new facilities and expanding present supplies--for instance, new tourism attractions, facilities, and services; expansion of water supply, waste disposal, electrical power, and so on. Additionally, tourism development may increase local land prices significantly; thus, local residents cannot buy land and houses which may have been affordable before tourism development occurred.

As for social impact, masses of tourists can destroy existing local traditions and cultures; produce congestion and competition for local services; and result in more crime or prostitution, and increase the potential for conflicts in values between local residents and tourists. Regarding

environmental impacts, tourism development can produce environmental damage such as air and water pollution, and the destruction of a fragile ecosystem, or the degradation of the quiet environment of a small community.

Tourism in Michigan

Tourism has brought significant economic impacts to Michigan. In 1987, total travel expenditures¹ were estimated to be \$8,620 million, travel-generated employment² was estimated to be approximately 150 thousands jobs, and travel-generated tax revenue³ was estimated to be \$1,080 million (U.S. Travel Data Center, 1989). Thus, tourism provides income, employment opportunities, and tax revenues for the country and individual states like Michigan. These measures are rough estimates, but provide some indication of the magnitude and value of tourism in Michigan.

Within Michigan, the northwestern coastal area is known to be a popular tourism destination. This area ranges from Mackinac Island, a famous sightseeing spot, to the Traverse City area, a popular and beautiful resort destination region.

¹Travel expenditure is defined as "the exchange of money or the promise of money for goods and service while traveling, including any advance purchase of public transportation tickets, but which may be purchased in advance of the trip".

²Travel-generated employment is defined as "the number of jobs attributable to travel expenditures in an area".

³Travel-generated tax revenue is defined as "these federal, state and local tax revenue attributable to travel in an area".

These two regions have been found to be very popular among travelers to Michigan (Fridgen, 1987). The entire area has many fine restaurants, stores, resorts, natural beauty, attractions, and recreation opportunities. It is apparent that this region is a significant element of tourism within Michigan.

Tourism is most often thought to produce positive economic, social, and environmental growth within states and localities. However, as stated earlier, tourism can generate negative impacts (e.g., land price increases, conflicts in values, environmental destruction, etc.) if not planned properly. Fortunately, most negative impacts can be avoided or eliminated through adequate tourism planning. Additionally, in order to maximize the benefits from tourism, proper management and planning is important in all stages of development and delivery of tourism opportunities and experiences.

Tourism Marketing

The American Marketing Association's (AMA) revised definition of marketing is as follows:

Marketing is the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods and services, to create exchanges that satisfy individual and organizational objectives (AMA, 1985, p. 1).

This definition states that marketing can apply not only to manufactured physical goods but also to non-physical ideas and

services. Considering current trends of increasing competition and diverse consumer needs and wants, marketing becomes an essential tool for management and planning in both public and private organizations and institutions. Tourism is no exception.

Tourism marketing is a useful adjunct to tourism planning, which is the process of preparing for tourism development. Tourism marketing differs from the marketing of manufactured goods in that the tourism experience is "intangible and incapable of being stored or transported" (Uhl and Upah, 1983, p. 231). Tourists cannot examine the tourism experiences and quality of the site unless they have been there before. Thus, quality control over the tourism experience is one of the most important marketing tasks associated with generating tourist satisfaction (Mahoney, 1987).

In tourism, marketing can directly contribute to tourist satisfaction (Fridgen, 1991). Satisfied tourists are more likely to return to the tourism destination and generate even more potential tourists through word of mouth promotion. Both repeat visitors and new tourists consequently contribute to the bottom line objectives of maximizing the benefits of tourism. Perception of the quality of tourism experiences will influence tourist satisfaction and this is crucial for the success of any tourism enterprise. Therefore, it is necessary to understand how tourist satisfaction is generated

and to use this knowledge to better manage, plan, and market tourism experiences.

Theoretical Background: Satisfaction Models

Satisfaction, as a concept, has been studied for many years in the field of leisure, recreation, and tourism. Researchers have borrowed from such related disciplines as sociology, psychology, economics, marketing, and consumer research because very few theories or models of recreation or leisure satisfaction exist. Propst and Lime (1981) suggested that more emphasis should be placed on using concepts and methods from marketing and consumer satisfaction research in order to more fully explain the psychological process of satisfaction.

Researchers have employed a broad range of models and theories taken from consumer behavior and related social sciences. Several models have evolved and could be considered useful to the study of tourism. Two models that are appropriate to the study of tourism and this study are: (1) the discrepancy model and (2) the performance-based change model.

Discrepancy Model

Individuals who need or want to travel to selected destinations are potential travelers. Potential travelers hold a variety of pre-images or expectations of travel destinations based upon a range of information from a number

of sources such as travel-related magazines and journals, advertising, promotional campaigns, word-of-mouth promotion, and past experiences. These images and expectations become the travelers' subjective basis for selecting travel destinations and evaluating actual future travel experiences. Potential travelers may decide to actually make a trip to the selected destination and may enjoy their travel experiences. If the perceived travel experiences surpass their expectations, this should lead to more satisfaction for travelers. This sense of satisfaction should develop an improved perception of the destination in the minds of the travelers. If the perceived experiences fall below their expectations, this should result in less satisfaction and possibly in negative perceptions of the destination. If the perceived experiences meet their expectations, this should lead to satisfaction and travelers should maintain their initial images or expectations, presumably positive. Operationally, the model requires the following psychological constructs to be present: expectations, perceived performances, disconfirmation, and satisfaction. These constructs are model specific, based on discrepancy and performance-based change models developed in the literature.

Performance-Based Change Model

In this model, the first steps are similar to those in the discrepancy model (i.e., individuals become potential travelers, and they hold various expectations about travel

destinations). However, in this model the comparison process between expectations and perceived performances does not account for satisfaction. Rather, only perceived performances are assumed to influence satisfaction, irrespective of travelers expectations. Expectations can be thought of an initial attitude toward tourism experiences anticipated at the destination, and the initial attitude can be changed only by a message or input gained through experiencing the performance of the site or destination. This can be called perceived performance. Thus, individuals who perceived high levels of performance associated with a tourism experience should also experience a high degree of satisfaction. Conversely, the individual with lower perceived performance evaluations would also have lower satisfaction evaluations associated with travel to this particular destination.

Problem Statement

There are two alternative models for explaining tourist satisfaction which leads to the following question: Which model best explains tourist satisfaction? One way to answer this question is to empirically evaluate both the discrepancy model and the performance-based change model in terms of their ability to explain and predict tourist satisfaction. In order to carry out this comparison, a causal modeling approach is used and this technique enables the researcher to better understand tourist satisfaction and how tourist satisfaction

is developed.

Beyond comparing the two models, it is important to investigate the applicability of consumer satisfaction to the study of tourism. Tourism satisfaction should be investigated empirically and systematically. This type of research has not been completed.

Furthermore, once the tourist satisfaction process is clarified by comparing the alternative satisfaction models, the following question related to tourism planning and management can be addressed: What kinds of tourism constructs¹ best explain and predict tourists' satisfaction? To conduct this investigation of tourism constructs, the first step is to identify a set of reliable tourism constructs and examine the relationship between them and tourist satisfaction. The resultant findings can then be used for strategic tourism marketing and planning by public and private agencies, tourism industries, and institutions.

To date, causal modeling of tourist satisfaction is particularly lacking in the field of leisure, recreation, and tourism. A few satisfaction related studies have been reported; for instance, Pizam (1978) identified dimensions of

¹A tourism construct represents some dimensions of tourism, for instance, sightseeing, hospitality, outdoor recreation, and so on. The construct can be measured by multiple items which would describe one aspect of the construct. Operationally, the term "construct" has the same meaning as the term "factor" in an exploratory factor analysis. Tourism constructs are content specific whereas psychological constructs are model specific based on the discrepancy models used for this study.

tourist satisfaction, Pearce (1980) investigated the relationship of pre-travel favorability and post-travel satisfaction with post-travel evaluation, and Maddox (1985) developed satisfaction measurements.

Study Objectives

The purpose of this study is to analyze the process of tourist satisfaction, as observed, measured, and reported by tourists visiting the northwestern coastal region of Michigan. A causal modeling approach is to be used. The study includes two phases: (1) an evaluation of the discrepancy model and the performance-based change model for tourist satisfaction, and (2) an investigation of what tourism constructs are the strongest predictors of tourist satisfaction.

Specifically, the study objectives are to:

1. Quantify psychological constructs relevant to both the discrepancy model and the performance-based change model.
2. Compare the two alternative models--the discrepancy and performance-based change models--and evaluate which best explains tourist satisfaction with the northwestern coastal resort area in Michigan.
3. Evaluate unidimensionality¹ of the tourism constructs

¹Unidimensionality can be defined as the existence of one latent trait or construct underlying a set of measures (Anderson, Gerbing, and Hunter, 1987). That is, if measures for a construct are unidimensional, it is concluded that the construct exists and can be measured by these measures.

identified.

4. Investigate the key tourism constructs which explain and predict tourist satisfaction with the northwestern coastal resort area.

Definitions Relevant to the Study

For purposes of this study, the following definitions were considered relevant:

Attitude--an affective, evaluative, or emotional response to some object.

Construct--any concepts or integrated set of concepts of which one is conscious (The Macmillan dictionary of psychology, 1989).

Expectation--the most likely performance of products and services that will be used and experienced in the future.

Perceived performance--an individual subjective perception of actual performance for products and services based on one's use and experience after purchase.

Satisfaction--an individual subjective attitude toward product or service based on one's use and experience.

CHAPTER II

LITERATURE REVIEW

In this chapter, three fields of literature are reviewed: (1) satisfaction model, (2) dimensions of tourism, and (3) satisfaction in tourism studies. The first review is related to the first study objective of evaluating the consumer satisfaction model and the attitude change model for tourist satisfaction. This section includes the consumer satisfaction model and the attitude change model. The second review explains what kinds of factors constitute tourism. The third review covers how satisfaction has been studied in the tourism field and what kinds of problems have emerged from previous tourism satisfaction studies.

Satisfaction Models and Theories

Discrepancy Model

The concept of consumer satisfaction has been a continuing central issue of marketing research and practice. The U.S. Department of Agriculture's Index of Consumer Satisfaction (Praff, 1972) was the first study to provide valid information about consumer satisfaction to policy

makers. Since then, the volume of consumer satisfaction research has increased drastically. These studies have proposed numerous theoretical structures and developed the means to measure these constructs (Churchill and Surprenant, 1982). Two key issues relevant to consumer satisfaction and to this study will be reviewed and discussed in this section. They include: (1) the theory of consumer satisfaction and (2) the measurement of constructs in the consumer satisfaction model.

Theory

Researchers and practitioners have proposed many definitions for the concept of consumer satisfaction. Examples include: satisfaction is the function of an initial standard and some perceived discrepancy from the initial reference point (Oliver, 1980); consumer satisfaction refers to an individual evaluative response of outcomes of products and services (Westbrook and Oliver, 1980); consumer satisfaction is perceived quality or the difference between what consumers expect and what they receive (LeBoeuf, 1987; Parasuraman et al, 1986); and, finally, consumer satisfaction occurs when one's experience of a service offering matches one's expectations (Cina, 1989).

Within the discrepancy model, it is generally agreed that consumer satisfaction/dissatisfaction (CS/D) may be defined as a consumer's response to the evaluation of the perceived discrepancy between prior expectations and the actual

performance of the product or service as perceived after its consumption (Tse and Wilton, 1988). For instance, consumers have various expectations about products based on their available information prior to purchase. Based on their experience with the product after use, they evaluate it comparing their expectations with their perceptions of the product's performance. Customers derive the experience of satisfaction or dissatisfaction from their evaluation.

The nature of this comparative process needs further elaboration and within the field of consumer satisfaction there exist several theories to explain the process. These include: (1) discrepancy theory, (2) adaptation level theory, (3) assimilation-contrast theory, and (4) equity theory.

Discrepancy theory (or expectancy disconfirmation theory as it is called sometimes), originated in the field of organizational behavior (Lawler, 1973). Proponents of this theory suggest that satisfaction is determined by the differences between the actual outcomes a person receives and some expected outcome level. In effect, it actually involves two processes consisting of the formulation of expectations and the (dis)confirmation of those expectations by comparing performances (Oliver and DeSarbo, 1988). Oliver (1980) stated that consumers are believed to form expectations of a product prior to purchase. Subsequent purchase and usage reveal actual level of performances of the product. Consumers make a judgment of the product based on the comparison between

their expectations and the actual performance. The judgement is labeled positive disconfirmation if the product is better than expected, negative disconfirmation if worse than expected, and just confirmation if it is as expected. The positive disconfirmation and just confirmation lead to satisfaction, but to different degrees or levels. Negative disconfirmation results in various level of dissatisfaction.

Helson's (1964) adaptation level theory can be considered as a basis of the previous discrepancy theory (Oliver, 1980; Oliver and DeSarbo, 1988). According to Helson's (1964) adaptation theory:

[The theory] posits that one perceives stimuli only in relation to an adapted standard. The standard is a function of perceptions of the stimulus itself, the context, and psychological and physiological characteristics of the organism. Once created, the "adaptation level" serves to sustain subsequent evaluations in that positive and negative deviations will remain in the general vicinity of one's original position. Only large impacts on the adaptation level will change the final tone of the subject's evaluation (p. 461).

In consumer satisfaction/dissatisfaction (CS/D) research, one's expectations of products or services can be seen as an adaptation level standard. The degree to which the product or service performance deviates from the level standard refers to the disconfirmation, as mentioned previously. Positive or negative deviations from the base level are caused by the degree to which products or services exceed, meet, or fall short of individual's expectations. Satisfaction, then, can be seen as an additive function of the expectation

(adaptation) level and the subsequent judgements (disconfirmation). This paradigm has been supported by considerable consumer satisfaction research (Oliver, 1980; Swan and Trawick, 1981; Bearden and Teel, 1983; LaBarbera and MaZursky, 1983; Churchill and Surprenant, 1988; Tse and Wilton, 1988), and also explains some counterintuitive predictions implied by assimilation-contrast theory. For instance, Bearden and Teel (1983) examined the antecedents of consumer satisfaction based on the data of 375 respondents in a two-phase longitudinal study of consumer experience with automobile repairs and services. The results supported the paradigm that expectations and disconfirmation were plausible determinants of satisfaction.

Assimilation-contrast theory (Sherif and Hovland, 1961) suggests that expectations provide an anchor for subsequent judgement. Assimilation or contrast effects will arise as a function of the degree of differences that exist between expectations and perceived performances. So far the theory is the same as adaptation level theory, but if the differences are "not too large," an assimilation effect occurs. It assumes the individuals are reluctant to acknowledge discrepancies from pre-held positions (expectations); thus they assimilate their judgement toward the initial position. That is, perceived performances higher than expectations should result in higher subsequent judgement (greater satisfaction) than if performances meet the expectations.

However, if the difference is "very large," a contrast effect should occur. This refers to a tendency to exaggerate the difference. Individuals magnify the discrepancy in the direction of the disconfirmation. That is, perceived performances lower than expectations should result in lower subsequent judgement (less satisfaction) than if expectations match the performances.

Moreover, this theory produces further questions: how small is "not too large" for the assimilation effect to occur, and how large is "very large" for the contrast effect to take place. Since these questions are very subjective for each individual, it is very difficult to measure. In other words, there are individual differences, a discrepancy which one person judges to be "not too large" could be perceived to be "very large" by others.

Equity theory is thought to apply to any exchange where a person invests inputs in a transaction and receives outcomes (Oliver and Swan, 1989). The person compares the balance of his input and output for products or services with others. Consumer inputs involve time, money, shopping effort, and the like. Outcomes include product performance, services surrounding the sale, prestige of the brand, and so forth. If the input-output balance is proportionate to that of others, satisfaction with the product or service results. If the input-output balance is disproportionately higher or lower than others, more or less satisfaction results, respectively.

Comparison rules for deciding what is equitable include fairness and preference (Oliver and Swan, 1989). Fairness is thought to be a function of the equality of the input-output combination; thus both positive and negative inequality decreases the feeling of fairness. Whereas, preference is thought to be a function of the positiveness of inequality, preference should increase as positive inequality increases. Positive inequality results in embarrassment and guilt (Anderson et al., 1969), whereas negative inequality results in distress, resentment, and vindication (Walster et al., 1978).

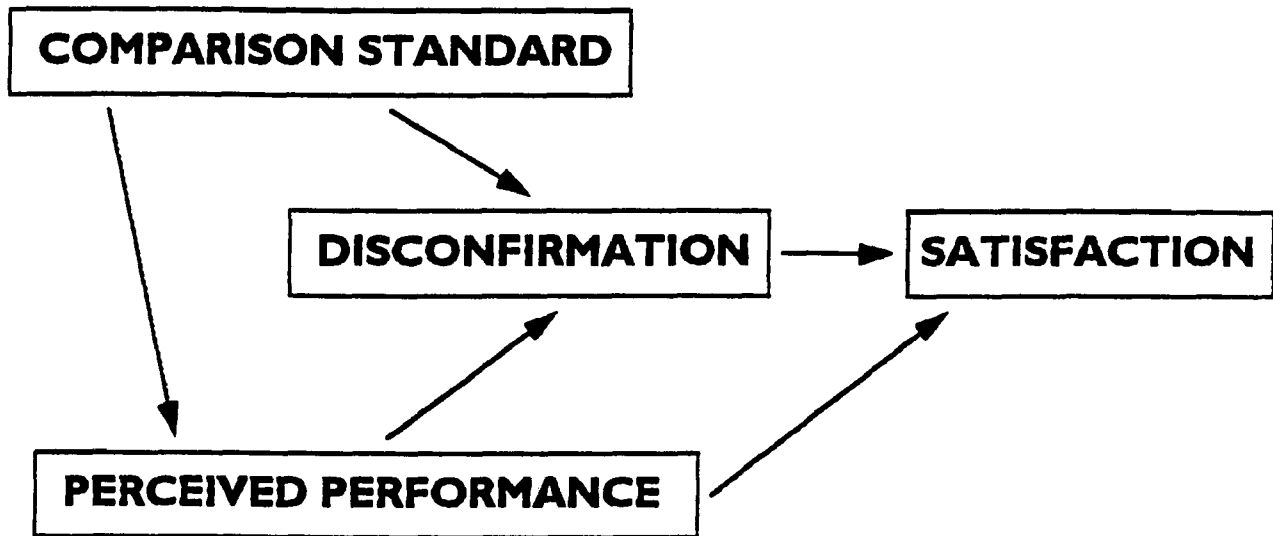
In effect, however, positive inequality seems to increase satisfaction levels (Brockner and Adsit, 1986). This theory also emphasizes the importance of others' input-output balance when an individual judges his/her own equity balance. When inputs are disproportionately higher for one person, satisfaction should increase as the person's outcome increases compared to those of others. The basis of comparison can be seen as the degree of equity which individuals perceive between what they obtained and what the other person obtained.

Oliver and Swan (1989) suggested that the equity concept is an additional factor in the post purchase response, as is (dis)confirmation. Thus, the equity and confirmation processes can work together to determine levels of consumer satisfaction.

In summary, consumer satisfaction is considered the

subjective response of individuals to their judgement of (dis)confirmation resulting from the comparison between expectations and perceived performance of products and services. In consumer satisfaction paradigms, confirmation and disconfirmation play most important roles in determining the level of satisfaction. Churchill and Surprenant (1982) proposed a discrepancy model based on previous consumer satisfaction studies which can be seen in Figure 2.1. In this model, satisfaction results from disconfirmation and perceived performance, disconfirmation is determined by comparison standard and perceived performance, and perceived performance is influenced by comparison standard. Their model has been widely used in the field of consumer satisfaction research for various kinds of products and services. It is assumed here that consumer satisfaction theory and the related model can be applied to the process of tourist satisfaction. This is the central theme of this study.

To build a model of tourist satisfaction, concepts from each of these theories will be used. First, discrepancy theory will be used as a major basis for this study along with adaptation level theory, in order to develop causal models of tourist's satisfaction. Second, the assimilation-contrast theory will be used as a further explanation basis for interpreting the causal model. Third, the equity theory will not be used because of the limitations found in the secondary data available for this study, i.e., the data did not permit



Note. This figure is adapted and modified from Figure 1 in an article of Churchill and Surprenant (1982). This is a path diagram which is a formal means to describe a causal model. The arrows in this Figure indicate causal relationships among variables in the model.

Figure 2.1: Discrepancy Model

an analysis related to the equity theory.

Measurement of Constructs

The CS/D theory encompasses the following four psychological constructs: comparison standard, perceived performance, disconfirmation, and satisfaction. These constructs have been operationalized and measured in various ways. A review of each follows.

Comparison standard

A comparison standard refers to anticipated performance and serves as a base for determining disconfirmation related to products and service offerings. The comparison standard has been operationalized as expectation (Oliver, 1980), ideal (Sirgy, 1984), or equity (Woodruff et al., 1983). The following explanation of the construct is based on Tse and Wilton's review (1988).

Expectation, which is the most commonly used comparison standard, represents the most likely performance of products and services that will be used and experienced in the future. The construct is measured as what performance "will (probably) be." It is influenced by previous experience, advertising, learning from promotion, word of mouth, and so forth.

Ideal refers to the optimal performance of products and services the consumers would hope for. It is measured as what performance "can be." It is influenced by previous experience, learning from promotional materials, and word-of-mouth communication.

Equity depicts a proportional performance based on the balance between an individual's inputs and outputs. It is measured as what performance "ought to be" relative to the input. The measurement of the construct may be influenced by the price paid, effort invested, advertising, and previous experiences.

Researchers have not agreed on a single best conceptualization and operationalization of the comparison standard. However, Tse and Wilton (1988) investigated how these three alternatives of expectation, ideal, and equity as comparison standards work in the satisfaction formation process based on the Churchill and Surprenant's consumer satisfaction model (Figure 2.1). In the consumer satisfaction model, the comparison standard is assumed to have direct effects on disconfirmation and performance and an indirect effect on satisfaction through disconfirmation. However, their results indicated that among the three alternative measures of comparison standard, equity variable fails to produce a direct effect on performance and disconfirmation. Whereas, the construct ideal produces both a direct negative effect on disconfirmation and performance and an indirect negative effect on satisfaction, the expectation construct produces both a direct and positive effect on disconfirmation and performance and an indirect effect on satisfaction. Therefore, considering the degree and direction of effect of the alternative comparison standards, Tse and Wilton concluded

that expectation seems to be the best conceptualization for the satisfaction formulation process.

Perceived performance

Perceived performance refers to an individual subjective perception of the actual performance of products and services based on usage and experiences after purchase. The emphasis is on subjective performance evaluation of products and services by individuals rather than any objective performance. In other words, it is concerned with what performance was perceived to be by a person, not by objectively testing and evaluating the product or service. It is reasonable to assume that increasing performance should increase satisfaction with the exception of the case within assimilation theory (Churchill and Surprenant, 1982).

Disconfirmation

Disconfirmation is an important intermediate construct in the consumer satisfaction model. It represents perceived discrepancies between the comparison standard and actual performance. Two approaches for measuring this construct have been proposed: subtractive (Latour and Peat, 1978) and subjective (Oliver, 1980; Churchill and Surprenant, 1982). The former approach can be expressed as an algebraic difference between the standard and the performance. The latter approach refers to perceptions -- an individual subjective judgements of differences between performances and previously developed expectations.

Tse and Wilton (1988) suggested that the subjective approach was superior to the subtractive approach in a study of new, hand-held, miniature record players. In the consumer satisfaction model, disconfirmation is assumed to have a direct positive effect on satisfaction. The result showed both subjective and subtractive approaches produced direct positive effects on satisfaction. However, the subjective disconfirmation was found to have a larger predictive power for satisfaction.

Satisfaction

Satisfaction is the critical line construct in CS/D research. Churchill and Surprenant (1982) defined and operationalized the satisfaction construct as follows:

Conceptually, satisfaction is an outcome of purchase and use resulting from the buyer's comparison of the rewards and costs of the purchase in relation to the anticipated consequences. Operationally, satisfaction is similar to attitude in that it can be assessed as the sum of the satisfactions with the various attributes of the product or service (p. 493).

Thus, satisfaction may be operationalized as an individual's subjective attitude toward a product or service. This attitude is based on usage and experience resulting from actual performance compared to anticipated performance. In the consumer satisfaction model (Figure 2.1), satisfaction may be directly influenced by both disconfirmation and perceived performance, and indirectly affected by both the comparison standard and perceived performance.

Regarding the measurement of satisfaction, Westbrook and

Oliver (1980) postulate:

Most often, simple, single-item rating scales are employed ... multi-item rating scale measures have found application infrequently, despite their potential to reduce measurement error ... It is doubtful that the cognitive-valuative, affective, and conative elements of satisfaction can be adequately measured in a single 5- or 7-point scale "very satisfied -- very dissatisfied" rating scale (p. 94).

They tested five different satisfaction instruments using the multitrait-multimethod analysis: (1) verbal scale, (2) graphic scale, (3) Likert scale, (4) semantic differential (SD) scale, and (5) inferential scale. The results suggested that the scales with the highest reliability are the SD and Likert scales.

Application to the Current Study

Based on the previous review and available data related to tourist satisfaction formation process, the following measurements will be used in this study taking into account the fact that the data already existed in its original form. The comparison standard will be expectation, i.e, what are the anticipated performance levels of various tourism attributes at the destination, estimates made prior to travel. Perceived performance is a tourist's subjective perception of performance related to the same tourism attributes after travel. Disconfirmation, which is renamed comparison in this study, will be a mathematical difference between the scores of expectation and performance for each of the tourism attributes. Satisfaction will be an attitudinal response of

overall satisfaction about tourism experiences at the destination. All psychological constructs will be measured by multiple items with the exception of satisfaction construct, which is a one item measure.

Performance-Based Change Model

The term attitude has been used to describe emotional states, behavioral dispositions, beliefs, opinions, and perceived social distances (Hunter, Danes, and Cohen, 1984). Hunter et al. (1984) offered the definition of attitude as an affective, evaluative, or emotional response to some object. Attitudinal objectives may be ideas, places, things, or persons. For instance, a "tourism experience" may be an object of an attitude--"I am satisfied with the tourism experience" may be the attitudinal response. This definition of attitude will be used throughout of the study.

Messages play a central role in stimulating a change in attitude, and there are two types of messages: external and internal (Hunter, Danes, and Cohen, 1984). External messages are those transmitted from a source like a speaker or mass media to a receiver like a listener or consumer. Internal messages are those transmitted within the mind of an individual receiver; thus they occur when the individual thinks about an attitudinal object.

Attitude change theories can be grouped into three classes: (1) reinforcement theories, (2) affective consistency theories, and (3) cognitive consistency theories (Hunter,

Danes, and Cohen, 1984). Reinforcement theories assume that a message with positive or negative affect will induce a positive or negative attitude change toward an object. Affective consistency theories assume that attitude change depends on the emotional compatibility or incompatibility between the feelings of the receiver and the source. Cognitive consistency theories predict belief from other beliefs rather than predicting belief change from a message. Recent cognitive consistency theorists have argued that attitude is a special kind of belief. Within the context of this study, the reinforcement theory is the most appropriate among the three theories. For instance, expectation of tourism experience (object) can be considered as an attitude; perceived performance can be viewed as a message; satisfaction with a tourism experience (object) can be seen as an attitude; thus, a high perceived performance (message) will result in a high level of satisfaction with a tourism experience. The reinforcement theory is, therefore, reviewed in this section. For review of the affective consistency and cognitive consistency theories of attitude change, the reader is directed to Petty and Cacioppo (1981).

Reinforcement Theory

Proponents of this theory assume that the message from the source either reinforces or weakens a receiver's initial attitude, which causes either a positive or a negative attitude change. A person's attitude is a response toward an

object and it can either be reinforced or weakened based on the direction, positive or negative nature of the message. The attitude change process is depicted in Table 2.1. A positive message has a positive impact on an initial positive attitude and a negative message has a negative impact on an initial negative attitude. On the other hand, "punish positive object attitude" means to weaken an initial attitude toward an object. That is, to weaken a positive attitude is to cause a negative impact on the initial positive attitude, which consequently leads to a negative attitude change. In fact, the opposite is true. Therefore, the algebraic sign of attitude change is predicted by the same direction of the message value in the reinforcement theory, that is,

$$\text{sign}(\Delta a) = \text{sign}(m)$$

where: Δa = attitude change; m = message.

The theory argues that all receivers should react in the same direction as the message's direction. A positive message will cause positive change; thus, each receiver will be more favorable or less unfavorable toward the object after the message. A negative message will produce negative change; thus, each receiver will be more unfavorable or less favorable toward the object as a consequence of the message.

In order to apply this theory to tourist satisfaction, constructs in the model are conceptualized as follows:

1. Expectation is an initial attitude toward an

Table 2.1 Reinforcement Theory: Attitude Change

Attitude toward object	Message value	Reinforcement process	Attitude change
Positive	Positive	Strengthen the attitude, more positive toward object	Positive
Positive	Negative	Weaken the attitude, less positive toward object	Negative
Negative	Positive	Weaken the attitude, less negative toward object	Positive
Negative	Negative	Strengthen the attitude, more negative toward object	Negative

Note. From Mathematical Models of Attitude Change (p. 11) by J. E. Hunter, J. E. Danes, and S. H. Cohen, 1984, Orlando, FL: Academic Press, Inc.

Attitude toward object = Expectation

Message = Perceived performance

Attitude change = Satisfaction

Object = Tourism experience

- anticipated tourism experiences (object);
2. Perceived performance is a message from actual tourism experiences;
 3. Satisfaction is an attitude change toward the tourism experiences as a consequence of the message.

The performance-based change model of the reinforcement theory is provided in Figure 2.2. In this model, satisfaction is directly determined by perceived performance. Perceived performance is influenced by expectation.

Dimensions of Tourism

In this third review section, dimensions of tourism are reviewed and clarified. According to McIntosh and Goeldner (1984), tourism is a composite of activities, services, and industries that deliver a travel experience. It may include transportation, hotels and motels, restaurants and bars, shops, entertainment and/or recreation activity facilities, and other hospitality services. This suggests that tourism has multidimensional constructs.

Lew (1987) comprehensively reviewed past studies of tourism attractions and developed a framework to guide tourism attraction research. He identified three broad perspectives based on his review of the literature: (1) ideographic, (2) organizational, and (3) cognitive perspectives. These perspectives are not independent of each other, and do have

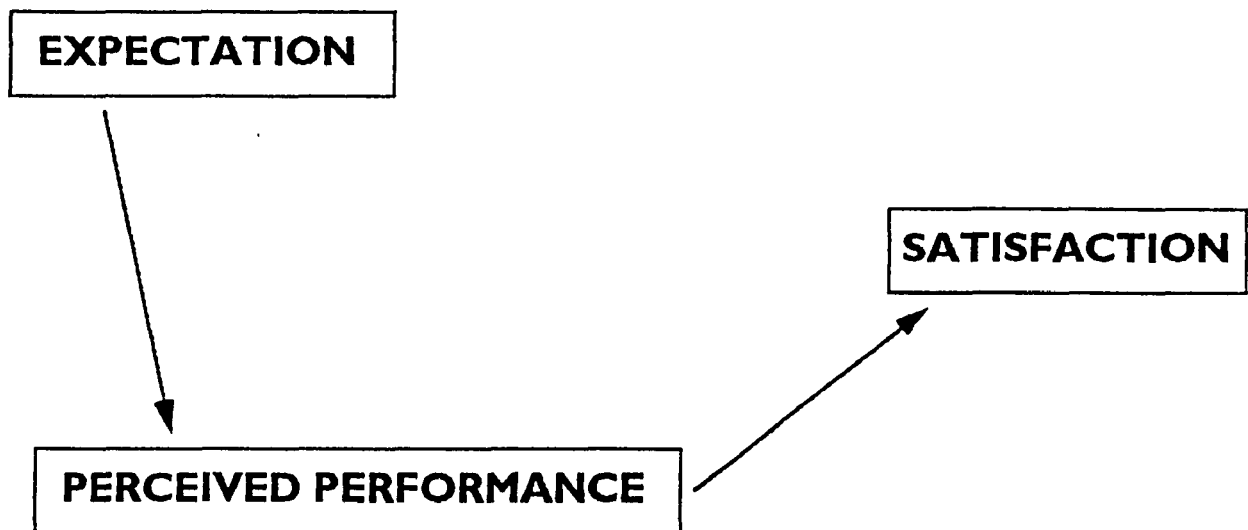


Figure 2.2: Performance-Based Change Model

some overlap, but it provides a useful framework to use in this study.

First, the ideographic perspective refers to descriptions of attraction types in a tourism area, i.e., natural beauty, recreation facilities, infrastructure. Second, the organizational perspective has three characteristics of a tourism region: spatial, capacity, and temporal features, i.e., unstructured vs. structured, slow growth vs. rapid growth, short-term vs. long term. This perspective has often been used for tourism planning studies (e.g., Gunn, 1980; Peck and Lepie, 1977; Rodenberg (1980). Finally, the cognitive perspective represents tourists' perceptions and experiences in the tourism site, i.e., expensive, friendly people, quiet, relaxed. This perspective sometimes overlaps with the ideographic perspective. For example, "tennis" is an ideographic category (description), but it becomes a cognitive category (experience) through participation in the activity.

Many tourism image studies can be categorized into Lew's cognitive perspective, ideographic perspective, or combination of the two perspectives (e.g., Britton, 1979; Cohen, 1979; Crompton, 1979; Haahti, 1986; Henshall and Roberts, 1985; Ritchie and Zinns, 1978; Shih, 1986; Thompson and Cooper, 1979; Woodside et al., 1986). Since this study is mainly concerned with tourism perceptions and images, several empirical studies using the ideographic and/or cognitive perspectives will be reviewed in terms of tourism constructs

and these attraction categories.

Empirical Studies

Gearing, Swart, and Var (1974) developed a group of seventeen criteria to judge tourism attractiveness of tourism sites in Turkey. These criteria were organized into five constructs: (1) natural factor, (2) social factor, (3) historical factor, (4) recreational and shopping facilities, and (5) infrastructure, food and shelter. Their natural factor includes two criteria: natural beauty and climate; their social factor includes four criteria: artistic and architectural features, festivals, distinctive local features, and fairs and exhibits; their historical factor includes three criteria: ancient ruins, religious significance, and historical prominence; their recreational and shopping facilities includes five criteria: sports facilities, educational facilities, facilities conducive to health, rest, and tranquility, nighttime recreation, and shopping facilities; and their infrastructure, food, and shelter factor includes two criteria: infrastructure and food & lodging facilities above minimal tourism quality. A weight (relative importance) was assigned to each criterion based on interviews with twenty-six tourism experts without testing unidimensionality¹ of these criteria. Then, a weighted total, which is a quantified index of tourism attractiveness, was

¹Unidimensionality may be defined as the existence of one latent construct underlying a set of measures.

calculated for each tourism area in order to compare and rank all tourism areas. This same approach of tourism attractiveness was applied to tourism regions in British Columbia, Canada (Var, Beck, and Loftus, 1977). They concluded that the procedure mentioned previously provides a means for establishing a quantified index of touristic attractiveness to be used as a basis for making comparisons among touristic regions and districts.

Pizam, Neuman, and Reichel (1978), applying an exploratory factor analysis to evaluations by 685 tourists on a site, identified eight factors associated with tourist satisfaction with Cape Cod, Massachusetts. The eight factors they found were: (1) beach opportunities, (2) cost, (3) hospitality, (4) eating and drinking facilities, (5) accommodation facilities, (6) campground facilities, (7) environment, and (8) extent of commercialization. The first factor (beach opportunities) contains beach facilities, cleanliness of beach areas, parking availability, and space availability on the beach. The second factor (cost) includes the cost of vacationing, general goods and services, and the quality of goods and services relative to price. The third factor (hospitality) consists of willingness of residents (or employees) to aid tourists, general friendliness of employees, courtesy of residents (or employees) toward tourists, and general hospitality of residents. The fourth factor (eating and drinking facilities) includes availability of restaurants,

cafeterias, and bars; quality of eating and drinking places; and quality of service in eating and drinking places. The fifth factor (accommodation facilities) contains quality of facilities (or service) in hotels/motels. The sixth factor (campground facilities) consists of availability (or quality) of campground facilities. The seventh factor (environment) includes scenery and natural attractions, and quality of environment. The eighth factor (extent of commercialization) contains a single category of extent of commercialization. They concluded that these factors are not universal, but rather depend on the characteristics of the destination area such as facilities, attractions, weather and so forth.

Pearce (1982), by comparing tourists' pre- and post-images of Greece and Morocco, investigated whether or not tourists change their images and perceptions following travel to a destination. He developed 13 constructs of holiday travel environments summarizing 270 constructs produced by 10 subjects. The thirteen constructs (measured with one item) include: (1) cheap shopping, (2) adventurous holiday, (3) contact with local peasant people, (4) exotic local customs, (5) interesting tourist sights, (6) spectacular scenery, (7) appealing food, (8) swinging social life, (9) absence of other tourists, (10) good sun and beaches, (11) good winter sports, (12) interesting politics and society, and (13) strong personal attraction. He concluded that tourists may change their perception of the holiday environment after they visit

the country. Furthermore, the perceptual changes of the destination country may reflect on one's home country as well. He also suggested the need for more research on tourists' attitudinal changes in the field of tourism research.

Klenosky (1985) investigated the stability of underlying tourism dimensions across samples for the same destination and across destinations for the same sample, by applying an exploratory factor analysis to 27 tourism-related dichotomous adjectives. He found three stable dimensions: (1) environmental excitement, (2) undeveloped tranquility, and (3) service orientation. The first dimension of environmental excitement includes: sandy, fun, enjoyable, colorful, appealing, delightful, outdoor-oriented, and interesting. The second dimension of undeveloped tranquility consists of: secluded, peaceful, pleasant, unspoiled, quiet, natural, and restful. The final dimension of service orientation contains: friendly, courteous, forested¹, middle-class-oriented, family-oriented, and delightful.

In summary, these studies empirically supported the multidimensional nature of tourism characteristics in a destination area. Although most of the identified constructs fall into Lew's ideographic perspective framework, there is no agreement of a single universal tourism construct for all tourism destinations. Recalling an implication by Pizam et

¹This item should appear in the first or second dimension. It may be a typographical error in the article.

al. (1978), the identified tourism factors are not universal, rather they are destination specific. Tourism characteristics largely depend on tourism related attributes offered in a destination area. For example, if a tourism destination is located in a coastal area, the tourism characteristics should reflect the tourism attributes specific to that destination, e.g., water related activities like boating, fishing, swimming and so forth. Therefore, it is essential that local tourism related attributes be considered in order to establish tourism constructs.

Furthermore, no studies tested unidimensionality within each construct or reported reliability coefficients of each construct. Without testing the unidimensionality, there is no guarantee that all items in the identified factor, which are supposed to measure one construct, actually measure the same underlying construct. In terms of reliability coefficients, suppose construct A has a high reliability coefficient and construct B has low reliability. A quantitative relationship (i.e., correlation) between these two constructs A and B will be attenuated depending on both reliability coefficients. A further explanation and correction of this problem will be presented in Chapter IV. These unidimensionality and reliability issues should be considered in developing a valid and reliable measurement for underlying tourism constructs.

Satisfaction Studies in Tourism

Little was known about tourism satisfaction, its components, measurement, determinants, and consequences in the 1970s. Pizam et al. (1978) applied the consumer satisfaction approach¹ to tourist satisfaction with a destination area--Cape Cod, Massachusetts. They tried to empirically identify the components of tourism satisfaction and suggested methods to measure them (i.e., exploratory factor analysis).

Dann (1978) criticized their article on theoretical and methodological grounds. For example, he suggested that satisfaction is not a function of specific satisfaction with the service offered by the destination, but a function of overall life satisfaction (a person's health, current marital happiness, degree of anomie, and so on). He also argued that questionnaires or interviews using Likert-type scales were not appropriate instruments to measure tourist satisfaction (because their results were highly skewed and did not result in normal distributions), and he suggested that researchers use unstructured observational methods instead.

Pizam et al. (1979) replied to Dann's critique in terms of concept confusion and faulty methodological assumptions. They responded that Dann's comment, which expressed that one's attitudes are only a function of overall life satisfaction, was contrary to the findings of modern psychological research.

¹As reviewed earlier, tourist satisfaction is the result of the comparison between tourists' perceived performances of a destination and their expectations about the destination.

These psychological findings indicated that a person will only rarely exhibit a large degree of unity of attitudes based on his single ideology or life philosophy. Thus, they argued, believing that every single satisfaction with a product or service is a function of one's overall life satisfaction, in spite of the quality and expectations of the product or service, is not reasonable. Dann's criticism of using the Likert-type scale and questionnaires approach ignores the whole range of literature on social science methodology and the field of satisfaction research. The Likert-type scale is the most widely used measurement technique applied to the assessment of social attitudes because it is highly reliable, simple, and has a wide range of possible alternative responses. In contrast, unstructured observational methods are difficult to quantify, unreliable, and subsequent to personal bias by the observer.

Van Raaij and Francken (1984) defined satisfaction as the difference between expectations and actual performance in tourism, adopting the most widely used definition in the consumer satisfaction literature. The disconfirmed expectation or the unfair equity of costs and benefits create dissatisfaction. They applied discrepancy theory and equity theory to the study of the satisfaction and dissatisfaction in a tourism setting. However, they did not show any empirical support for applicability of their definition of satisfaction.

Botterill (1987) questioned Van Raaij and Francken's

definition of satisfaction. If satisfaction can be achieved by diminishing the difference between tourist expectation and vacation performance, has a highly satisfied tourist made a perfect prediction of the outcome of the vacation? But, how did the traveler perfectly predict performance of tourism experiences prior to travel? This seems unlikely. More importantly, unpredictable tourism related events seems to lie at the heart of tourism experience. For instance, when a tourist goes fishing in a destination area and catches the largest salmon caught that day. Perhaps a salmon fishing contest was going on the area which the tourist did not know about, and the tourist entered and won first prize. Both events of catching a large salmon and getting the first prize increase the tourist's satisfaction level of tourism experience relative to the destination. Yet, these events and experiences were not predicted or expected.

Van Raaij (1987) replied to Botterill's comment as follows. It cannot be denied that tourists have some expectations prior to travel, derived from advertising, travel guides, past experiences, and word of mouth. There are two kinds of expectations: (1) general expectation and (2) specific and detailed expectations. Some examples of general expectation include good restaurants, nice climate, beautiful beaches, and so on. Some examples of specific expectation are uncrowded beaches, no loss of luggage, and very friendly waiters. A general expectation is more likely to be confirmed

than a specific and detailed expectation. Therefore, tourists do not have to make perfect predictions of their vacations and they may have both general and specific expectations. Fulfilled general and/or specific expectations increase satisfaction level. This does not exclude the fact that unanticipated events may increase satisfaction as well. That is, good unanticipated events may increase the perceived performance of tourism experiences, which in turn result in higher satisfaction.

Maddox (1985) tested the validity of three global satisfaction scales (i.e., graphics, delighted-terrible, and the face scale) using data (n=411) from a satisfaction study with tourism in Nova Scotia, Canada. A multitrait-multimethod (MTMM) approach was employed to test convergent validity¹ and discriminant validity². The results indicated that both convergent and discriminant validity were confirmed. Thus, all of the satisfaction scales were measuring the same thing, and satisfaction with tourism is a distinct, measurable construct. Within the three satisfaction scales, the delighted-terrible scale showed the largest convergent validity.

¹Convergent validity means that a measure should positively correlated with other measures of the same construct.

²Discriminant validity means that a measure should not correlate with theoretically unrelated measures or constructs.

Summary

Consumer satisfaction research has provided much evidence to support discrepancy theory for manufactured goods and services. The review of past studies of consumer satisfaction provides some clues to the application of the theory to tourist satisfaction in terms of measurement scale, psychological constructs, and research design. First, a Likert scale is the best among other measurement scales. Second, expectation, perceived performance, disconfirmation, and satisfaction constructs are major research constructs. Third, pre and post survey design is needed to test satisfaction models.

Performance-based change theory has introduced a different view of satisfaction formulation relative to the discrepancy theory. The performance-based change theory does not include disconfirmation construct in the model, which is the most important mediating construct in the discrepancy model (cf. Figure 2.1 and 2.2). In other words, the performance-based change model assumes that satisfaction is a function of perceived performance only, whereas the discrepancy model assumes that satisfaction is a function of both disconfirmation and perceived performance. This conflict between the models has to be empirically investigated.

In the field of tourism research, the review of satisfaction in tourism has shown some conflicts of dialogue among tourism researchers in terms of tourist satisfaction

formulation. Pizam et al. (1978) and Van Raaij et al. (1984) support the application of the consumer satisfaction approach to tourist satisfaction. They propose that tourist satisfaction is based on the differences between their expectations and the actual performance of a destination area. Dann (1978) argues that tourist satisfaction is a function of overall life satisfaction, and Botterill (1987) questioned whether a highly satisfied tourist has made a perfect prediction for the vacation. These arguments and questions have been responded to by Pizam et al. (1979) and Van Raaij (1987). However, neither the original studies nor the responses to criticism were supported empirically. Therefore, applicability of the consumer satisfaction approach to satisfaction in tourism should be investigated scientifically.

Few studies related to tourism satisfaction have been done because of the complicated nature of the construct of tourism satisfaction. Also, to study the satisfaction formulation process illustrated earlier requires panel data with a pre and post design. Some researchers attempted to investigate a portion of the satisfaction formulation process. Pizam et al. (1978) identified eight factors (constructs) of tourist satisfaction. Maddox (1985) clarified that satisfaction with tourism as an independent measurable construct. However, no empirical study of the whole satisfaction formulation process for tourism has been conducted. The satisfaction formulation process in tourism

should be investigated empirically.

In addition to this need for empirical support, this kind of study should enhance an understanding of tourist behavior, including satisfaction, perceptions, and travel patterns. Further, this type of research should contribute to better tourism marketing and planning efforts.

CHAPTER III

METHODS

The methods chapter is divided into four parts: (1) sources of data, (2) sample characteristics, (3) research variables and constructs, and (4) research models. The chapter begins with an explanation of the data source used for this study. Then, characteristics of the study sample are described and compared to (1) data from the north central census region and (2) travelers visiting Michigan. Finally, definitions and measurements of the research variables and constructs are introduced, and two alternative models of tourist satisfaction are presented and explained.

Data Source

This study is based on data originally obtained in the Michigan Travel Perception Study (Fridgen and Hsieh, 1989). Very few studies have examined tourists' perceptions before and after travel to a tourism destination. Thus, little was known about how tourists' perceptions change over the course of their travel experience. The goal of the original study was to explore how tourists' perceptions changed over time,

before and after vacation travel. The study had three specific objectives: (1) identify positive and negative changes in perceptions following visits to the northwestern coastal zone in Michigan, (2) determine the strength and stability of perceptions and images over time following vacation travel to Michigan's coastal zone, and (3) estimate what proportion of potential tourist to Michigan's coastal zone actually make the trip. The study was basically a longitudinal panel study (i.e., pre, post, post-post design) of travelers' perceptions of the northwestern coastal region of Michigan, the target region of study (Figure 3.1). A group of out-of-state tourists were asked to provide their perceptions of the target region before and after their trip to Michigan. There are several reasons to select this destination region for study, including the following: the area is known to be a popular tourism area with fine restaurants, quality resorts, extensive recreation opportunities and beautiful natural scenery; it is a popular tourism area within Michigan and within the central midwestern part of the U.S., sought out by residents and non-residents alike; and the area has been studied before (Fridgen, 1987).

The population of the study was defined as individuals who were not Michigan residents who called the Michigan Travel Bureau requesting travel information about the target region between July and September, 1987. A total of 2,265 individuals were identified as potential travelers to the

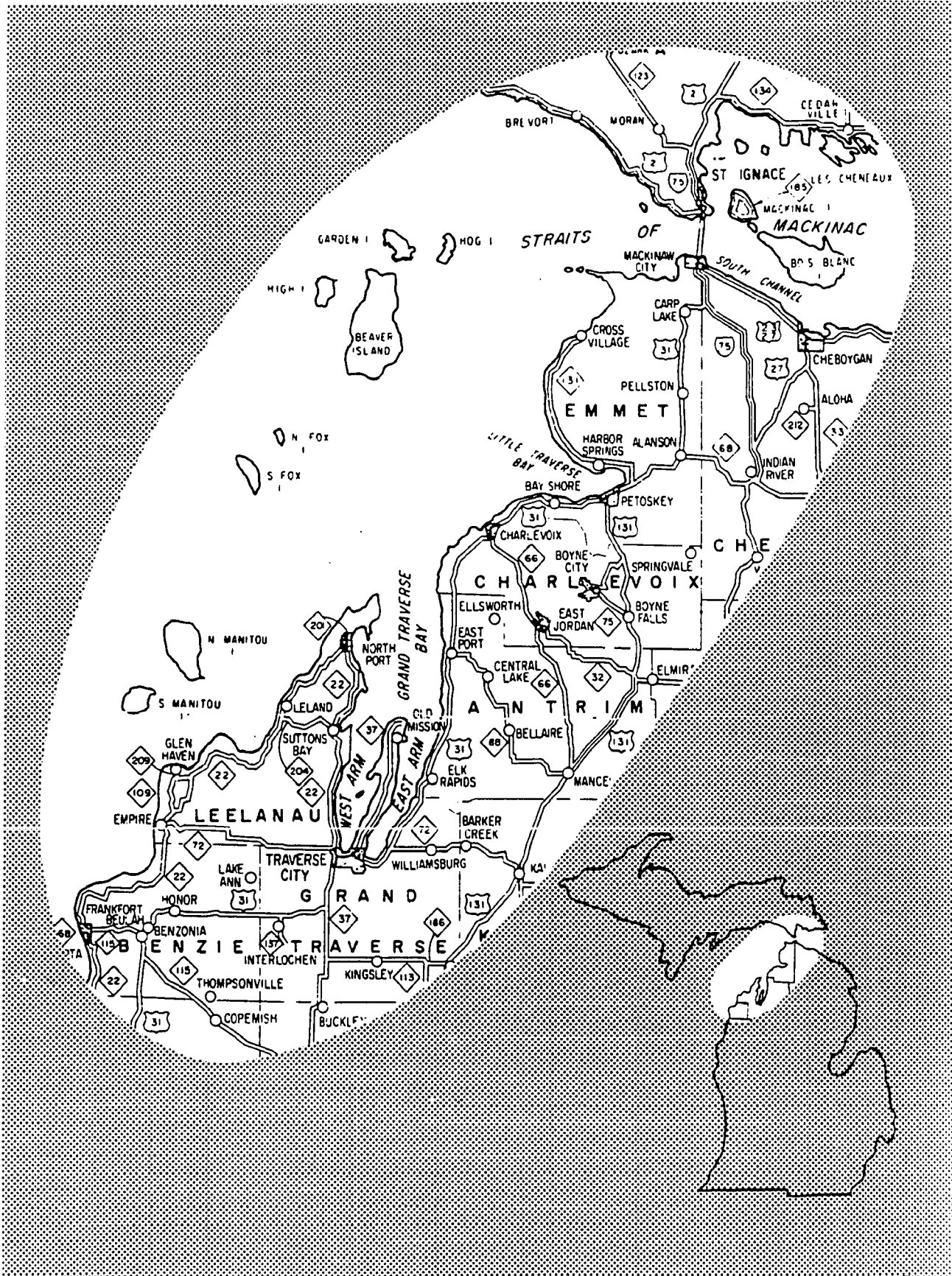


Figure 3.1: Map of Target Area

target region during the summer of 1987. The sampling structure of the study is given in Figure 3.2.

Self-administered questionnaires including a map of the region were sent to potential travelers (2,265) during the summer of 1987. A total of 1,292 questionnaires (57%) were returned; 840 respondents had already made their trip before they received the questionnaires, so these respondents were excluded. The second wave of questionnaires was distributed to the remaining 452 respondents in December, 1987. A total of 381 questionnaires (84%) were returned. Among this group, a total of 107 respondents actually traveled to the target area. Finally, the third wave of questionnaires was sent to these 107 individuals in November, 1988, and 101 (95%) questionnaires were returned.

For the purpose of the current study, the second sample of 107 questionnaires was analyzed. This portion of the sample contained the necessary information regarding expectation and perceived performance about the target area based upon the first and the second questionnaires.

Of course, there are problems associated with using secondary data: availability, relevance, accuracy, and sufficiency (Tull and Hawkins, 1984) to name a few. Availability refers to whether or not the data you are looking for is available. Relevance refers to the extent to which the data fit the information you need for the research problem. Accuracy is a real problem when the secondary data is not

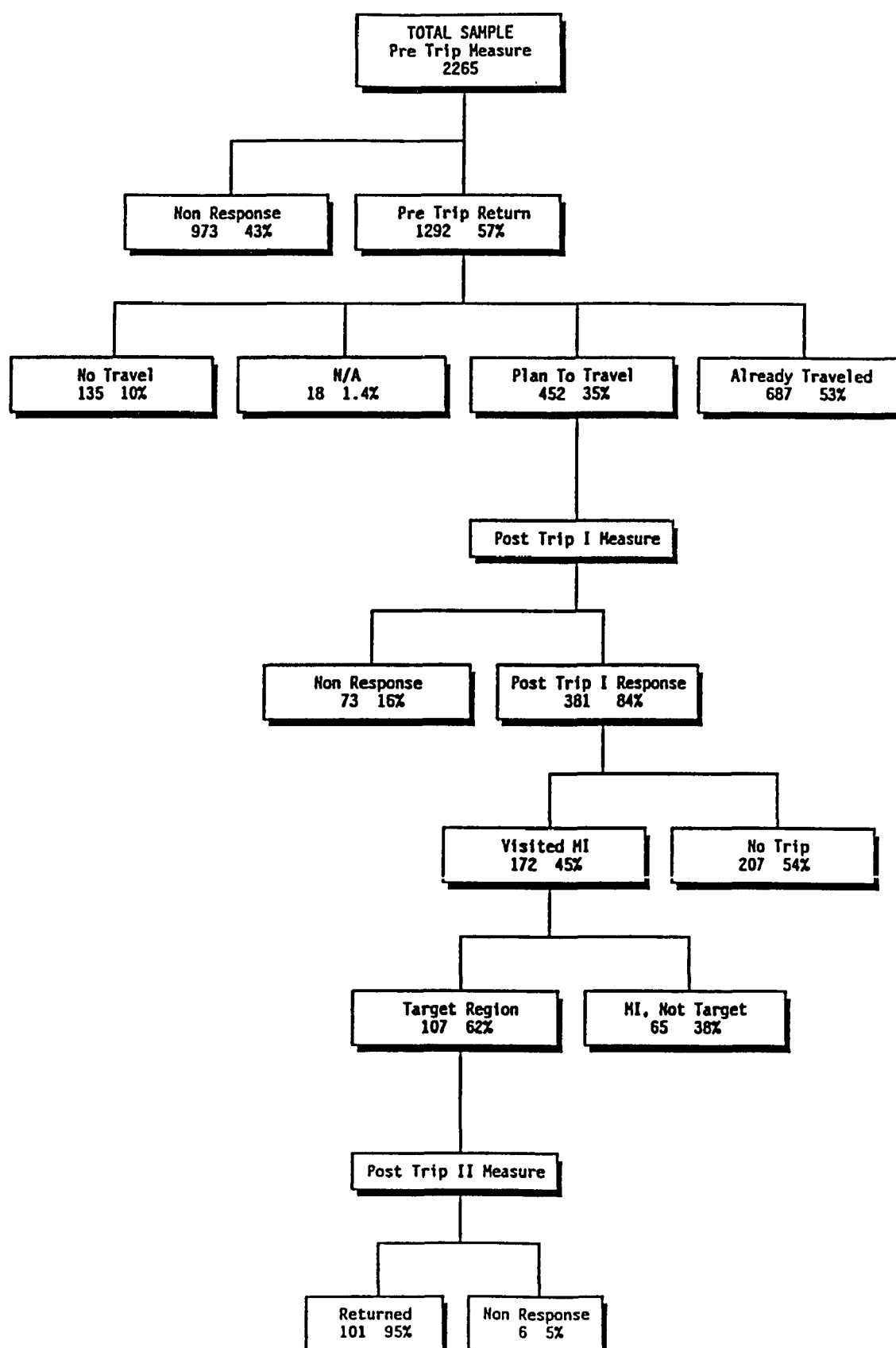


Figure 3.2: Sampling Structure

taken directly from the original source (e.g., using second-hand report). Sufficiency refers to whether or not secondary data meet all the data requirements for the research problem at hand. Fortunately, the data for this study were available and accurate because the data were from the original source of the Michigan Travel Perception Study. The data were also relevant and sufficient since they included necessary information for the current study and meet almost all the data requirements for the research problem of the study. However, the data still had selected limitations which will be discussed in Chapter IV.

Sample Characteristics

The first comparisons between selected socio-demographic characteristics of the research sample and the population in the north central census region are provided in Table 3.1 through 3.5. The north central census region includes: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. The reason for comparing the sample to this census region is that potential tourists to the target area from Illinois, Indiana, Ohio, Wisconsin, and Minnesota made up 81.2% of the inquires about the target area (Fridgen and Hsieh, 1989). Although this study was designed to test the applicability of satisfaction models, and not necessarily to extrapolate the findings to the population, the comparisons provide a basis to

Table 3.1: Age Characteristics

Age	Sample		Regional population	
	N	%	N	%
20 - 24	4	3.8	5,565	14.0
25 - 34	32	30.2	9,441	23.8
35 - 44	31	29.2	6,472	16.3
45 - 54	16	15.1	5,873	14.8
55 - 64	13	12.3	5,609	14.1
65 and older	10	9.4	6,683	16.9

Source: U.S. Department of Commerce. (1983). 1980 Census of Population: General Social and Economic Characteristics (PC80-1-C1).

Note. Valid cases are 106, and mean is 42.0 and S.D. is 13.1 for research sample. Regional population is in thousands.

Table 3.2: Marital status

Marital status	Sample		Regional population	
	N	%	N	%
Married	84	78.5	16,661	50.5
Single	17	15.9	11,013	33.4
Divorced/widowed/separated	6	5.6	5,296	16.1

Source: U.S. Department of Commerce. (1983). 1980 Census of Population: General Social and Economic Characteristics (PC80-1-C1).

Note. Valid cases are 107 for research sample. Regional population is in thousands.

Table 3.3: Gender

Gender	Sample		Regional population	
	N	%	N	%
Male	47	43.9	28,614	48.6
Female	60	56.1	30,251	51.4

Source: U.S. Department of Commerce. (1983). 1980 Census of Population: General Social and Economic Characteristics (PC80-1-C1).

Note. Valid cases are 107 for research sample. Regional population is in thousands.

Table 3.4: Education

Education	Sample		Regional population	
	N	%	N	%
No high school diploma	3	2.8	5,099	31.8
High school diploma	23	21.5	5,649	35.2
Some college	35	32.7	2,385	14.9
College degree	23	21.5		
Some graduate school	6	5.6	2,909	18.1
Graduate degree	17	15.9		

Source: U.S. Department of Commerce. (1983). 1980 Census of Population: General Social and Economic Characteristics (PC80-1-C1).

Note. Valid cases are 107 for research sample. Regional population is in thousands.

Table 3.5: Income

Income	Sample		Regional population	
	N	%	N	%
Less than \$10,000	2	2.4	2,753	17.8
\$10,000 - \$19,999	12	14.1	4,447	28.9
\$20,000 - \$29,000	13	15.3		
\$30,000 - \$39,999	21	24.7	7,374	47.8
\$40,000 - \$49,999	12	14.1		
\$50,000 - \$59,999	11	12.9		
\$60,000 - \$69,999	5	5.9	844	5.5
\$70,000 or more	9	10.6		

Source: U.S. Department of Commerce. (1983). 1980 Census of Population: General Social and Economic Characteristics (PC80-1-C1).

Note. Valid cases are 85 for research sample. Regional population is in thousands.

determine the representativeness of the sample.

With respect to age distribution (Table 3.1), the sample appropriately represented the age groups of 45-54 and 55-64. However, the youngest and oldest age groups of 20-24 and 65 and older were underrepresented while the middle age groups of 25-34 and 35-44 were overrepresented.

Marital status is given in Table 3.2. The married category was overrepresented (about 80%) while single and divorced/widowed/separated categories were underrepresented. Single people by themselves do not seem to travel to a resort area like the target area or, if they did, they did not complete the survey. Gender distributions were adequately represented (Table 3.3).

In terms of education completed (Table 3.4), the categories of high school diploma or lower were underrepresented, while the categories of some college or higher were overrepresented. It is noted that about 75 percent of the research sample received at least some college education.

Considering income (Table 3.5), the sample appropriately represented income categories of \$20,000-\$49,999. However, it underrepresented the lower income categories of less than \$20,000 while it overrepresented the higher income categories of greater than \$50,000. This can be explained by higher education characteristics of the sample, i.e., people who have completed higher education are likely to earn more income than

others.

In summary, the sample in the study were primarily individuals with high education and high income levels. Almost eighty percent of the sample was married, and about seventy-five percent of the sample was middle aged.

The distributional differences between the research sample and the census region population could partially be accounted for by the following factors. First, the reporting years between the two distributions were different. The data of the research sample were collected during the summer of 1987 and the early winter of 1988, whereas the data of the census region population were obtained in 1980.

Second, the research sample was not randomly selected from the population in the north central census region. Since the sample were potential travelers who called the Michigan Travel Bureau to inquire about travel and tourism information of the target area in Michigan, these individuals had an interest in travel and tourism. The distribution of the sample might be reflected by the characteristics of those who were interested in tourism activities. In order to examine this possibility, additional comparisons were made with domestic travelers to and through Michigan (Tables 3.6 through 3.10).

Age distribution is provided in Table 3.6. In general, the sample appropriately represented all age group categories with the exception of the two age groups of 20-24 and 35-44.

Table 3.6 Age Characteristics

Age	Sample		Michigan travelers
	N	%	%
20 - 24	4	3.8	13.0
25 - 34	32	30.2	31.0
35 - 44	31	29.2	21.0
45 - 54	16	15.1	14.0
55 - 64	13	12.3	14.0
65 and older	10	9.4	8.0

Source: U.S. Travel Data Center. 1985. Travel To and Through Michigan 1983-84. Special study prepared for the Michigan Travel Bureau. Washington, D.C.: U.S. Travel Data Center.

Note. Valid cases are 106, and mean is 42.0 and S.D. is 13.1 for research sample.

Table 3.7: Marital status

Marital status	Sample		Michigan travelers
	N	%	%
Married	84	78.5	70.0
Single	17	15.9	20.0
Divorced/widowed/separated	6	5.6	10.0

Source: U.S. Travel Data Center. 1985. Travel To and Through Michigan 1983-84. Special study prepared for the Michigan Travel Bureau. Washington, D.C.: U.S. Travel Data Center.

Note. Valid cases are 107 for research sample.

Table 3.8: Gender

Gender	Sample		Michigan travelers
	N	%	%
Male	47	43.9	45.0
Female	60	56.1	55.0

Source: U.S. Travel Data Center. 1985. Travel To and Through Michigan 1983-84. Special study prepared for the Michigan Travel Bureau. Washington, D.C.: U.S. Travel Data Center.

Note. Valid cases are 107 for research sample.

Table 3.9 Education

Education	Sample		Michigan travelers
	N	%	%
No high school diploma	3	2.8	8.0
High school diploma	23	21.5	28.0
Some college	35	32.7	22.0
College degree	23	21.5	25.0
Some graduate school	6	5.6	17.0
Graduate degree	17	15.9	

Source: U.S. Travel Data Center. 1985. Travel To and Through Michigan 1983-84. Special study prepared for the Michigan Travel Bureau. Washington, D.C.: U.S. Travel Data Center.

Note. Valid cases are 107 for research sample.

Table 3.10: Income

Income	Sample		Michigan travelers
	N	%	%
Less than \$10,000	2	2.4	9.0
\$10,000 - \$19,999	12	14.1	26.0
\$20,000 - \$29,000	13	15.3	27.0
\$30,000 - \$39,999	21	24.7	20.0
\$40,000 - \$49,999	12	14.1	
\$50,000 - \$59,999	11	12.9	
\$60,000 - \$69,999	5	5.9	17.0
\$70,000 or more	9	10.6	

Source: U.S. Travel Data Center. 1985. Travel To and Through Michigan 1983-84. Special study prepared for the Michigan Travel Bureau. Washington, D.C.: U.S. Travel Data Center.

Note. Valid cases are 85 for research sample.

The youngest age group, 20-24, was underrepresented because the sample did not include any respondents 18 and 19 years of age. The middle age group of 35-44 was overrepresented. However, this suggests that the research sample is better representative of Michigan travelers than it is of the regional population as a whole.

With respect to marital status (Table 3.7), the sample a little overrepresented those married while the single and divorced/widowed/separated categories were slightly underestimated.

For gender (Table 3.8), the sample distribution was almost the same as the distribution of Michigan travelers. Thus, the research sample was very similar to these Michigan travelers.

As for education (Table 3.9), the categories of high school diploma or lower were underrepresented, while the categories of some college or higher were overrepresented. However, these deviations are much less pronounced than those observed for the regional population comparison.

In terms of income (Table 3.10), the sample appropriately represented income categories of \$20,000-\$39,999. The lower income categories of less than \$20,000 were underrepresented whereas the higher income categories of greater than \$40,000 were overrepresented. The differences in categories between the sample and the Michigan travelers are less than those in the same categories observed between the sample and the

regional population census data.

Therefore, the sample used in this study was more comparable to travelers to and through Michigan than to the regional population as a whole. This implies that Michigan tourists are likely to be older, married, have more than high school education, and have a relatively high income. These findings are to be expected, in light of the findings of many studies which reveal that the modern day traveler is older, well situated in terms of jobs, education and income, and usually is a family person.

Research Variables and Constructs

Definition, Description, and Measurement

In this section definitions, descriptions, and measurement of the research variables and constructs are introduced and discussed. The section is divided into two parts: (1) tourism attributes variables and (2) tourism constructs.

Tourism Attributes Variables

Tourism attributes may be defined as tourism-related physical, social, and behavioral characteristics that tourists would see, observe, feel, and experience while in a destination area. Based on the review of previous tourism attribute related studies (Gearing et al, 1974; Var et al, 1977; Pizam et al, 1978; Klenosky, 1985; Fridgen, 1987), the following 27 tourism attributes variables were developed for

the original study (Fridgen, 1989) and were used in this study as well. These attributes are: scenery, pleasant climate, fall colors, natural attractions, peaceful and quite, uncrowded, access to the lakes, beaches, clean water, swimming, boating, fishing, charter fishing, golf, tennis, camping, shopping, restaurants, hotels/motels, nightlife, resorts, friendly people, inexpensive prices, family fun, historical sites, sightseeing, and festivals (Figure 3.3).

These 27 tourism attribute variables were measured by the use of agreement scores based upon a five-point Likert-type scale with "strongly agree" to "strongly disagree" used as anchors. The original questionnaire is provided in Appendix A. These variables were measured before travelers went to the destination area and again after travel to the destination. The scores for the attributes, before and after, became the data for expectation scores and perceived performance scores.

Tourism Constructs

Tourism construct may be defined as an underlying common concept composed of a set of the tourism attributes associated with a destination area. The underlying common concept can be considered the same as a factor in an exploratory factor analysis; thus, a tourism construct could be treated in the same manner.

The target area is well known as a resort area within the midwestern region of the United States. The area provides

Peaceful and quiet
Uncrowdedness
Friendly people
Family fun
Inexpensive prices
Sightseeing
Scenery
Natural attractions
Festivals
Fall colors
Historical sites
Shopping
Restaurants
Hotels/motels
Nightlife
Camping
Boating
Fishing
Charter fishing
Resorts
Golf
Tennis
Easy access to lakes
Beaches
Clean water
Swimming
Pleasant climate

Figure 3.3 List of Tourism Attributes

many varied and quality restaurants, stores, motels and hotels for tourists. It also has great outdoor recreation opportunities like boating, fishing, and camping. Moreover, the natural beauty of the area attracts travelers to a good sightseeing spot. Therefore, these characteristics associated with resorts, hospitality, outdoor recreation, and sightseeing can be the basis for establishing tourism constructs for the target area. The tourism constructs were logically formed based on previous studies and experts' judgements. Five tourism constructs are proposed for this study based upon the 27 tourism attribute variables used originally, and a review of previous tourism constructs developed in related studies (Pizam, 1978; Klenosky, 1985). The proposed constructs are: (1) local environment and atmosphere, (2) sightseeing, (3) hospitality, (4) outdoor recreation, and (5) resorts (Figure 3.4). These tourism constructs will be examined regarding validity and reliability.

The attributes included in the first construct, local environment and atmosphere includes the following: peaceful and quiet, uncrowdedness, friendly people, family fun, and inexpensive prices. The second construct of sightseeing includes: sightseeing, scenery, natural attractions, festivals, fall colors, and historical sites. The third construct of hospitality includes: shopping, restaurants, hotels/motels, and nightlife. The fourth construct of outdoor recreation includes: camping, boating, fishing, and charter

Local environment & atmosphere

Peaceful and quiet
Uncrowdiness
Friendly people
Family fun
Inexpensive prices

Sightseeing

Sightseeing
Scenery
Natural attractions
Festivals
Fall colors
Historical sites

Hospitality

Shopping
Restaurants
Hotels/motels
Nightlife

Outdoor recreation

Camping
Boating
Fishing
Charter fishing

Resorts

Resorts
Golf
Tennis
Easy access to lakes
Beaches
Clean water
Swimming
Pleasant climate

Figure 3.4 Proposed Tourism Constructs

fishing. The last construct of resorts includes: resorts, golf, tennis, easy access to lakes, beaches, clean water, swimming, and pleasant climate.

Psychological Constructs Relevant To Satisfaction Models

Based on the review of satisfaction literature, four psychological constructs relevant to the two satisfaction models are: (1) expectation, (2) perception, (3) comparison, and (4) satisfaction. The third construct, comparison, is identical to disconfirmation in consumer satisfaction research. In this study, the psychological constructs are defined as:

Expectation --- the most likely performance of products and services that will be used and experienced in the future. In this study, expectation is a tourist's subjective perception of the most likely performance of the tourism attributes in the target area prior to travel. It derives from one's available information of the area (e.g., advertising, promotion, or word of mouth exchanges).

Perceived performance --- an individual's subjective perception of actual performance of products and services based on a tourist's use and experience with these after purchase. In this study, it is a tourist's subjective perception of actual performance of the tourism attributes in the target area experienced while visiting the destination and reported after the trip. It derives from one's tourism experience in the target area.

Comparison --- an individual's judgement of the discrepancies between expectation and perceived performance of products and services. In this study, comparison is the numerical differences between a tourist's expectation score for each tourism attribute and perceived performance score for each tourism attribute with respect to the target area.

Satisfaction --- an individual's subjective attitude toward products or services based on use and experience. In this study, satisfaction is a tourist's subjective attitude toward their overall experience while visiting the target area.

In terms of measurement, expectation and perceived performance were measured as agreement scores by a five-point Likert scale ranging from "strongly agree" to "strongly disagree" for each of the 27 tourism-related attributes mentioned previously. Expectation was measured before traveling, while perceived performance was measured after traveling to the target area. Then, these 27 agreement scores for expectation and perceived performance were summed to make a construct score for expectation and perceived performance, respectively¹. Strictly speaking, the Likert scale is not an interval scale, however, many studies in the social sciences have treated the scale as an interval scale. Previous studies

¹Likert scale can be summed up to form a single score for each individual (Tull and Hawkins, 1984). Additionally, previous studies of consumer satisfaction (Westbrook and Oliver, 1980) and tourism measurement (Maddox, 1985) reported high reliability when using the Likert scale.

of consumer satisfaction also treated the scale as interval. Thus, for this study, Likert scale is assumed to have a properties of an interval scale.

Expectation score was formulated as:

$$\sum_{i=1}^{27} E_i$$

where E was an expectation score for each tourism attribute i.

Perceived performance score was formulated as:

$$\sum_{i=1}^{27} P_i$$

where P was a perception score for each tourism attribute i.

The comparison was measured by subtracting the score of the perceived performance from that of the expectation. This construct is the only endogenous variable in the satisfaction model.

Comparison score was formulated as:

$$\sum_{i=1}^{27} (P_i - E_i)$$

Satisfaction was measured by a five-point Likert-type scale for an overall satisfaction measure.

Research Models

There are two proposed satisfaction models for explaining tourist satisfaction: the discrepancy model and the performance-based change model. In the following section, both models are described and discussed.

Discrepancy Model

A cognitive model of a theory visually illustrates how the theory presumes the human mind works, the order of events, and the nature of interactions of cognitive functioning. The cognitive model of the discrepancy is demonstrated in Figure 3.5. Selected relationships can be explained as follows. When a person has high expectations and perceives or finds high performance, then performance meets expectation, and satisfaction is attained. However, if the same person with high expectation perceives either medium or low performance, they will be less satisfied or even experience dissatisfaction. Similarly, when a person has low expectations and perceives low performance, here again performance matches expectation, and there will be a feeling of satisfaction. Yet, if the same person with low expectations perceives either medium or high performance, there will be even more satisfaction experienced by the

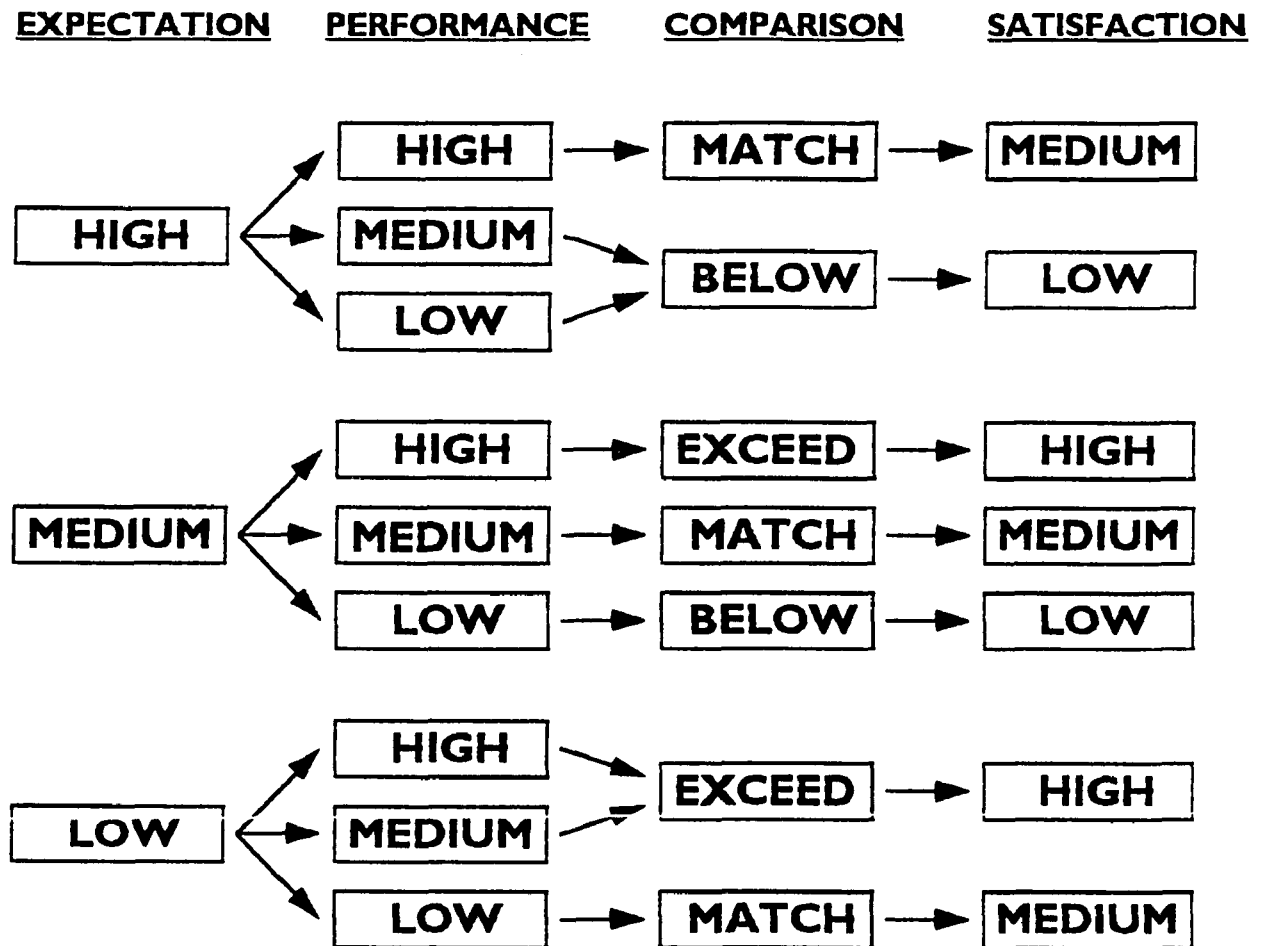


Figure 3.5: Cognitive Model of Discrepancy

observer. If expectations are medium and there is the perception of high performance, the observed performance exceeds expectation and this will lead to more satisfaction as well. If a person's perception of performance is low, then performance is below expectation and the observer will be less satisfied or even dissatisfied. If the person's perception of performance is medium where performance meets expectations, satisfaction should result.

Let us apply the discrepancy model to tourism. Before travel, potential tourists hold subjective expectations about a destination -- they have expectations about tourism attributes such as dining, shopping, natural resources, etc. based on their available sources of information. Then, during a visit to the destination and after the visit, they formulate their perception of the tourism destination based upon actual experiences with the area. If these perceptions surpass expectations, this positive discrepancy will increase their level of satisfaction. Conversely, if perceptions fall below their expectations, this negative discrepancy will decrease their level of the satisfaction and most likely will become dissatisfaction. If their perceptions match their expectations, this represents confirmation and will lead to medium levels of satisfaction. This model assumes that satisfaction is a function of perceived performance and its comparison with expectations.

On the other hand, a path diagram illustrates causal

relationships between variables or constructs and forms a causal model; thus an arrow represents causality or a linkage between the two variables in the diagram. If the relationships among the variables or constructs are all linear, then the path diagram can be interpreted in a series of structural equations. Further explanation of this path analysis will be presented in Chapter IV. The cognitive model of discrepancy can be rewritten into the path diagram and this is depicted in Figure 3.6. This path diagram is adapted from the discrepancy model of Figure 2.1 in Chapter II. The applicability of the original discrepancy model to tourist satisfaction can thus be examined. Similar to the original discrepancy model, this path diagram assumes that the expectation construct has a direct impact on both comparison and perceived performance constructs and indirect impact on satisfaction construct mediated thorough the comparison construct. The perceived performance construct has a direct impact on both comparison and satisfaction constructs and an indirect impact on satisfaction construct mediated through the comparison construct. The comparison construct, receiving direct impacts from both expectation and perceived performance, has direct impact on satisfaction.

Performance-Based Change Model

The cognitive model of performance-based change is depicted in Figure 3.7. A person can have either high, medium, or low expectations. This model assumes that

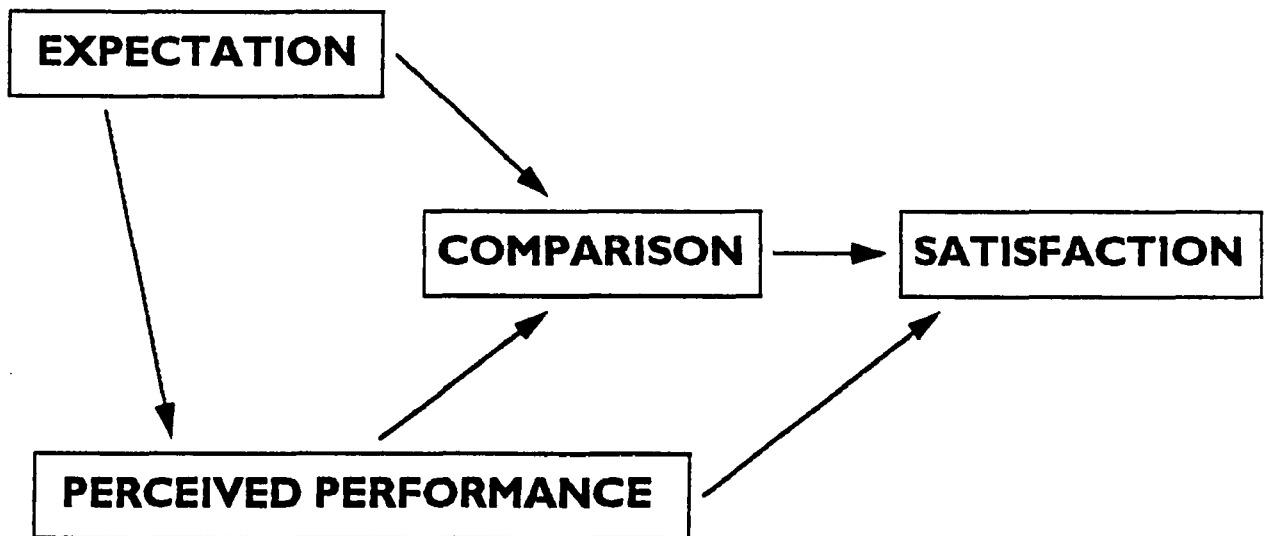


Figure 3.6: Path Diagram of Discrepancy

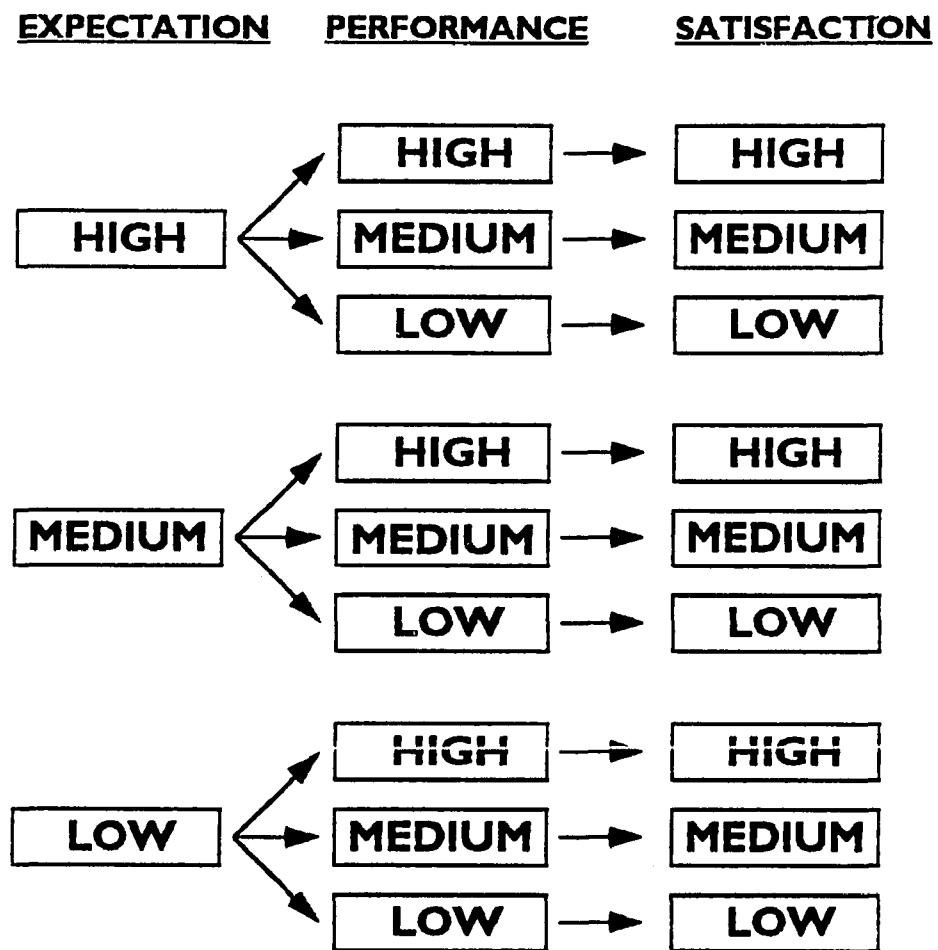


Figure 3.7: Cognitive Model of Performance-Based Change

regardless of a person's initial attitude (i.e., expectation in this study), that person will react in the same direction as the message (i.e., perceived performance), which will result in an attitude change (i.e., satisfaction). Therefore, if a person perceives that there is high performance, a high degree of satisfaction will result; if perceptions are medium, a modest amount of satisfaction will result; if perceptions are low, then there will be less satisfaction or dissatisfaction.

Let us apply the performance-based change model to tourist satisfaction. The first few steps of tourist behavior are the same as in the discrepancy model, i.e. the potential tourists hold their expectation of the destination area before travel and they form subjective perceived performance opinions of the area based on their actual experience when they travel to the area. However, the comparison between their expectation and performance does not play a key role in explaining tourist satisfaction. Rather, in spite of their expectations, only perceived performance of the destination area influences their level of satisfaction. Therefore, the higher the perceived performance of the area the higher the level of overall satisfaction will be. In contrast, lower perceived performance will result in lower levels of satisfaction.

This model assumes that satisfaction is a function of perceived performance only. That is, the level of

satisfaction is directly influenced only by one's perception of performance. However, expectations have an indirect impact on satisfaction through perceived performance. This causal process is illustrated in a path diagram of performance-based change (Figure 3.8). The path diagram is adapted from the original performance-based change model seen in Figure 2.2.

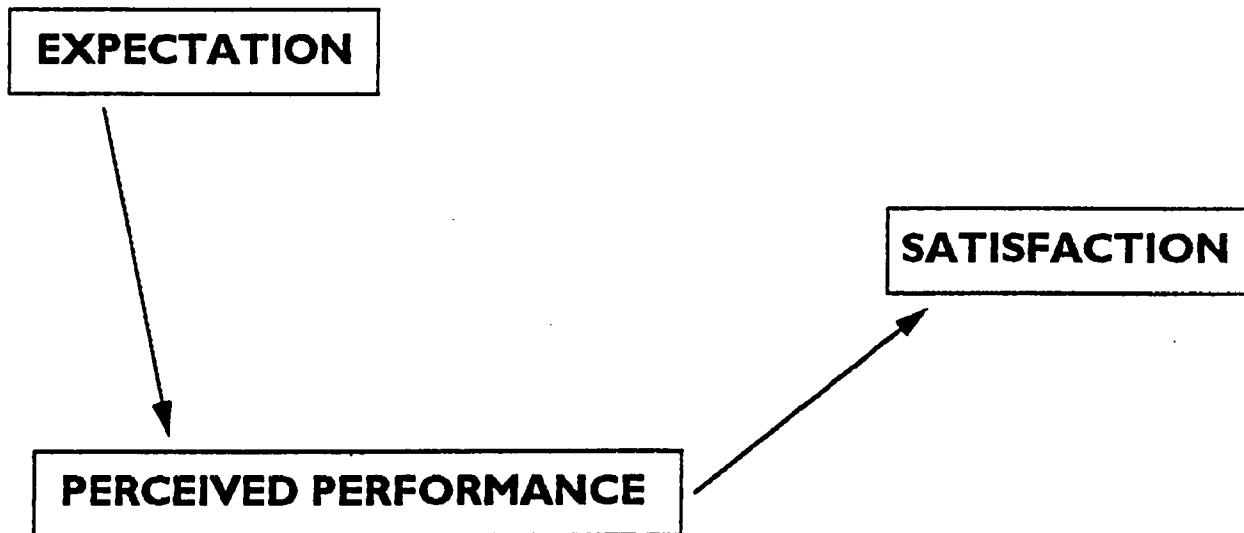


Figure 3.8: Path Diagram of Performance-Based Change

CHAPTER IV

ANALYSES TECHNIQUES AND PROCEDURES

In this chapter, the procedures for the analyses used in this study are presented. The limitations of the study are also discussed. The chapter is divided into three parts: (1) data analyses techniques, (2) procedural steps of the analyses, and (3) limitations of the study.

Data Analysis Techniques

In any study, the researcher first must measure the research variables before analyzing the relationship between these variables. However, observed measurements are never perfect; error of measurement is always present. Thus, in the first section the theory of error of measurement is discussed and means for correcting it are introduced. In order to meet the study objectives, two statistical analysis techniques were employed: path analysis and confirmatory factor analysis. Both analyses are briefly described and discussed in the following section.

Error of Measurement and Correction for Attenuation

Measuring the true value of variables in the social sciences is difficult since the observed measurements are indirect estimates of the constructs to be measured. Since the late 1890s, it has been known that the error of measurement attenuate the correlation coefficient. In other words, error of measurement systematically lowers the correlation between measures in comparison to the correlation between the variables themselves (Hunter and Schmidt, 1990). Thus, observed correlation of the measures should not be used to analyze the relationship among the variables unless these correlations are corrected for attenuation.

Let us denote T and U as the true scores that would have been observed on the independent and dependent variables using corresponding perfect measurements, respectively. Then observed variables x and y are:

$$x = T + E_1$$

$$y = U + E_2$$

where E_1 and E_2 are the error of measurement in the independent and dependent variables, respectively.

The reliabilities of x (r_{xx}) and y (r_{yy}) are defined as:

$$r_{xx} = \rho_{xT}^2$$

$$r_{yy} = \rho_{yU}^2$$

where T and U are the true scores; ρ_{ij} represents the population correlation between perfectly measured variable i and j.

The observed correlation of x and y (r_{xy}) includes: the systematic attenuation of the population correlation (ρ_{TU}) by error of measurement and the unsystematic variation produced by sampling error. The systematic attenuation can be calculated by considering the causal paths from x to T to U to y (Figure 4.1):

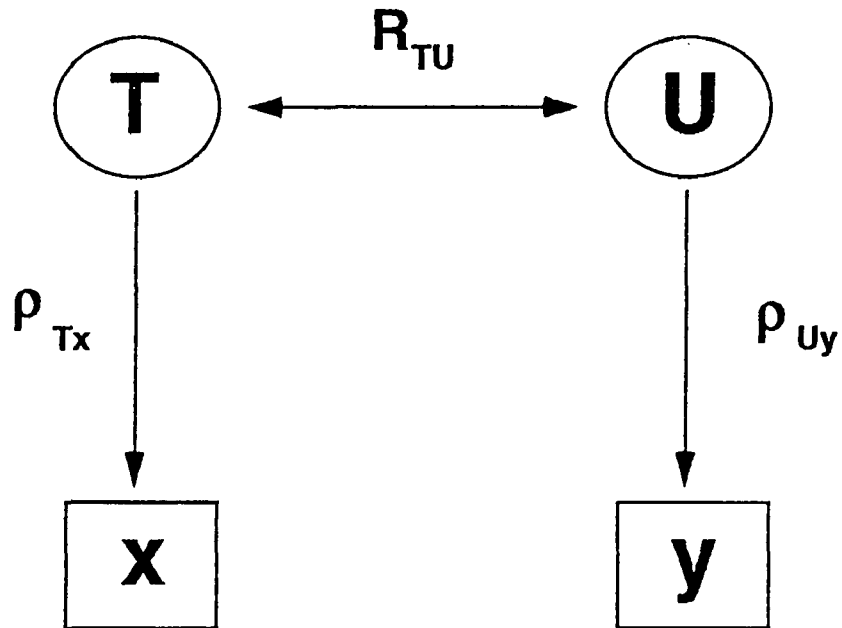
$$\rho_{xy} = \rho_{xT} \rho_{TU} \rho_{Uy} = \rho_{xT} \rho_{yU} \rho_{TU} = \sqrt{r_{xx}} \sqrt{r_{yy}} \rho_{TU}$$

Thus, at the level of population correlations the systematic attenuation can be corrected as follows:

$$\rho_{TU} = \frac{\rho_{xy}}{\sqrt{r_{xx}} \sqrt{r_{yy}}}$$

This is called the classic formula for correction for attenuation or the Spearman-Brown formula. However, at the level of observed correlations, a correlation (r_{xy}) includes the true score of the correlation (ρ_{xy}) and sampling error (e):

$$r_{xy} = \rho_{xy} + e$$



T= True score of construct T

U= True score of construct U

x= Observed score of construct T

y= Observed score of construct U

R= Correlation coefficient

ρ = Path coefficient (In this case, correlation coefficient)

Figure 4.1: Measurement Model of True Score and Observed Value

The unsystematic variation caused by sampling error cannot be corrected, but it can be expressed as a confidence interval. If the observed correlation is corrected using the above formula, the following equation yields:

$$r_c = \frac{r_{xy}}{\sqrt{r_{xx}}\sqrt{r_{yy}}} - \frac{\sqrt{r_{xx}}\sqrt{r_{yy}}\rho_{TV} + e}{\sqrt{r_{xx}}\sqrt{r_{yy}}} = \rho_{TV} + \frac{e}{\sqrt{r_{xx}}\sqrt{r_{yy}}}$$

where r_c represented corrected correlations between observed variables x and y .

Thus, the first term of the above equation clarifies that observed correlation can be corrected for the attenuation. However, the corrected correlation still includes the sampling error which is the last term of the above equation. Since the sampling error can be expressed by the confidence interval, we must apply the above correction formula (i.e., the last term) to both lower and upper endpoints of the confidence interval for the uncorrected correlation in order to form the confidence interval for a corrected correlation. For instance, the 95% confidence interval for the observed correlation of 0.20 between variable x and y with standard error¹ of 0.096 is given by $0.20 \pm 1.96 (0.096)$ or $0.01 \leq \text{population correlation} \leq 0.39$. Assume that variables x and y have reliabilities of 0.45 and 0.55, respectively. In order

¹Standard error is a standard deviation of parameter estimate (i.e., correlation in this case).

to correct the confidence interval, the Spearman-Brown formula must be applied to each endpoint of the above confidence interval. Thus, the corrected confidence intervals for both endpoints are calculated as follows:

$$\text{Lower endpoint: } \frac{0.01}{\sqrt{0.45}\sqrt{0.55}} - \frac{0.01}{0.50} = 0.02$$

$$\text{Upper endpoint: } \frac{0.39}{\sqrt{0.45}\sqrt{0.55}} - \frac{0.39}{0.50} = 0.78$$

Therefore, the corrected and uncorrected confidence intervals can be compared as follows:

$$\text{Corrected: } 0.02 \leq R_{xy} \leq 0.78$$

$$\text{Uncorrected: } 0.01 \leq r_{xy} \leq 0.39$$

where R_{xy} represents the corrected correlation of x and y ; r_{xy} refers to the observed correlation of x and y .

The center of the confidence interval changes from the uncorrected correlation of 0.20 to the corrected correlation of 0.40 which can be computed by applying the Spearman-Brown formula to the uncorrected correlation as follows:

$$R_{xy} = \frac{0.20}{\sqrt{0.45}\sqrt{0.55}} - \frac{0.20}{0.50} = 0.40$$

where R_{xy} represents the corrected correlation of x and y .

At the same time, the range of the corrected confidence interval increases relative to the uncorrected interval. Consequently, if the observed correlation is corrected for attenuation, it will increase the sampling error correspondingly (Hunter and Schmidt, 1990).

Path Analysis

Path analysis is a statistical procedure for systematically combining the use of partial¹ and multiple correlation² to investigate the causal relationships among a set of variables (Hunter and Gerbing, 1982). The analysis can be a very powerful tool for narrowing down the number of theories (i.e., theory testing) that could possibly be consistent with the data (Hunter and Schmidt, 1990). The analysis has become an increasingly popular analytical tool for causal modeling in the social sciences (Asher, 1983).

Following is an example of a causal model. Suppose one theory predicts that X_1 causes X_2 and X_2 causes X_3 but X_1 does

¹Partial correlation (coefficient) measures the strength of the relationship between the dependent variable and a single independent variable when the effects of the other independent variables in the model are held constant.

²Multiple correlation (coefficient) indicates the strength of the relationship between the dependent variable and a set of independent variables in the model.

not directly influence X_3 . This relationship can be written in the following structural equations:

$$X_2 = p_{21}X_1 + p_{2u}R_u$$

$$X_3 = p_{32}X_2 + p_{3v}R_v$$

where p_{ij} is a path coefficient¹ of variable X_i on X_j ; R_i is residual, error, or disturbance term².

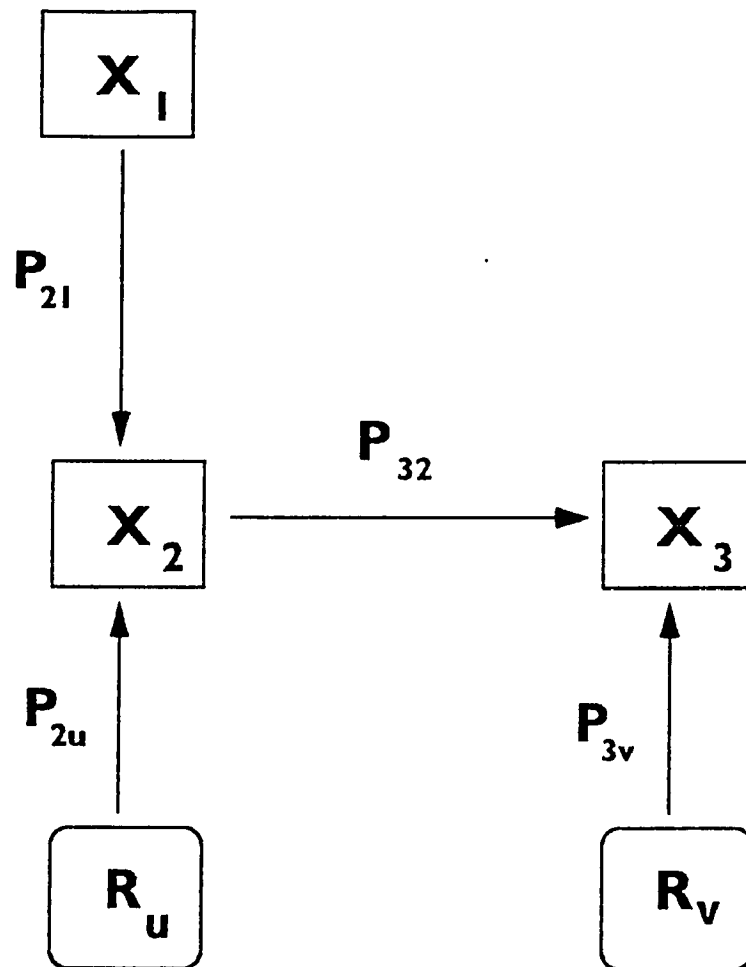
Each disturbance is specified to be uncorrelated with the independent variable in the corresponding equation and with the other disturbances because these disturbances are specified as random influences. No constant term appears because all variables are standardized.

The equivalent representation of this model can be depicted in Figure 4.2. This path model is called a recursive model which requires both a hierarchy of causal linkages (paths)³ and uncorrelated disturbance terms. Path analysis of recursive models can be carried out within the context of ordinary regression analysis. Thus, for this particular path model, parameter estimates of the path coefficients are:

¹Path coefficient is a standardized regression coefficient, which enables us to compare the relative effect on the dependent variable of each independent variable.

²Residual, error, or disturbance term indicates the prediction of a dependent variable on independent variables is not perfect. It is assumed that this error is an estimate of the true random error in the population, not just the error in the sample.

³Hierarchy requires that a path arrow never goes back to the same variable from which the path began.



X=Variable
P=Path coefficient
R=Residual

Figure 4.2: Path Diagram of A Hypothetical Causal Model

$$P_{21} = r_{12}$$

$$P_{32} = r_{23}$$

since there is only a single predictor or independent variable in the corresponding equation for X_2 and X_3 .

In order to test causal models, it is necessary to calculate the covariances¹ among the variables predicted by the model. The key idea to evaluate causal models is that the model imposes constraints on the covariances among the variables. For this particular example, covariance is computed in the following manner.

First multiplying both sides of the equation for X_3 by X_1 :

$$X_3X_1 = P_{32}X_2X_1 + P_{3v}R_vX_1$$

Taking expected values:

$$E(X_3X_1) = P_{32}E(X_2X_1) + P_{3v}E(R_vX_1)$$

Since the variables are standardized:

$$\sigma(X_3X_1) = P_{32}\sigma(X_2X_1) + P_{3v}\sigma(R_vX_1)$$

A last term of the above equation becomes zero since the disturbance term is not correlated with independent variables,

¹Covariance indicates co-variation between variables X and Y . Population covariance may be defined as:

$$\sigma_{xy} = E(X - \mu_x)(Y - \mu_y) = E(XY) - \mu_x\mu_y$$

so:

$$r_{13} - p_{32}r_{12}$$

At last, $p_{32}=r_{23}$, thus:

$$r_{31} - r_{23}r_{12}$$

Therefore, this constraint provides a test of the model by comparing the observed value of r_{31} with the predicted value of r_{31} which is a product of the observed value of r_{23} and r_{12} . This test is equivalent to a test based on partial correlation coefficient, i.e., $r_{13.2} = 0$.

In sum, path analysis is a powerful statistical technique to test alternative causal models. In addition, the analysis can take into account the error of measurement (i.e., correction for attenuation), whereas any other experimental design approach, such as ANOVA, MANOVA, ANCOVA, and MANCOVA, cannot apply this correction since these techniques do not apply correlations between variables. The process of path analysis involves three steps: (1) constructing the causal model, (2) estimating the path coefficients of the model from the data, and (3) testing the model based on its covariance structure.

Confirmatory Factor Analysis

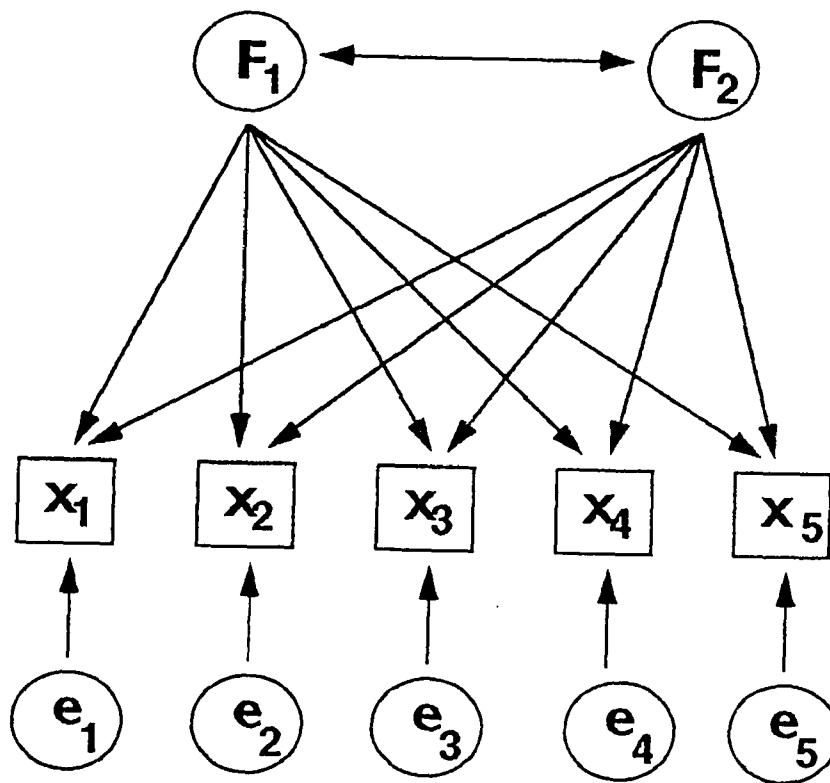
Some variables cannot be directly measured, for instance,

attitudes, perceptions, desires, and so on. These unobserved variables are called either latent variables, factors, or constructs. Factor analysis is a common statistical tool used to uncover underlying latent variables by studying the covariance structure among a set of observed variables (Long, 1983).

There are two factor analysis techniques: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Historically, the EFA has been used for data reduction, index construction, and dimensional analysis.

Figure 4.3 illustrates an exploratory factor model. In the EFA, the structure of the relationship between factors and observed variables is not specified, nor is the number of factors determined before the analysis. Regardless of the substantial appropriateness, the EFA is based upon the following assumptions: (1) all factors are correlated (in the oblique case) or all factors are uncorrelated (in the orthogonal case), (2) all observed variables are directly affected by all factors, (3) unique factors (or error terms) are uncorrelated with one another, (4) all observed variables are affected by a corresponding unique factor, and (5) all factors are uncorrelated with all unique factors.

The EFA as a procedure has some major problems. First, no unique solution exists because the technique is fundamentally indeterminate. This means that through alternative rotational solutions, an infinite number of factor



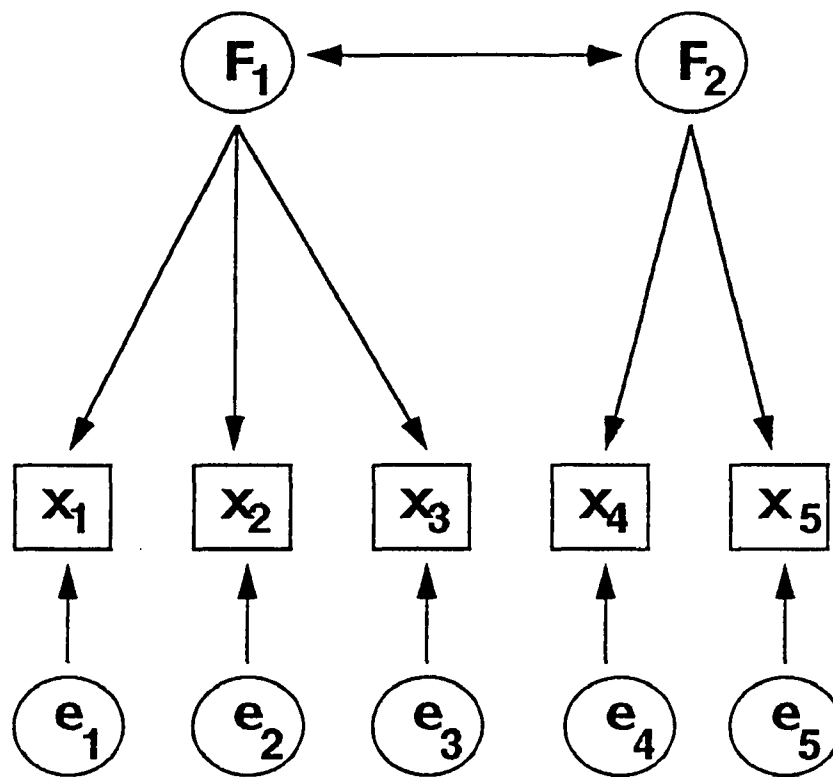
F=Factor
X=Variable
e=Error

Figure 4.3: Exploratory Factor Model

structures exist which represent the data equally well with a different set of factor loadings. Second, because of the above it is almost impossible to test the optimality of a scale and the acceptability of the underlying factor structure. Thus, Long (1983) has stated that the exploratory factor analysis has a high possibility to produce meaningless or uninterpretable factors.

In contrast, the above problems of the EFA have largely been overcome by the confirmatory factor analysis technique. The CFA requires the specification of a formal and an a priori model to provide unique estimates of factor loadings and to test the consistency of the model with the data. That is, which pairs of factors are correlated and which observed variables are affected by which factors are determined before the analysis. Figure 4.4 illustrates a confirmatory factor model. The CFA involves three steps: (1) construction of the model, (2) parameter estimation, and (3) evaluation of the model.

The first step in the analysis is to construct the model. It refers to the specification of which observed variables should be placed within which distinct factors, i.e., each variable is placed in only one factor. This specification should be made based on theory and/or previous findings related to the research interest at hand. The second step is to estimate the parameters of the model. The parameters are factor loadings, factor to factor correlations, and



F=Factor
X=Variable
e=Error

Figure 4.4: Confirmatory Factor Model

communalities¹. There are two parameter estimation techniques: centroid oblique method and maximum likelihood method. Computation programs are available for both methods, i.e., PACKAGE (Hunter and Cohen, 1969) for the centroid oblique method and LISREL (Joreskog and Sorbom, 1978) for the maximum likelihood method. However, Burt (1976) pointed out some problems (e.g., the undesirable effects of mis-specification of the measurement model on the parameter estimates) with LISREL and Gerbing (1979) argued that PACKAGE was most often the preferred analysis because if the model was mis-specified, LISREL spread the errors related to the mis-specified equations throughout the entire system whereas PACKAGE localized the errors to the mis-specified equation.

The last step is to evaluate the model by comparing the observed correlations between the variables with the correlations predicted by the model. This will be done based on two statistical tests for unidimensionality: internal consistency and external consistency. In other words, the observed correlations must conform to the product rules of internal and external consistency.

The internal consistency test involves statistically comparing the observed and the expected correlation matrices

¹Communality is the amount of variance an original variable shares with all other variables included in the factor analysis. The size of the communality is an index for assessing how much variance in a particular variable is accounted for by the factor solution. If the analysis is done with communalities in the diagonal, then the factor is the underlying construct measured without error.

based on internal consistency theorem for each factor. The equation of internal consistency is

$$\frac{\rho_{ap}}{\rho_{aq}} = \frac{\rho_{bp}}{\rho_{bq}}$$

where a, b, p, and q are observed measures of the same theoretical construct.

This implies the measures composing a unidimensional construct should correlate with one another.

A related equation, the product rule for internal consistency is as follows:

$$\rho_{ab} = \rho_{aT} \rho_{bT}$$

where a and b are observed measures of construct T

(Anderson, J. C. and Gerbing, D. W., 1982).

This product rule has to be satisfied in the internal consistency test. First, estimate the correlations between observed measures in the same construct. Then, see if the product rule reproduces the inter-item (measures) correlations to within sampling error (Hunter, J. E. and Gerbing, D. W., 1982). The greater the differences between these two matrices (observed and reproduced correlation), the more the construct lacks internal consistency.

The external consistency test is an index of how well the measures in the same construct correlate with variables

outside the construct. The equation of external consistency is

$$\frac{\rho_{x_1 y_j}}{\rho_{x_2 y_j}} = \frac{\rho_{x_1 y_k}}{\rho_{x_2 y_k}}$$

where x_1 and x_2 are any two measures of a given construct and y_j and y_k are measures of another construct.

A related equation is the product rule for external consistency which is stated as follows:

$$\rho_{xy} = \rho_{xT} \rho_{TU} \rho_{Uy}$$

where x is any measure of construct T and y is any measure of construct U .

This condition can be tested in a similar way as the internal consistency test. First, estimate the correlations between observed measures across the different constructs. Then see if the product rule reproduces inter-item (measures) correlations which are within sampling error (Hunter, J. E. and Gerbing, D. W., 1982).

In practice, the internal consistency is first tested for a measurement model. If it fails to pass the test, the model must be modified or reconstructed. If it passes the test, then the external consistency is examined for the model. The external consistency test is considered an additional test

which provides support for the results of the internal consistency test.

Analysis Procedures

Two procedural steps of analysis are required to meet the objectives of this study. The first step is to compare the consumer satisfaction model with the performance-based change model in terms of explaining tourist satisfaction. The second step is to identify the most crucial factors influencing tourist satisfaction. The first analysis, the comparison of models, is required and forms the foundation for the second analysis. The first analysis is used as a screen which determines which model is to be used to conduct the second analysis.

Comparison of Satisfaction Models

In order to compare the applicability of the discrepancy model with the performance-based change model for tourist satisfaction, the following procedural steps were employed:

1. Correlations between constructs of expectation, perceived performance, comparison, and satisfaction and the reliability for each construct were calculated.
2. Explanatory power of expectation, perceived performance, and comparison to satisfaction based on the correlations were evaluated. That is, the

higher the correlation is, the larger explanatory power the construct has. When comparing the models, the most important correlation is the correlation between comparison and satisfaction. If the correlation is large, i.e., the correlation is statistically different from 0, the discrepancy model is the better model. If the correlation is small, i.e., the correlation is not statistically different from 0, the performance-based change model will be selected because the model assumes no effect of comparison on satisfaction, which implies the correlation is 0.

3. The best model was selected and the correlations was corrected using the classic formula to correct for attenuation, as described earlier.
4. A path analysis was used and applied to the restored correlation matrix in order to estimate path coefficients of the model and to evaluate the fit of the model. This was accomplished by comparing the observed correlations and the reproduced correlations. If the evaluation is not satisfactory, the model must be modified and rebuilt from the beginning. If the evaluation is satisfactory, then the results can be interpreted.

Identification of Key Tourism Constructs Causing Satisfaction

In order to identify key tourism constructs, the following steps were employed.

1. The psychological constructs found to be most effective (perceived performance or comparison) with direct effects upon satisfaction must be selected. Selection is based upon the path analysis and corrections described previously.
2. With the specific psychological construct now selected, a confirmatory factor analysis (CFA) on the proposed tourism constructs (Figure 3.4), was conducted to determine the unidimensionality of each tourism construct. The internal consistency test was used until a satisfactory fit was achieved. In the case of some correlations between tourism constructs being considerably higher than other correlations between other tourism constructs (which implies the existence of a higher level unidimensional tourism construct), a second-order confirmatory factor analysis was employed in order to test the unidimensionality among tourism constructs. The CFA also provided corrected correlations between tourism constructs and satisfaction.
3. Employed a multiple regression, using the corrected correlation matrix of all constructs identified by

the CFA, and satisfaction. This was completed in order to identify key tourism construct which best predicts tourism satisfaction. In the process of applying the multiple regression analysis, if the construct did not have a considerable amount of explanatory power, it was removed from the analysis. Then another multiple regression was conducted until a satisfactory and meaningful result was reached.

Flow charts of the above procedural steps are provided in Figures 4.5. and 4.6.

Limitations of the Study

The limitations of the study are related to several issues. First, the data were not originally collected for the purposes of this study, thus the data used in this analysis were not designed explicitly to meet all the data requirements of the secondary analysis procedures. After reviewing the data, statistical techniques applied in this study were appropriate for the information available within the original data set.

Second, the sample size is small. Because the research sample was selected from those who actually traveled to the target area and returned both the pre and post questionnaires, through attrition, the sample size grew smaller in each stage of the study (See Figure 3.1). However, the data is unique.

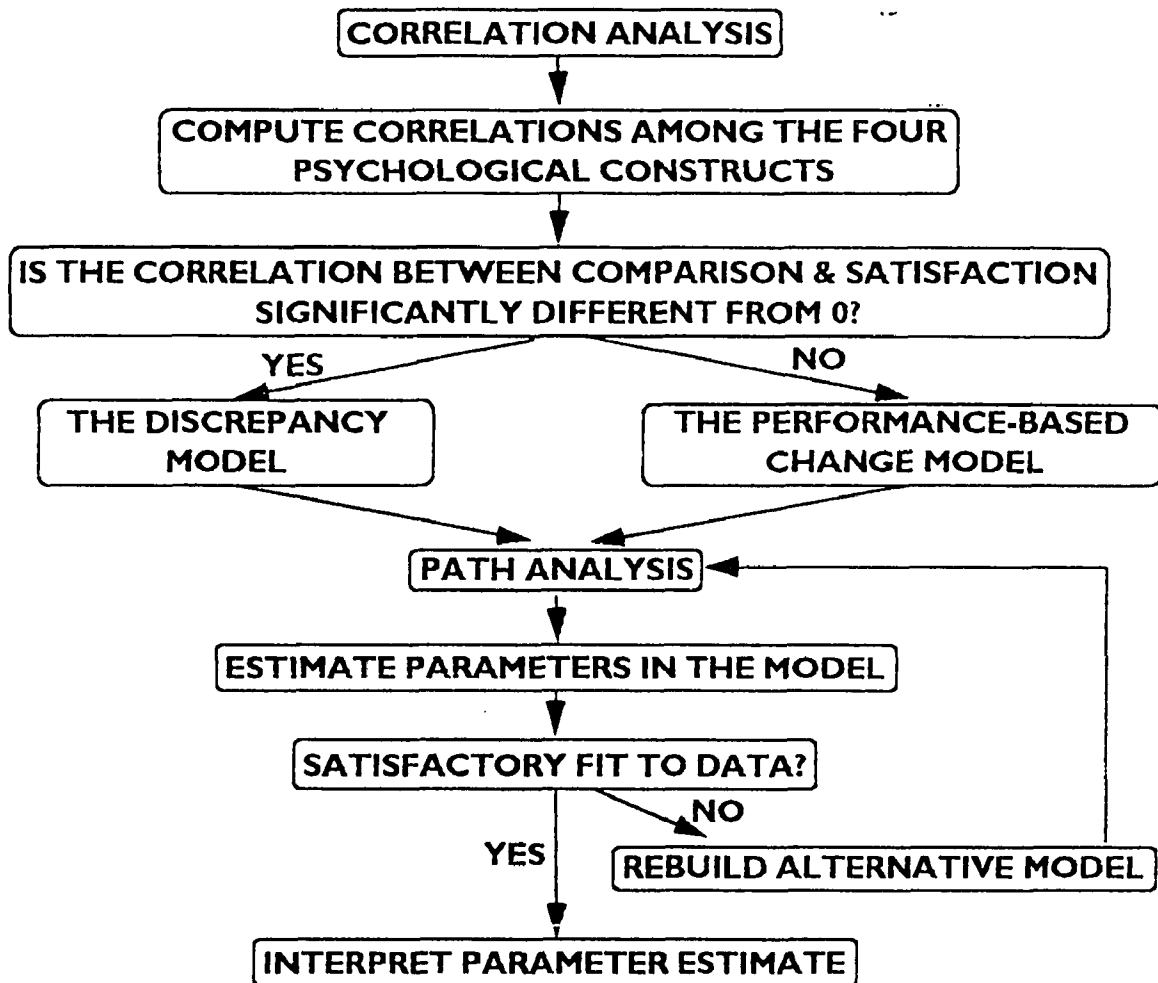


Figure 4.5: A Flow Chart of Procedural Steps for Comparison of Satisfaction Models

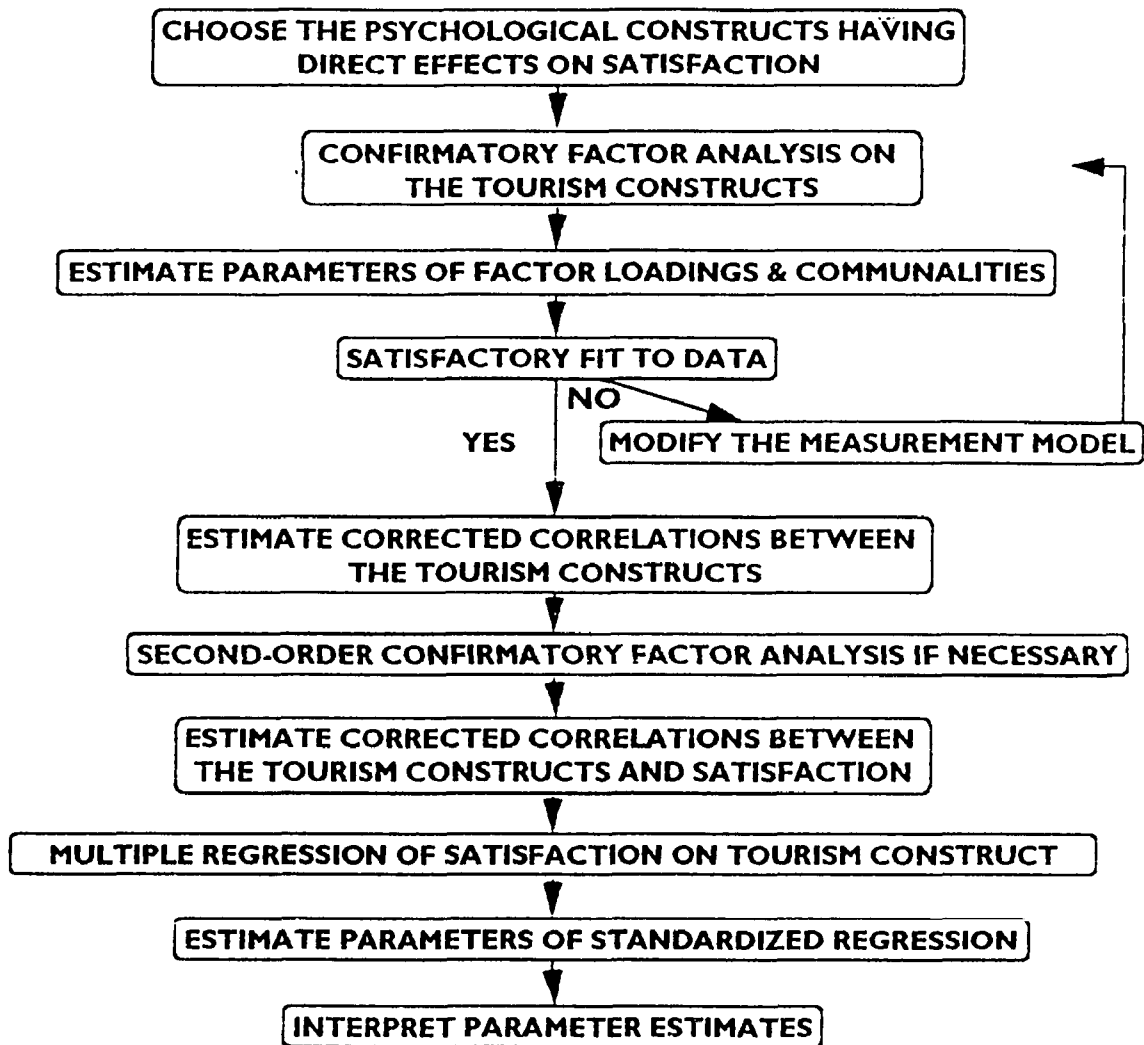


Figure 4.6: A Flow Chart of Procedural Steps for Investigation of Key Tourism Constructs Used to Predict Satisfaction

Rarely is a before and after study data set available and appropriate for this type of model building and testing.

Third, the satisfaction construct is measured by a single measure of overall tourism satisfaction, thus reliability of this construct could not be estimated. Instead, the author had to assume the measurement was perfect, which forced the reliability to be set to 1. Therefore, parameter estimates in all the analyses of path analysis, confirmatory factor analysis, and multiple regression analysis might be underestimated. This was a limitation associated with the original data set that was beyond the control of the author.

CHAPTER V

FINDINGS AND DISCUSSION

In this chapter general findings related to tourism attributes variables, and the relationship between psychological constructs relevant to the satisfaction models are provided. Next, the comparison between the discrepancy model and the performance-based change models of tourist satisfaction is presented and discussed. Based on the results of the two model comparisons, crucial tourism constructs related to satisfaction are investigated and reported in the latter part of the chapter.

Tourism Attribute Variables and Psychological Constructs

Tourism Attribute Variables

Twenty-seven tourism attribute variables related to the target area were measured in terms of tourists' expectations and perceived performance. The mean and standard deviation of each tourism variable for expectation and perceived performance are provided in Table 5.1.

Based upon the results presented in Table 5.1, respondents generally agreed in a positive manner with all 27

Table 5.1: Tourists' expectation and perceived performance of tourism attributes in the target area.

Tourism attribute	Expectation				Perceived Performance		
	N	Rank	Mean	S.D.	Rank	Mean	S.D.
Beautiful scenery	92	1	4.56	0.56	1	4.67	0.49
Beautiful fall color	91	2	4.41	0.65	3	4.32	0.71
Fine beaches	85	3	4.29	0.67	7	4.20	0.78
Easy access to the Lake	90	4	4.24	0.69	2	4.32	0.70
Exciting sightseeing	90	5	4.20	0.69	4	4.26	0.68
Many natural attraction	90	6	4.14	0.66	5	4.24	0.60
Pleasant climate	90	7	4.14	0.68	12	4.03	0.77
Good for family fun	90	8	4.10	0.64	6	4.23	0.65
Great for boating	87	9	4.02	0.68	19	3.62	0.78
Peaceful and quiet	91	10	3.99	0.75	9	4.13	0.56
Excellent resorts	90	11	3.94	0.71	15	3.92	0.78
Great historical sites	89	12	3.92	0.62	11	4.06	0.74
Good for swimming	90	13	3.91	0.74	17	3.79	0.77
Quality hotels/motels	89	14	3.89	0.68	13	4.02	0.64
Friendly people	89	15	3.87	0.78	8	4.15	0.76
Great for camping	87	16	3.84	0.74	18	3.67	0.80
Clean lakes water	90	17	3.83	0.86	10	4.08	0.82
Fine restaurants	91	18	3.77	0.73	14	3.92	0.64
Good lake/stream fishing	88	19	3.68	0.72	22	3.41	0.67
Good for shopping	90	20	3.63	0.66	16	3.74	0.73
Great festivals	88	21	3.59	0.72	21	3.44	0.67
Inexpensive vacation	89	22	3.56	0.89	20	3.61	0.89
Many charter fishing	86	23	3.56	0.74	24	3.31	0.62
Good for golf	88	24	3.26	0.62	25	3.18	0.47
Many tennis courts	87	25	3.21	0.57	26	3.14	0.44
Exciting nightlife	88	26	3.17	0.65	27	3.14	0.65
Not too crowded	89	27	3.15	0.81	23	3.36	0.74

Note. The scores for the items were based on a five point Likert scale as follows: 5=Strongly agree; 4=Agree; 3=Neither agree or disagree; 2=Disagree; 1=Strongly disagree. The scale was reversed for the crowding item in this analysis.

tourism attributes describing the target area, with respect to both in terms of their expectations and their perceived performance scores. The range of means for expectation was 3.15 for "not too crowded" to 4.56 for "beautiful scenery," the range was between 3.14 for "exciting nightlife" to 4.67 for "beautiful scenery" for perceived performance. The lowest mean, 3.14, was still an indicator of positive agreement with the corresponding tourism attribute.

Among for expectation attributes, the top five were beautiful scenery, beautiful fall colors, fine beaches, easy access to the lakes, and exciting sightseeing. The top five expectation items included four of the top five perceived performance attributes. This implies that respondents expected high sightseeing and resort related constructs and they actually perceived high performance on these constructs as well.

The five expectation attributes receiving the lowest means were: not too crowded, exciting nightlife, many tennis courts, good for golf, and many charter fishing opportunities. These same five items were reported with the lowest means for perceived performance scores as well. This suggested that respondents expected less in terms of these attributes and they subsequently perceived lower performances for these attributes as well. The attribute--many charter fishing opportunities--had a relatively larger negative change of the mean score between expectation and perceived performance,

-0.25, compared to the other attributes. This suggests that tourists perceived the performance of many charter fishing opportunities to be less than expected.

In terms of the middle 17 attributes, in general, the rank of the tourism attributes for expectations varied relative to the rank for perceived performances. However, the following four tourism attributes had a relatively larger change of mean score between expectation and perceived performance compared to other middle level attributes: friendly people (0.28), clean lake water (0.25), great for boating (-0.42), and good lake/stream fishing (-0.27). The first two attributes with a positive change, suggests that respondents found people in the target area friendlier than expected and the water cleaner than expected. In the case of the latter two, respondents felt that boating and fishing turned out to be less than expected.

Psychological Constructs for the Satisfaction Models

Psychological constructs used in the two satisfaction models were: expectation, perceived performance, comparison, and satisfaction.

Descriptive statistics, the mean and standard deviation for these psychological constructs are presented in Table 5.2. The means for expectation and perceived performance were 103.53 and 103.97, respectively. In order to better interpret and to be compatible with the mean of satisfaction construct,

Table 5.2: Descriptive statistics of expectation, perceived performance, comparison, and satisfaction constructs.

Psychological constructs			
	N	Mean	S.D.
Expectation	92	103.53	10.74
Perceived performance	79	103.97	8.57
Comparison	73	0.12	7.77
Satisfaction	100	4.62	0.79

Table 5.3: Frequency of satisfaction construct.

Satisfaction	Count	Percent
Very satisfied	77	77.0
Somewhat satisfied	11	10.3
Satisfied	10	9.3
Somewhat dissatisfied	1	1.0
Very dissatisfied	1	1.0

these means are divided by 27, yielding a mean of 3.83 for expectation and 3.85 for perceived performance. Respondents' reported high, and positive, average expectation scores and these very closely matched their average perceived performance scores. The mean of the comparison construct, which is 0.12, also support this interpretation.

With respect to the satisfaction construct, the mean was 4.62 which indicates that most respondents reported that they were satisfied with their overall experiences in the target area. Table 5.3 illustrates the frequency distribution of satisfaction construct. Seventy-seven percent of respondents were very satisfied, ten percent of them were somewhat satisfied, and about ten percent were satisfied. Thus, ninety-six percent of respondents were at least satisfied to some degree with their tourism experience in the target area. Only two percent of respondents reported dissatisfaction with their tourism experience.

A more detailed look at the distribution of these psychological constructs can be seen through a review of the kurtosis¹ and skewness² as presented in Table 5.4.

¹Kurtosis is an index of how far a distribution is from a normal distribution as well as its skewness. If the distribution is normal, the kurtosis is 0; if the distribution is platykurtic, the kurtosis is less than 0; if the distribution is leptokurtic, the kurtosis is greater than 0.

²Skewness is an index of how symmetrical a distribution is. This index is also used for how much a distribution varies from normal distribution. If the distribution is symmetric, skewness is 0; if the distribution is skewed to the right, skewness is greater than 0; if the distribution is

Histograms for the constructs are depicted in Figures 5.1 through 5.4. These results indicate that the distributions of expectation, perceived performance, and comparison constructs are approximately normal. However, the distribution for the satisfaction construct is highly skewed to the right (Figure 5.4). This skewness might result from the fact that the construct was measured by a single measure; or, indeed, everybody really liked the destination; or since they made the trip, investing the money and time, they felt compelled to like it and that is what they reported.

Comparison of Two Alternative Models for Tourist Satisfaction

Correlation Analysis

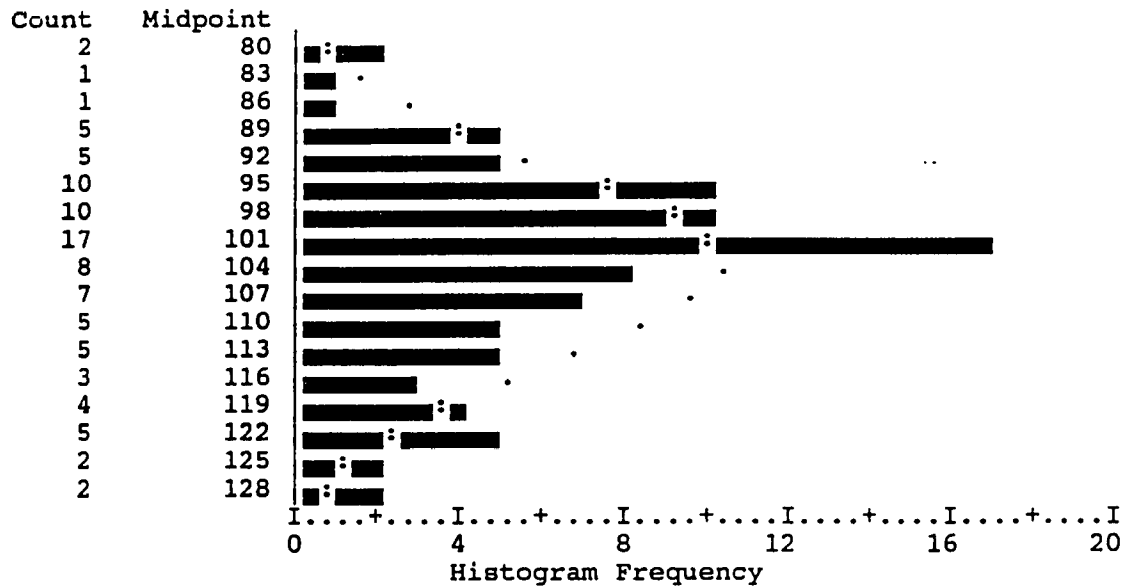
The first objective of the study was to compare the applicability of the discrepancy model with the performance-based change model in an effort to explain tourist satisfaction. In order to compare the two models, the first step was to examine the correlations between the psychological constructs contained in both models.

In Table 5.5, the standardized observed correlation matrix for the expectation, perceived performance, comparison, and satisfaction constructs are reported. The most important difference between the two models is whether the comparison construct has considerable explanatory power in delineating

skewed to the left, skewness is less than 0.

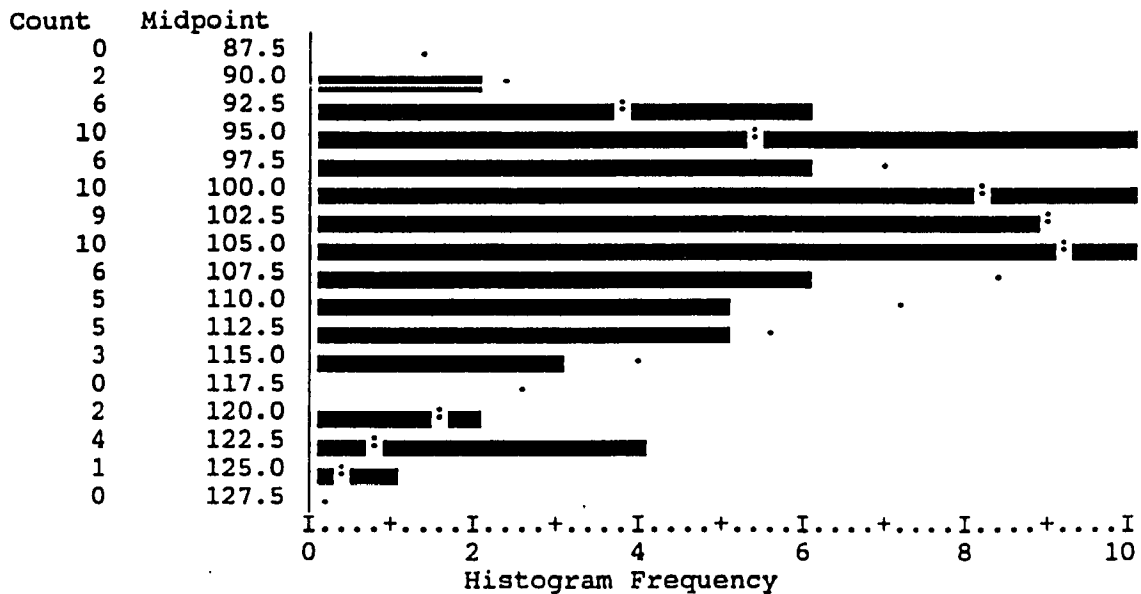
Table 5.4: Kurtosis and skewness for expectation, perceived performance, comparison, and satisfaction constructs.

Psychological constructs		
	Kurtosis	Skewness
Expectation	-0.20	0.39
Perceived performance	-0.15	0.65
Comparison	-0.06	0.25
Satisfaction	4.90	-2.23



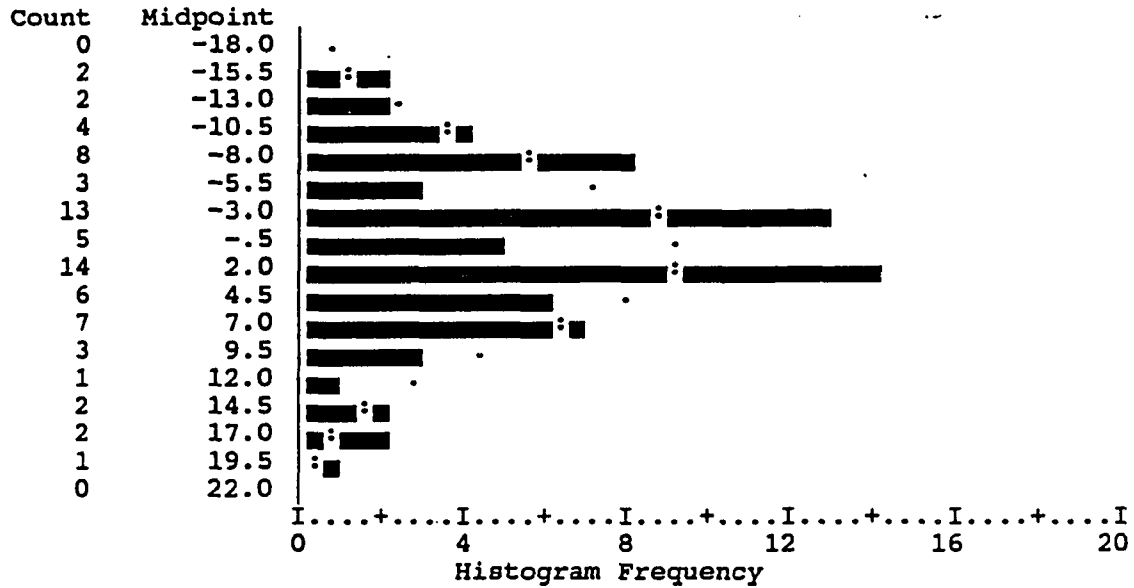
Note. The dotted curve is the normal distribution curve.

Figure 5.1: Histogram of expectation construct.



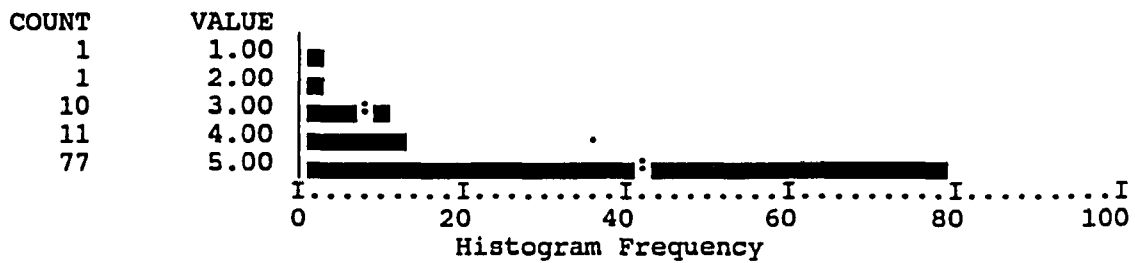
Note. The dotted curve is the normal distribution curve.

Figure 5.2: Histogram of perceived performance construct.



Note. The dotted curve is the normal distribution curve.

Figure 5.3: Histogram of comparison constructs.



Note. The dotted curve is the normal distribution curve.

Figure 5.4: Histogram of satisfaction construct.

Table 5.5: Standardized observed correlation matrix of expectation, perceived performance, comparison, and satisfaction constructs.

Psychological constructs	(1)	(2)	(3)	(4)	r_{xx}
(1) Expectation	1.00				0.96
(2) Perceived performance	0.71**	1.00			0.93
(3) Comparison	-0.66**	0.06	1.00		0.58
(4) Satisfaction	0.29*	0.41**	0.03	1.00	1.00

Note. Valid cases are 73. The symbols of '*' and '**' indicate significance level of one-tailed significance test as follows: * = $p < 0.01$; ** = $p < 0.001$ (one-tailed significance test). r_{xx} represents reliability coefficient.

between the comparison and satisfaction constructs positive and statistically significant? The correlation is very small ($r=0.03$), and is not significantly different from 0. This result suggests that the comparison construct does not have explanatory power with respect to tourist satisfaction. Therefore, this suggests that the discrepancy model does not explain tourist satisfaction as well as the performance-based change model.

The performance-based change model operationally can be considered a nested model of the discrepancy model. This model does not include the comparison construct, thus the comparison row in the correlation matrix (Table 5.5) can be ignored. The correlation between the perceived performance construct and satisfaction construct is high, $r=0.41$. This value is significantly different from 0 at an alpha level of $P<0.001$. The correlation between expectation and perceived performance is also high, $r=0.71$, which indicates a significant difference from 0 at the alpha level of $P<0.001$. These results indicate that the performance-based change model is the better of the two models to be used to explain tourist satisfaction. Based on these findings, the performance-based change model is selected for further analysis.

Path Analysis

The next step is to apply path analysis to the selected model in order to examine the goodness of the fit of the model

with the data. First, the observed correlations (Table 5.5) relevant to the performance-based change model must be corrected for attenuation due to the error of measurement by utilizing a Spearman-Brown formula. The result is provided in Table 5.6.

Second, based on the corrected correlation matrix, the path coefficients are estimated with their standard errors¹ and the 95 percent confidence interval of each estimate. These results are reported in Table 5.7 and are also illustrated in Figure 5.5. The path coefficients of expectation to perceived performance and perceived performance to satisfaction are 0.80 and 0.44, respectively. The results of 95 percent confidence interval of both estimates reveal that both coefficients are significantly different from 0 at an alpha level of at least $P < 0.05$.

In the third step, an evaluation is made of how well the model fits the data by comparing the corrected correlations and the reproduced correlations based on the path coefficients. Table 5.8 shows the corrected correlations in the lower diagonal and the reproduced correlations are in the upper diagonal. A chi-square goodness-of-fit test was conducted in order to statistically evaluate the null hypothesis H_0 that a given model provides an acceptable fit to the observed data. Rejecting the null hypothesis indicates

¹Standard error of estimate represents a standard deviation of the parameter distribution.

Table 5.6: Corrected correlation matrix of expectation, perceived performance, and satisfaction constructs in the attitude change model.

Psychological constructs	(1)	(2)	(3)
(1) Expectation	1.00		
(2) Perceived performance	0.80	1.00	
(3) Satisfaction	0.30	0.44	1.00

Note. All correlations are corrected for attenuation due to error of measurement.

Table 5.7: Path coefficient, standard error of estimates, and 95 percent confidence interval of the attitude change model.

	P_{ij}	S.E.	95% confidence
Expectation to Perceived Performance	0.80	0.04	$0.72 < P_{ij} < 0.88$
Perceived performance to Satisfaction	0.44	0.11	$0.23 < P_{ij} < 0.65$

Note. P_{ij} refers to path coefficient; S.E. refers to standard error of the estimate; 95% confidence refers to 95% confidence interval of the estimate.

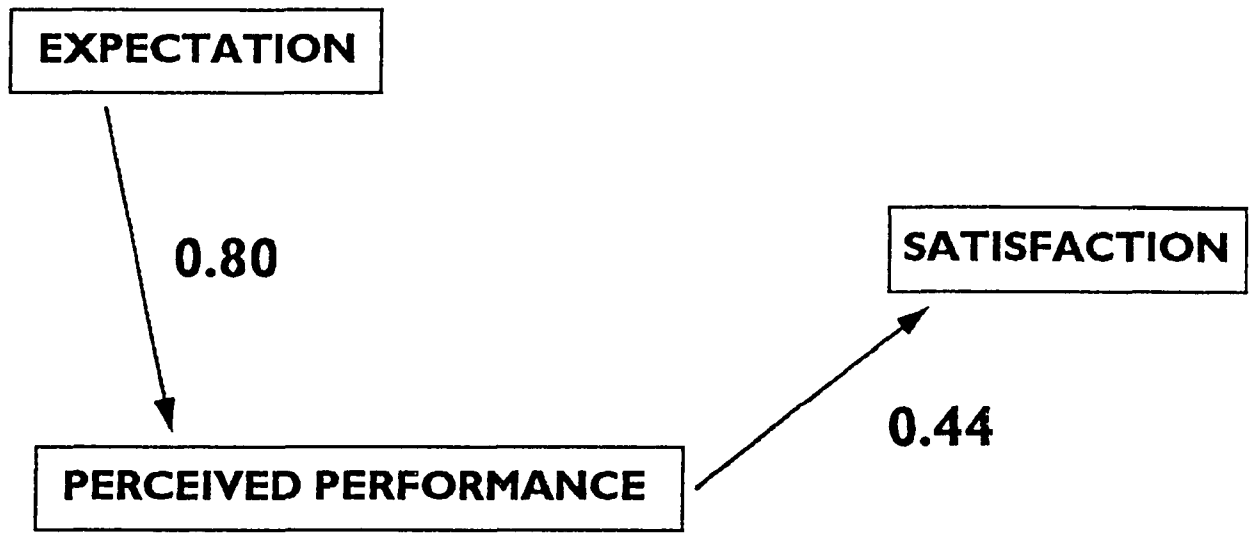


Figure 5.5: Path Analysis of Performance-Based Change

Table 5.8: Comparison between the corrected correlations and the reproduced correlations of expectation, perceived performance, and satisfaction constructs in the attitude change model.

Psychological constructs	(1)	(2)	(3)
(1) Expectation		0.80	0.36
(2) Perceived performance	0.80		0.44
(3) Satisfaction	0.30	0.44	

The overall chi-square is 0.13 (Degrees of freedom = 1).

Note. Corrected correlations are shown in lower diagonal and reproduced correlations are shown in upper diagonal.

that the model does not adequately fit the observed data. The chi-square value of the performance-based change model is 0.13 with one degree of freedom. This value is not large enough to permit rejecting the null hypothesis even at an alpha level of $P < 0.10$. The results indicate that the model appropriately fits the data.

Finally, it is important to interpret the results of the path analysis. A high positive path coefficient between the expectation construct and the perceived performance construct suggests that respondents with high levels of expectation actually report similar levels of perceived performance for tourism attributes related to the target area. The result of the model's fit test suggests that the perceived performance construct is the best predictor of tourist satisfaction. However, the predictive power of the expectation construct with the perceived performance construct is almost twice as large as the predictive power of perceived performance construct related to satisfaction. In other words, one standard deviation change in the expectation construct produces a 0.80 standard deviation change in the perceived performance construct, whereas one standard deviation change in the perceived performance produces only a 0.44 standard deviation change in the satisfaction construct.

Problems of Discrepancy Model and Control Variables

The question to be addressed is: why did the alternative model, the discrepancy model not contribute more significantly

to an understanding of tourist satisfaction? Several possible explanations for this follow. First, the length of the time between the first survey (the expectation measure) and the second survey (the performance measure) was relatively long (three to five months) in the original study. By comparison, in most consumer satisfaction studies of generic consumer goods the length of time is very short. Most studies of consumer satisfaction collect the expectation and performance data just before and after the purchase of the goods and services. In sum, the length of elapsed time between the measure of expectation and performance in these studies was very short relative to this study. Therefore, it is assumed that respondents in this study could not keep their expectations current and available as a basis to form the comparison which would predict their satisfaction level of tourism experience. Rather, based upon their perceived performance scores, respondents made an evaluation of overall satisfaction level.

Second, the comparison process is already included when respondents evaluate the performance of a tourism experience. In other words, they unconsciously or unintentionally compare their expectations with performance when they judge tourism experience. Therefore, the effect of the comparison construct as operationalized here is not a factor in the results. As a consequence the perceived performance construct may already include the comparison construct and it became the best

predictor of tourist satisfaction.

Third, in the discrepancy model the comparison construct was operationalized as a mathematical difference of the expectation and perceived performance scores. This may not be the best way to operationalize the content in a real setting. For instance, suppose an individual has a very high expectation (score of +5) and the person perceives high performance (score of +4). The comparison, which is the difference between performance and expectation, becomes a negative ($-1 = 4 - 5$). According to the discrepancy model, the negative comparison will result in lower satisfaction or even dissatisfaction. This is a very questionable prediction, because the individual with a high perceived performance score should not be dissatisfied. Rather, a person with high performance score would be satisfied, at least, at a moderate level. This example shows how the comparison construct in this model, as measured, might fail to explain levels of satisfaction. As an alternative, a subjective measure of the comparison construct, which is operationally independent of both expectation and perceived performance, might work better in future studies such as this.

Another important question is why are control variables such as age, sex, and education not included in the analysis? One objective of this study was to examine how the original models of satisfaction work when applied to tourism, thus no control variables were included in the analysis. Moreover,

according to the literature review of satisfaction models, both the discrepancy model and the performance-based change model do not include control variables when they have been applied. In the case of the discrepancy model, no studies were reported which included control variables within the analyses (see Chapter II).

Summary of Findings Relative to Comparison of Satisfaction Models

Correlation analysis followed by path analysis were used to evaluate the applicability of the two models (discrepancy and performance-based change) for explaining tourist satisfaction. By studying (1) the bivariate relationships between the comparison, the perceived performance, and the satisfaction construct; (2) path coefficients and standard errors of parameter estimates by the path analysis; and (3) chi-square goodness-of-fit test, the performance-based change model was identified as a better model for explaining tourist satisfaction.

Identification of Key Tourism Constructs Related to Satisfaction

The second objective of the study was to investigate key tourism construct(s) that explain tourist satisfaction. In the previous section, it was clarified that only the perceived performance construct directly affects the tourist

satisfaction construct. Thus, in order to identify which key tourism constructs explain tourist satisfaction, the proposed tourism constructs (see Figure 3.4) must be examined for unidimensionality using confirmatory factor analysis. After examining and refining the tourism constructs, a multiple regression analysis, regressing the level of tourist satisfaction on the tourism constructs will be employed.

Confirmatory Factor Analysis

Confirmatory factor analysis was applied to the correlation matrix of each tourism construct which were part of the perceived performance measure. Factor loadings, communalities, reliability coefficient, and comparison of observed and reproduced correlations will be used to evaluate the unidimensionality of each tourism construct. There is no agreed upon concrete criteria (e.g., factor loading must be 0.40 or higher) to identify a inadequate measure within a factor. Experience and logic guide the decision whether or not a measure should be removed from a factor. The decision is a relative judgement made about comparisons within a factor. The reproduced correlations are calculated based on the product rule of internal consistency (see confirmatory factor analysis section in Chapter IV). A chi-square goodness-of-fit test cannot be used to compare observed and reproduced correlations because the degree of freedom becomes 0. Instead, an average absolute value of differences between

observed and reproduced correlations is used for the same purpose. The higher the factor loadings, communalities, reliabilities and the smaller the differences between observed and reproduced correlations, and the fewer the numbers of variables contained within a construct, the better the level of unidimensionality within the construct. The confirmatory factor analysis was repeatedly employed until a satisfactory result for each tourism construct was reached.

The result of the first run of the CFA is shown in Table 5.9. For the first tourism construct (F1), a variable of uncrowdedness had a very small factor loading of 0.16 and communality of 0.03. This indicates that this variable does not contribute much to the construct. Thus, this variable should be removed from the construct in the next run. For the second tourism construct (F2), both fall color and historical site variables had small factor loadings of 0.26 and 0.20 and small communalities of 0.07 and 0.04, respectively. Thus, the historical site variable, which contributes the least, was deleted in the next. For the third tourism construct (F3), the variable nightlife had a small factor loading of 0.33 and communality of 0.11 relative to other variables, which reveals the variable does not contribute much to this tourism construct. Thus, this variable was removed for the next run. In the case of the fourth tourism construct (F4), the factor loadings and communalities for all variables were satisfactorily high, and a reliability coefficient of 0.77 was

Table 5.9: First run of confirmatory factor analysis on tourism constructs for perceived performance.

	F	C	Observed and reproduced correlation							
F1: Alpha = 0.56; D = 0.049										
Peace and quiet	0.82	0.65		0.13	0.48	0.37	0.30			
Uncrowdiness	0.16	0.03	0.15		0.09	0.07	0.06			
Friendly people	0.58	0.34	0.38	0.05		0.23	0.21			
Family fun	0.41	0.17	0.40	0.08	0.27		0.15			
Inexpensive price	0.37	0.14	0.32	0.07	0.31	0.03				
F2: Alpha = 0.64; D = 0.085										
Scenery	0.55	0.30		0.33	0.42	0.30	0.14	0.11		
Natural attraction	0.60	0.36	0.30		0.47	0.33	0.16	0.12		
Sightseeing	0.78	0.60	0.40	0.34		0.43	0.20	0.16		
Festival	0.55	0.31	0.27	0.29	0.44		0.14	0.11		
Fall color	0.26	0.07	0.29	0.20	0.13	0.27		0.05		
Historical site	0.20	0.04	0.05	0.26	0.38	0.04	-0.18			
F3: Alpha = 0.67; D = 0.067										
Shopping	0.60	0.36		0.40	0.46	0.20				
Restaurant	0.66	0.44	0.35		0.50	0.22				
Hotel/motel	0.76	0.57	0.40	0.60		0.25				
Nightlife	0.33	0.11	0.29	0.16	0.21					
F4: Alpha = 0.77; D = 0.018										
Camping	0.47	0.23		0.39	0.33	0.32				
Boating	0.84	0.69	0.40		0.59	0.58				
Fishing	0.70	0.49	0.30	0.61		0.48				
Charter fishing	0.69	0.48	0.35	0.56	0.48					
F5: Alpha = 0.77; D = 0.083										
Golf	0.33	0.11		0.14	0.21	0.23	0.14	0.20	0.21	0.19
Tennis	0.42	0.17	0.57		0.27	0.30	0.18	0.25	0.27	0.24
Resort	0.65	0.42	0.23	0.25		0.46	0.28	0.39	0.42	0.38
Easy access to lake	0.71	0.50	0.10	0.12	0.52		0.31	0.43	0.45	0.41
Beaches	0.43	0.18	0.12	0.22	0.12	0.35		0.26	0.28	0.25
Clean water	0.60	0.37	0.07	0.10	0.34	0.55	0.32		0.38	0.34
Swimming	0.64	0.41	0.19	0.18	0.43	0.54	0.32	0.42		0.37
Pleasant climate	0.58	0.33	0.05	0.20	0.53	0.41	0.22	0.47	0.30	

Note. Alpha represents reliability coefficient. D represents an average absolute value of difference between observed and reproduced correlations. F refers to factor loadings and C refers to communality. Observed correlations are in lower diagonal and reproduced correlations are in the upper diagonal. F1 through F5 represent tourism constructs as follows:

- F1: Local environment & atmosphere
- F2: Sightseeing
- F3: Hospitality
- F4: Outdoor recreation
- F5: Resort

also high enough. Moreover, the difference between observed and reproduced correlations of 0.018 was quite small, which indicated very good fit of the model with the data. Thus, unidimensionality of this construct is confirmed. As a consequence, no further CFA is required for this construct. For the last tourism construct (F5), the variable golf had a small factor loading of 0.33 and communality of 0.11. Thus, the golf variable was removed in the next run.

The results of second run of the CFA for the first, second, third, and last tourism construct is provided in Table 5.10. For the first tourism construct, reliability coefficient increases from 0.56 to 0.61 and the difference of observed and reproduced correlations also increases from 0.049 to 0.078, compared to the first run. The reliability increase indicates an improvement of the construct while the difference increase suggests that the fit of the model against the data was not improved, compared to the first run. Both variables of family fun and inexpensive price had low factor loadings of 0.39 and 0.36 and communalities of 0.16 and 0.13, respectively. The variable with the lowest loading, inexpensive price must be removed in the next run. For the second tourism construct, the reliability coefficient increased from 0.64 to 0.67 whereas the difference between observed and reproduced correlations decreased from 0.085 to 0.042. This result indicates an improvement of the second analysis relative to the first analysis. However, the

Table 5.10: Second run of confirmatory factor analysis on tourism constructs for perceived performance.

	F	C	Observed and reproduced correlation						
F1: Alpha = 0.61; D = 0.078									
Peace and quiet	0.79	0.62		0.49	0.31	0.28			
Friendly people	0.62	0.39	0.38		0.24	0.22			
Family fun	0.39	0.16	0.40	0.27		0.14			
Inexpensive price	0.36	0.13	0.32	0.31	0.03				
F2: Alpha = 0.67; D = 0.042									
Scenery	0.60	0.36		0.31	0.38	0.36	0.23		
Natural attraction	0.52	0.27	0.30		0.33	0.31	0.20		
Sightseeing	0.63	0.39	0.40	0.34		0.38	0.24		
Festival	0.60	0.36	0.27	0.29	0.44		0.23		
Fall color	0.26	0.07	0.29	0.20	0.13	0.27			
F3: Alpha = 0.71; D = 0.010									
Shopping	0.50	0.25		0.36	0.41				
Restaurant	0.73	0.53	0.35		0.59				
Hotel/motel	0.81	0.65	0.40	0.60					
F4: Alpha = 0.77; D = 0.018									
Camping	0.47	0.23		0.39	0.33	0.32			
Boating	0.84	0.69	0.40		0.59	0.58			
Fishing	0.70	0.49	0.30	0.61		0.48			
Charter fishing	0.69	0.48	0.35	0.56	0.48				
F5: Alpha = 0.77; D = 0.060									
Tennis	0.28	0.08		0.18	0.21	0.12	0.18	0.18	0.17
Resort	0.64	0.41	0.25		0.49	0.28	0.42	0.42	0.40
Easy access to lake	0.76	0.58	0.12	0.52		0.33	0.49	0.49	0.47
Beaches	0.43	0.19	0.22	0.12	0.35		0.28	0.28	0.27
Clean water	0.65	0.42	0.10	0.34	0.55	0.32		0.42	0.40
Swimming	0.65	0.42	0.18	0.43	0.54	0.32	0.42		0.40
Pleasant climate	0.62	0.39	0.20	0.53	0.41	0.22	0.47	0.30	

Note. Alpha represents reliability coefficient. D represents an average absolute value of difference between observed and reproduced correlations. F refers to factor loadings and C refers to communality. Observed correlations are in lower diagonal and reproduced correlations are in the upper diagonal. F1 through F5 represent tourism constructs as follows:

- F1: Local environment & atmosphere
- F2: Sightseeing
- F3: Hospitality
- F4: Outdoor recreation
- F5: Resort

variable of fall color had a low factor loading of 0.26 and communality of 0.07 so it does not contribute much to the sightseeing construct. Thus, fall color was deleted for the next run. With respect to the third construct, the reliability coefficient increased from 0.67 to 0.71 while the difference between observed and reproduced correlations decreased from 0.067 to 0.010. This is an improvement of the construct reliability and fit against the data relative to the first run. Factor loadings and communalities of each variable is very high. Therefore, an assessment of unidimensionality of this construct is more than satisfactory. Consequently, no further analysis is required of this construct. For the last tourism construct, the reliability coefficient of 0.77 stayed the same, whereas the difference between observed and reproduced correlations decreased from 0.083 to 0.060. This indicates a modest improvement in fit of the construct against the data. The variable, tennis, has a low factor loading of 0.28 and communality of 0.08, suggesting it provides only a small contribution to the construct. Thus, this variable was removed in the next CFA analysis.

The third run of the CFA for the first, second, and last tourism constructs is provided in Table 5.11. In the case of F1, the reliability coefficient increased from 0.61 to 0.62 and the difference between observed and reproduced correlations decreased from 0.078 to 0.010. This indicates a modest improvement of reliability of the construct and a

considerable improvement of the fit against the data. In this run factor loadings and communalities were deemed satisfactory as well. Therefore, no further confirmatory factor analysis was needed for this construct. In F2, the reliability coefficient increased from 0.67 to 0.68 and the difference between observed and reproduced correlations decreased from 0.042 to 0.020. This result indicates a small improvement in reliability for the construct and a sufficient amount of improvement for the goodness of fit against the data. Factor loadings and communalities of all variables in the construct were high. Thus, further confirmatory factor analysis is not required for this construct. In the case of the last tourism construct, reliability coefficient increased somewhat from 0.77 to 0.79 and the difference between observed and reproduced correlations decreased somewhat from 0.060 to 0.057. This result indicates a small improvement in reliability of the construct and the fit against the data. The variable beaches still had a low factor loading of 0.40 and communality of 0.16 relative to other variables, indicating that it did not contribute much to this construct. Thus, beaches was removed from the construct and the CFA was conducted for a further purification of the construct.

The result of the fourth CFA run for the fifth construct is provided in Table 5.12. The reliability coefficient increased to 0.80 from 0.79 and the difference between observed and reproduced correlations decreased to 0.055 from

Table 5.11: Third run of confirmatory factor analysis on tourism constructs for perceived performance.

	F	C	Observed and reproduced correlation					
F1: Alpha = 0.62; D = 0.010								
Peace and quiet	0.73	0.52		0.37	0.39			
Friendly people	0.51	0.27	0.38		0.28			
Family fun	0.54	0.30	0.40	0.27				
F2: Alpha = 0.68; D = 0.020								
Scenery	0.54	0.29		0.28	0.39	0.31		
Natural attraction	0.51	0.26	0.30		0.37	0.29		
Sightseeing	0.73	0.52	0.40	0.34		0.42		
Festival	0.57	0.32	0.27	0.29	0.44			
F3: Alpha = 0.71; D = 0.010								
Shopping	0.50	0.25		0.36	0.41			
Restaurant	0.73	0.53	0.35		0.59			
Hotel/motel	0.81	0.65	0.40	0.60				
F4: Alpha = 0.77; D = 0.018								
Camping	0.47	0.23		0.39	0.33	0.32		
Boating	0.84	0.69	0.40		0.59	0.58		
Fishing	0.70	0.49	0.30	0.61		0.48		
Charter fishing	0.69	0.48	0.35	0.56	0.48			
F5: Alpha = 0.79; D = 0.057								
Resort	0.62	0.38		0.50	0.25	0.42	0.40	0.39
Easy access to lake	0.80	0.64	0.52		0.32	0.54	0.52	0.49
Beaches	0.40	0.16	0.12	0.35		0.27	0.26	0.24
Clean water	0.68	0.47	0.34	0.55	0.32		0.44	0.41
Swimming	0.65	0.42	0.43	0.54	0.32	0.42		0.40
Pleasant climate	0.61	0.38	0.53	0.41	0.22	0.47	0.30	

Note. Alpha represents reliability coefficient. D represents an average absolute value of difference between observed and reproduced correlations. F refers to factor loadings and C refers to communality. Observed correlations are in lower diagonal and reproduced correlations are in the upper diagonal. F1 through F5 represent tourism constructs as follows:

F1: Local environment & atmosphere

F2: Sightseeing

F3: Hospitality

F4: Outdoor recreation

F5: Resort

0.057. These results still indicated a small improvement of the construct reliability and the fit against the data. Factor loadings and communalities of all five variables in the construct were sufficiently high enough to confirm unidimensionality of the construct. Therefore, no further analyses were needed.

In sum, all five tourism constructs of perceived performance were confirmed and purified by applying the CFA repeatedly. The first tourism construct of local environment and atmosphere was measured by the variables of peaceful and quiet, friendly people, and family fun with a construct reliability of 0.62. The second tourism construct of sightseeing consisted of scenery, natural attractions, sightseeing, and festivals with a construct reliability of 0.68. The third tourism construct of hospitality included shopping, restaurants, and hotels/motels with a reliability of 0.71. The fourth tourism construct of outdoor recreation contained the variables camping, boating, fishing, and charter fishing with a reliability of 0.77. The last tourism construct called resorts was measured by the variables of resorts, easy access to lakes, clean water, swimming, and pleasant climate and it had a reliability of 0.80.

Second-Order Confirmatory Factor Analysis

The CFA also provided corrected correlations due to the error of measurement among the five tourism constructs for

Table 5.12: Fourth run of confirmatory factor analysis on tourism constructs for perceived performance.

	F	C	Observed and reproduced correlation				
F1: Alpha = 0.62; D = 0.010							
Peace and quiet	0.73	0.52		0.37	0.39		
Friendly people	0.51	0.27	0.38		0.28		
Family fun	0.54	0.30	0.40	0.27			
F2: Alpha = 0.68; D = 0.020							
Scenery	0.54	0.29		0.28	0.39	0.31	
Natural attraction	0.51	0.26	0.30		0.37	0.29	
Sightseeing	0.73	0.52	0.40	0.34		0.42	
Festival	0.57	0.32	0.27	0.29	0.44		
F3: Alpha = 0.71; D = 0.010							
Shopping	0.50	0.25		0.36	0.41		
Restaurant	0.73	0.53	0.35		0.59		
Hotel/motel	0.81	0.65	0.40	0.60			
F4: Alpha = 0.77; D = 0.018							
Camping	0.47	0.23		0.39	0.33	0.32	
Boating	0.84	0.69	0.40		0.59	0.58	
Fishing	0.70	0.49	0.30	0.61		0.48	
Charter fishing	0.69	0.48	0.35	0.56	0.48		
F5: Alpha = 0.80; D = 0.055							
Resort	0.68	0.46		0.53	0.44	0.44	0.42
Easy access to lake	0.78	0.61	0.52		0.51	0.48	0.48
Clean water	0.66	0.44	0.34	0.55		0.41	0.41
Swimming	0.62	0.38	0.43	0.54	0.42		0.38
Pleasant climate	0.62	0.39	0.53	0.41	0.47	0.30	

Note. Alpha represents reliability coefficient. D represents an average absolute value of difference between observed and reproduced correlations. F refers to factor loadings and C refers to communality. Observed correlations are in lower diagonal and reproduced correlations are in the upper diagonal. F1 through F5 represent tourism constructs as follows:

F1: Local environment & atmosphere

F2: Sightseeing

F3: Hospitality

F4: Outdoor recreation

F5: Resort

perceived performance. The corrected correlation matrix is shown in Table 5.13. Of the five constructs, it can be observed that F1, F2, and F5 are highly intercorrelated. This suggests the existence of a higher level construct which may consist of these three tourism sub-constructs. This question can be examined by applying the CFA to the correlations among the three constructs. This process is called a second-order confirmatory factor analysis. This analysis also protects against the problem of multicollinearity, which could be of concern in the next step outlined for this study--the multiple regression analysis. The results of the second order analysis is provided in Table 5.14. The reliability coefficient was very high (0.90) and the reproduced correlations based on the product rule of internal consistency almost perfectly matched with the observed correlations (the difference is only 0.003). Factor loadings and communalities of all three constructs were quite high. Therefore, unidimensionality of the higher level of construct including local environment and atmosphere, sightseeing, and resort constructs is confirmed. The newly confirmed tourism construct was labeled local tourism distinction.

Multiple Regression Analysis

In order to verify which tourism constructs are related to tourism satisfaction, a multiple regression analysis was applied to the corrected correlation matrix among the three

Table 5.13: Corrected correlation matrix due to the error of measurement of tourism constructs for perceived performance.

Tourism constructs	(F1)	(F2)	(F3)	(F4)	(F5)
(F1) Local env. & atmos.	1.00				
(F2) Sightseeing	0.80	1.00			
(F3) Hospitality	0.49	0.40	1.00		
(F4) Outdoor recreation	0.48	0.36	0.24	1.00	
(F5) Resort	0.74	0.69	0.41	0.53	1.00

Note. There are 78 valid cases. Local env. & atmos is an abbreviation for Local environment & atmosphere.

Table 5.14: Second-order confirmatory factor analysis on the selected tourism constructs for perceived performance.

	F	C	Observed and reproduced correlation	
Alpha = 0.90; D = 0.003				
Local env. & atoms.	0.92	0.84	0.79	0.74
Sightseeing	0.87	0.75	0.80	0.69
Resort	0.69	0.65	0.74	0.69

Note. Alpha represents reliability coefficient of alpha. D represents an average absolute value of difference between observed and reproduced correlations. F refers to factor loadings and C refers to communality. Observed correlations are in lower diagonal and reproduced correlations are in the upper diagonal. Local env. & atoms. is an abbreviation for Local environment & atmosphere.

new tourism constructs and satisfaction. The corrected correlations of these four constructs is provided in Table 5.15 and the results of the multiple regression analysis are shown in Table 5.16. The multiple regression coefficient of 0.78 was significantly high, implying that the perceived performance of these three tourism constructs together predicted the level of tourist satisfaction quite well. The high R-square of 0.60 indicated that the perceived performance of these three constructs explained 60 percent of the total variance in tourist satisfaction.

In selecting an individual construct, the perceived hospitality performance construct had the most explanatory power ($\text{Beta} = 0.52$) for the dependent variable of tourist satisfaction. Only the standardized partial regression coefficient estimate (Beta) of the hospitality construct was significantly different from 0 at an alpha level of $P < 0.05$. Additionally, the explanatory power of the hospitality construct was more than four times that of the other two constructs compared independently. The Betas of the local tourism distinction and outdoor recreation constructs were 0.12 and 0.11, respectively. Each had almost the same amount of explanatory power. Neither Beta estimate was significantly different from 0 at an alpha level of $P < 0.05$ because of the small sample size of 78. This does not necessarily mean that these two constructs do not have explanatory power to tourist satisfaction. Rather, the statistically insignificant result

Table 5.15: Corrected correlation matrix of tourism constructs due to the error of measurement for perceived performance and tourist satisfaction construct.

Tourism constructs	(F1)	(F2)	(F3)	(F4)
(F1) Local tourism distinction	1.00			
(F2) Hospitality	0.50	1.00		
(F3) Outdoor recreation	0.53	0.24	1.00	
(F4) Tourist satisfaction	0.44	0.61	0.31	1.00

Note. There are 78 valid cases. Local tourism distinction construct consists of local environment & atmosphere, sightseeing, and resort constructs.

Table 5.16: Multiple regression analysis of tourist satisfaction on tourism construct for perceived performance.

Multiple correlation coefficient = 0.78; R-square = 0.60

	Beta	S.E.	95% confidence
Local tourism distinction	0.12	0.17	-0.22<Beta<0.45
Hospitality	0.52	0.13	0.26<Beta<0.78
Outdoor recreation	0.11	0.16	-0.21<Beta<0.44

Note. Beta refers to standardized partial regression coefficient; R-square represents coefficient of determination; S.E. refers to standard error of the estimate; 95% confidence refers to 95% confidence interval of estimate.

could be explained by a high probability of Type II error¹ due to the small sample size. For instance, suppose the population standardized regression coefficient (Beta) of the tourist satisfaction on the local tourism distinction construct is same as the result of the multiple regression analysis in Table 5.16 (Beta=0.12, standard error=0.17). The null hypothesis for testing the Beta is 0 with a standard error, 0.114. The standard error can be computed as follows:

$$SE = \sqrt{\frac{(1-\rho^2)^2}{N-1}} = \sqrt{\frac{(1-0^2)^2}{78-1}} = \sqrt{\frac{1}{77}} = \sqrt{0.0129} = 0.114$$

where SE is standard error; rho is parameter estimate; N is sample size.

These two distributions of the null and research hypotheses are given in Figure 5.6. The 0.05 significance value for a one-tailed test is the point in the null distribution where only 5% of the Beta would be larger than that value. The 5% significance value can be computed by multiplying the standard error by 1.645 (e.g., $1.645(0.114)=0.19$). To be significant, the study Beta must be at least as large as 0.19 which is already greater than the population Beta. If the true Beta were 0, only 5% of parameter estimates of Beta would be as

¹If the null hypothesis is false for the population and sample data leads to accept it, then it is a Type II error. In the case of this study, the Type II error represents concluding there is no effect of both the local tourism distinction and the outdoor recreation constructs on tourist satisfaction.

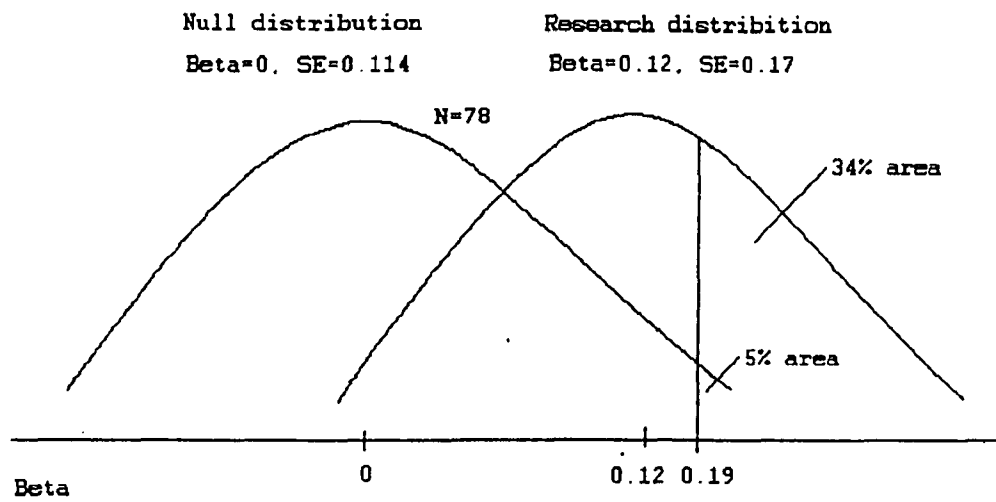


Figure 5.6: Type I and Type II errors

large as 0.19 or larger (i.e., the Type I¹ error rate would be 5%). But because the population Beta is 0.12, there can be no Type I error, only Type II error. What percent of the parameter estimates of Beta will be 0.19 or larger? The z-score of 0.19 in the distribution of the research hypothesis can be computed as follows:

$$z = \frac{0.19 - 0.12}{0.17} = 0.41$$

The percent value in a normal distribution that is above the z=score of 0.41, is approximately 34%. Thus, only 34% of the parameter estimates of Beta will get a significant Beta, even though the population value of the Beta is always 0.12. In other words, the probability of Type II error is 66%, which implies that 66% of the parameter estimates will reach a false conclusion.

Summary--Identification of Key Tourism Construct Relative to Tourist Satisfaction

Confirmatory factor analysis and multiple regression analysis were employed to investigate which tourism constructs could be used to best predict tourist satisfaction. By studying (1) the factor loadings and communalities of variables within each tourism construct and (2) the

¹If the null hypothesis is true for the population and sample data leads to reject it, then it is a Type I error.

reliability coefficient and comparison of observed and reproduced correlations of the tourism construct variables, three tourism constructs were finally identified: (1) local tourism distinction, (2) hospitality, and (3) outdoor recreation .

Secondly, a multiple regression analysis was applied to tourist satisfaction using the three confirmed tourism constructs as independent variables. The results revealed that the hospitality construct had the highest explanatory power ($\text{Beta}=0.52$) and that the other two constructs of local tourism distinction and outdoor recreation had small and similar amounts of explanatory power (local tourism distinction, $\text{Beta}=0.12$ and outdoor recreation, $\text{Beta}=0.11$). The multiple regression coefficient (0.78) and R-square (0.60) of these three constructs were significant, indicating that the three tourism constructs were good predictors of tourist satisfaction.

CHAPTER VI

SUMMARY, CONCLUSIONS AND IMPLICATIONS

In this concluding chapter, a summary of the study is provided along with a brief review of the findings and conclusions. Implications of these findings are discussed along with recommendations for future research.

Summary of the Study

The present study was based upon a secondary analysis of the longitudinal, panel study entitled the Michigan Travel Perception Study conducted by the Department of Park and Recreation Resources, Michigan State University, in cooperation with the Michigan Travel Bureau. There were three measures in the original study -- a pre measure with two post measures. Only the pre measure and the first post measure were used in this secondary analysis. The original survey was conducted during the summer of 1987 and the post measure survey was conducted during the early winter of 1988.

This study was conducted two phases. The first phase evaluated the applicability of the two alternative models of tourist satisfaction, one a discrepancy model, the other a

performance-based change model. The second phase identified key tourism constructs which best explain levels of tourist satisfaction.

There were four objectives stated in Chapter I. The first specific objective of this study was to quantify the psychological constructs relevant to both the discrepancy and the performance-based change models in terms of tourist satisfaction. The psychological constructs of expectation, perceived performance, comparison, and satisfaction were identified as components of the two alternative satisfaction models; these constructs were operationalized based on the previous studies of consumer satisfaction. The distributions of these constructs were approximately normal with the exception of satisfaction. The distribution of satisfaction was found to be highly skewed to the right (Figure 5.4). The reliabilities of these constructs were deemed acceptable except for satisfaction (i.e., the reliability of satisfaction could not be computed because it was composed of a single item). Therefore, it was concluded and appropriately quantified that these psychological constructs related to both the discrepancy and the performance-based change models. Thus, these measures of the constructs can be used to apply the two alternative satisfaction models to tourist satisfaction. As a consequence, both satisfaction models can be used to explain tourist satisfaction, which in turn permits the next steps of analysis to be carried out (i.e., the second

objective).

The second specific objective of this analysis was to compare and evaluate the two alternative models, discrepancy and performance-based change in order to explain tourist satisfaction. As mentioned previously, the correlation analysis revealed that the correlation between the comparison and the satisfaction constructs was small and not statistically significant, which was the key factor for the discrepancy model. Thus, the performance-based change model was selected and a path analysis was applied to the model in terms of tourist satisfaction. The result of path analysis showed that the model fit the data well. Therefore, it is concluded that the performance-based change model is the better model to apply to the study of tourist satisfaction. Further discussion of this conclusion will be presented in the next section.

The third specific objective of the current study was to examine the unidimensionality of the five proposed tourism constructs (Figure 3.4). The confirmatory factor analysis identified the unidimensionality of the five proposed tourism constructs for perceived performance: (1) local environment and atmosphere, (2) sightseeing, (3) hospitality, (4) outdoor recreation, and (5) resorts. Then, the second-order confirmatory factor analysis further refined these five constructs into the three new tourism constructs: (1) local tourism distinction, (2) hospitality, and (3) outdoor

recreation. Therefore, it was concluded that three distinct tourism constructs, which were part of perceived performance, exist for the study area. This implies that the three constructs are representations of all 27 tourism attributes. In other words, in order for tourists to evaluate the tourism related performance of the target area, the 27 tourism attributes do not have to be considered independently. Instead, the three identified tourism constructs should be considered when evaluating the tourism related performances. Additionally, each of the three tourism constructs can be used as an assessment index for evaluating the performance of corresponding tourism characteristic offered by the target area. For example, to evaluate hospitality performance of the target area, an index for the hospitality construct can be produced by summing the performance scores of shopping, restaurants, and hotels/motels tourism attributes. It should be noted that the three tourism constructs are not universal, rather, they are specific to the target area. This is also suggested by Pizam et al. (1978).

The final specific objective of the study was to investigate the key tourism constructs that could be used to explain levels of tourist satisfaction. A multiple regression analysis was used to investigate the relationship between tourist satisfaction and the three tourism constructs. Among the three constructs, it was found that the hospitality construct had the largest explanatory power with respect to

tourist satisfaction. Thus, it was concluded that the hospitality construct is the key tourism construct which explains levels of tourist satisfaction in this particular study.

Findings and Conclusions

Three major conclusions can be drawn from the findings of this study. First, based upon the results, there is evidence to support the applicability of the performance-based change model to tourist satisfaction research. This model was found to be better than that of the discrepancy model. Second, path analysis, confirmatory factor analysis, and correction for attenuation were found to be useful, effective, and accurate statistical techniques for causal modeling. Third, the hospitality construct performs well relative to the other tourism constructs for explaining levels of tourist satisfaction.

The performance-based change model was found to work better than the discrepancy model for explaining tourist satisfaction. In the tourism research literature, a review of satisfaction revealed conflicts among researchers about how best to formulate the concept of tourist satisfaction (See Chapter II). Pizam et al. (1978) and Van Raaij et al. (1984) proposed that tourist satisfaction was based on the differences between a person's expectations and the actual perceived performance of a destination area (i.e., consumer

satisfaction approach). Whereas, Dann (1978) has argued that tourist satisfaction is a function of overall life satisfaction rather than a function of the difference between expectations and performances. Botterill (1987) asks the question, "Does the highly satisfied tourist make perfect predictions about the vacation and destination?" This is implied if satisfaction is a function of these differences. However, no empirical study of the whole satisfaction formulation process within tourism had been conducted. This study provides empirical evidence that tourist satisfaction is a function of the perceived performance of a tourism destination area (i.e., performance-based change model). It is neither a function of the differences between expectations and performances (i.e., discrepancy model) nor a function of overall life satisfaction. It should be noted that this conclusion is not universal. It is specific to Michigan tourists visiting this study region during summer to early fall (i.e., population of this study). In order to generalize the conclusion to tourists in general, similar studies must be conducted to examine the model for different tourists in different destinations.

In the field of consumer satisfaction research, the discrepancy model, based on the discrepancy theory, has been applied successfully to manufactured goods and services (Oliver, 1980; Swan and Trawick, 1981; Bearden and Teel, 1983; LaBarbera and MaZursky, 1983; Churchill and Surprenant, 1988;

Tse and Wilton, 1988). However, the conclusions of the present study differ from the conclusions of these authors. Possible explanations of why the discrepancy model did not work for tourist satisfaction include the long time lag between expectation and performance measures and problems in operationalization of the comparison construct. The first explanation implies that respondents evaluated overall satisfaction of tourism experience based only on their perceived performance since they could not keep their expectations current and available to compare with the perceived performance for more than three months. The second explanation suggests that the comparison construct operationalized as a mathematical difference between expectation and performance is not an appropriate means of operationalizing the discrepancy model (limitation of data). Tse and Wilton (1988) reported that subjective disconfirmation (i.e., comparison in this study) seems to be the better conceptualization used to capture the satisfaction process. Thus, if the subjective comparison is used for this study, the discrepancy model might work better to explain tourist satisfaction. Therefore, it cannot be concluded the discrepancy model totally failed when applied to tourist satisfaction. An evaluation of the above alternative operationalization of the comparison construct is left to future research.

In terms of statistical techniques employed in this

study, three conclusion are drawn. First, path analysis is a useful tool to be used in evaluating alternative causal models. In this study, the performance-based change model outperforms the discrepancy model in fitting the data, especially for tourist satisfaction. This provides strong empirical support for the use of path analysis as recommended by Asher (1983) and Hunter and Gerbing (1982). Researchers can clearly select a better model among the alternatives based on the results of path analysis. Path analysis is an important adjunct to the development of theory in social sciences, including tourism research.

Second, confirmatory factor analysis (CFA) is an effective technique for the measurement of latent variables or underlying factors. CFA has two major advantages over the exploratory factor analysis. The first is that CFA can evaluate the proposed measurement model against the data based on internal and external consistency theorems. Moreover, this evaluation process reveals weak items which can be removed from the measurement model within the factor. The second is that CFA provides a reliability coefficient for each construct and corrected correlations among factors for further analysis. In this study, CFA identified five clean and meaningful tourism constructs, and further refined the five constructs into three new constructs by second-order CFA. This empirically supports the use of CFA as recommended by Hunter and Gerbing (1982) and Long (1983).

Third, considering the error of measurement provides more accurate parameter estimates in the causal model. Both path analysis and confirmatory factor analysis employed in this study took into account the error of measurement by applying the Spearman-Brown formula. As a consequence, both analyses theoretically produced more accurate parameters, thus providing easier interpretation of the results. In order to consider and assess the error of measurement in an analysis, the variable of interest has to be measured through multiple items. This is a consistent, chronic problem in tourism and recreation research. Too often key variables in the theory of problem solving are measured and analyzed but contain only one item.

Hospitality was found to be the best tourism construct to predict the reported satisfaction of tourists. The hospitality construct consists of items assessing the quality of hotels/motels, restaurants, and shopping. The hospitality construct was found to have more than four times the explanatory power compared to the other two tourism constructs used as independent variables regressed on satisfaction. This implies that if the tourists perceive that they have received high quality experiences and services at hotels or motels, restaurants, and shopping facilities, they will report higher satisfaction than when they perceive high performance related to the other tourism attributes. The analysis reveals that a substantial amount of variance of the satisfaction can be

explained by the single tourism construct--hospitality.

These results suggest that hospitality should be considered as a critical factor. Ranges of services and experiences should be delivered to tourists consistently and with quality. The results also suggest that tourists are very sensitive to the dimensions of the hospitality construct. In other words, high quality of services at hotels and motels, high quality of services and foods at restaurants, and high quality of services at shopping locations are required to produce satisfaction in visiting tourists. Therefore, quality control of the tourism experience (especially for hospitality attributes) is one of the more important marketing skills needed in the formula for producing tourism experiences and subsequent tourism satisfaction (Mahoney, 1987).

This conclusion may reflect one of the trends described by Naisbitt (1984): forced technology to high tech and high touch. He mentioned that "whenever new technology is introduced into society, there must be a counterbalancing human response -- that is, high touch -- or the technology is rejected. The more high tech, the more high touch (p. 35)." Naisbitt and Aburdene (1990) have recently stated that "Megatrends do not come and go readily. These large social, economic, political, and technological changes are slow to form ... These shifts continue pretty much on schedule (p.12)." In the present information society, people live in the high tech world for work (e.g., computers, robots,

teleconference, etc.). When they have the time for vacations, they want to escape from their high tech world and satisfy a need for more human contact types of experiences (e.g., good service by waiter or waitress, quality foods prepared by a cook, etc.) which they have been lost in today's high tech world. This is one possible explanation for why the hospitality construct, having more high touch opportunities than the other two tourism constructs (outdoor recreation and local tourism distinction), contributes more and is a significantly better predictor of tourist satisfaction. Another possible explanation is that all respondents were out-of-state residents. They tend to put more weight on hospitality factors such as hotels and restaurants. It is noted that the other two tourism constructs have some impact on tourist satisfaction; thus, the two constructs should not be ignored. Rather, they can be considered second priority in the array of tourism experiences which influence tourist satisfaction.

Implications for Tourism Planning and Management

Proper management and planning is important in order to maximize benefits from tourism. Satisfied tourists are more likely to come back to the tourism area. They may even bring new tourists with them on their next visit. Also, they will say positive things about the tourism area to relatives, and friends. Those who hear the good news about the destination

are more likely to visit the site. Thus, understanding the tourist satisfaction process is critical for the development, improvement, and expansion of tourism. This current research effort has clarified the strong role of hospitality as the number one factor tourists use as a criteria for satisfaction with their vacation and pleasure travel trips. Considering the high tech and high touch trend (Naisbitt, 1984) and the importance of quality control upon tourism experiences, it seems clear that quality of services is a key to successful tourism development in the tourism region. Therefore, tourism planners and managers should focus upon the quality of hospitality issues and services.

Developing a service quality index, tourism planners and managers could identify strengths and weaknesses of current hospitality businesses in the target area. Training and education programs can be useful means for improving weaknesses observed in hospitality businesses. For example, seminars and workshops about service quality in general as well as a specific dimension of service quality (such as responsiveness) could be provided for local managers and employees to help improve their service to customers. Owners and managers could invite service managers from successful service companies to provide lectures to employees and managers in order to educate local tourism professionals by providing practical and successful examples and hints about service and quality maintenance. Finally, local tourism

professionals should regularly monitor their delivery of service to tourists as customers and modify it if necessary based upon the service quality index. That is, the service quality index has to be measured regularly, at least once a year, to monitor service quality by conducting a survey of customers. Additionally, it should be noted that this process can be applied to other tourism factors such as outdoor recreation and local tourism distinction as well.

This marketing process not only makes the target area very special to current and potential tourists, but also differentiates the target area from other alternative tourism destinations.

Future Research

Finally, research approaches to overcome and improve study limitations as mentioned in Chapter IV are recommended in the following:

- (1) In future studies, the satisfaction construct should have multiple measurement items. This will permit the use of the Spearman-Brown formula for correcting the error of measurement. For instance, the same multiple items which used to measure expectations and performances of tourism attributes in the original study could be used to measure satisfactions of these attributes.

- (2) The time lag between the first and the second measures should be shorter in future studies based on the

discrepancy theory. This will provide a more accurate evaluation of the role of comparisons of performance perceptions. Respondents will more easily keep their expectations available in memory for comparison to actual performances. This should provide more accurate comparison measures.

(3) The sample size should be increased to reduce sampling error. For example, to have a confidence interval of 0.05 for a correlation coefficient, the minimum sample size is approximately 1,538 (Hunter and Schmidt, 1990). This suggests the need for larger budgets and more resources to collect sample sizes of this magnitude or a series of smaller studies must be accumulated and subjected to meta-analysis.

(4) Fourth, the comparison construct could be operationalized as a subjective judgement of the difference between expectation and performance, not the mathematical difference so often used in research. A comparison between these two approaches should be carried out in a systematic way. The results of such studies could then be applied to future studies of the tourist satisfaction process.

(5) Fifth, path analysis, confirmatory factor analysis, and correction for attenuation should be considered for future research. These techniques provide more accurate and interpretable results.

(6) Finally, similar studies need to be conducted for different destinations in order to generalize the conclusions to tourists in general.

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APPENDIX A

PRE TRIP QUESTIONNAIRE OF MICHIGAN TRAVEL PERCEPTION STUDY

MICHIGAN TRAVEL PERCEPTION STUDY

INTRODUCTION:

Recently you received travel and vacation information from the Michigan Travel Bureau. In an effort to evaluate our information system and travelers' perceptions of Michigan, we are asking those who requested information to participate in our study. We are interested in your perceptions and impressions of Michigan as a travel destination.

Whether you plan to visit Michigan or not, please fill out the questionnaire as soon as possible. Your cooperation and participation is most appreciated.

1. When did you receive the Michigan travel information?
Date: ____ / ____ (month/year)
 1 ☐ Before your trip
 2 ☐ After you returned from your trip
 3 ☐ Did not receive the information (PLEASE GO TO QUESTION # 4)
2. How did you find out about the Michigan travel information phone number?
(Check only one)
 1 ☐ TV
 2 ☐ Radio
 3 ☐ Newspaper ad
 4 ☐ Newspaper article
 5 ☐ Magazine ad
 6 ☐ Magazine article
 7 ☐ Michigan Governor's Family Reunion Invitation package
 8 ☐ Michigan Governor's "thank you" letter and planning package
 9 ☐ Michigan's Sesquicentennial information office or material
 10 ☐ Travel agent
 11 ☐ Friend, relative or acquaintance
 12 ☐ Other tourism & travel organizations
 13 ☐ State tourist office
 14 ☐ Other (please indicate): _____
3. Overall, how would you rate the quality of the Michigan travel information that you received?
 1 ☐ Excellent
 2 ☐ Very good
 3 ☐ Fair
 4 ☐ Poor
 5 ☐ Did not receive it
4. Have you ever visited or passed through Michigan before?
 1 ☐ Yes; If yes, how many times in the last 10 years? ____
 In what year was your last visit or trip through Michigan? 19 ____
 2 ☐ No
5. Have you taken the trip for which you requested information?
 1 ☐ Yes, when (Date: _____); how long? Number of nights _____
 If yes, GO TO QUESTION # 17
 2 ☐ No (Please continue with question 6)
6. Are you planning a trip to or through Michigan within the next 6 months?
 1 ☐ Yes; approximate date: ____ / ____ (month/year)
 2 ☐ Not sure.
 3 ☐ No. (GO TO QUESTION 17)
7. Will this be a vacation or pleasure trip? 1 ☐ Yes 2 ☐ No
8. What will be your primary reason for visiting Michigan? (Check only one)
 1 ☐ Visit family
 2 ☐ Visit friends
 3 ☐ Personal or official business
 4 ☐ Outdoor recreation
 5 ☐ Sightseeing/touring
 6 ☐ Passing through to another destination
 7 ☐ Shopping
 8 ☐ Entertainment and relaxation
 9 ☐ Attend a sports event
 10 ☐ Attend a conference or convention
 11 ☐ Visit a specific attraction
 12 ☐ Other _____
9. How long are you planning to stay in Michigan? Nights ____ ☐ Don't know
10. Do you have a planned destination in mind within Michigan?
 1 ☐ Yes. Please name the nearest city or town _____
 2 ☐ No, just touring.

11. Is your destination or primary touring region contained within the region circled on the attached map?

1 ☐ Yes
2 ☐ No

12. Have you ever visited or passed through the region circled on the map?

1 ☐ Yes. If yes, how many times in the last 10 years? _____
In what year was your last visit or trip through the region? 19__
2 ☐ No

13. How familiar are you with Michigan and the region circled on the map? Rate this region, even if your destination is not within the circled region. (Please rate both regions)

	Extremely Familiar (1)	Very Familiar (2)	Somewhat Familiar (3)	Not very Familiar (4)	Not at all Familiar (5)	
Michigan	☐	☐	☐	☐	☐	1
Region Circled	☐	☐	☐	☐	☐	2

14. Please rate Michigan and the region circled on the map for recreation and tourism opportunities. Even if you are unfamiliar with the region, please provide a guess based upon your impressions.

	Poor (1)	(2)	(3)	(4)	Excellent (5)	
Michigan	☐	☐	☐	☐	☐	1
Region Circled	☐	☐	☐	☐	☐	2

15. Based upon your impressions, experience, information from others, or travel literature, complete the following evaluation of the region circled on the map. PLEASE COMPLETE THE EVALUATION, EVEN IF YOU HAVE NEVER VISITED THE REGION.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	
REGION CIRCLED ON THE MAP:	(1)	(2)	(3)	(4)	(5)	
has beautiful scenery	☐	☐	☐	☐	☐	1
has fine Great Lakes beaches	☐	☐	☐	☐	☐	2
has friendly people	☐	☐	☐	☐	☐	3
offers an inexpensive vacation	☐	☐	☐	☐	☐	4
has fine restaurants	☐	☐	☐	☐	☐	5
has quality hotels/motels	☐	☐	☐	☐	☐	6
is too crowded	☐	☐	☐	☐	☐	7
has interesting historic sites	☐	☐	☐	☐	☐	8
provides exciting sightseeing	☐	☐	☐	☐	☐	9
offers a pleasant climate	☐	☐	☐	☐	☐	10
has easy Great Lakes access	☐	☐	☐	☐	☐	11
offers exciting nightlife	☐	☐	☐	☐	☐	12
is good for golfing	☐	☐	☐	☐	☐	13
has numerous tennis courts	☐	☐	☐	☐	☐	14
provides easy access to dunes	☐	☐	☐	☐	☐	15
is great for Great Lakes boating	☐	☐	☐	☐	☐	16
has beautiful fall colors	☐	☐	☐	☐	☐	17
has clean Great Lakes water	☐	☐	☐	☐	☐	18
has plenty of charter fishing	☐	☐	☐	☐	☐	19
is great for camping	☐	☐	☐	☐	☐	20
offers good shopping	☐	☐	☐	☐	☐	21
is peaceful and quiet	☐	☐	☐	☐	☐	22
is good for family fun	☐	☐	☐	☐	☐	23
has excellent resorts	☐	☐	☐	☐	☐	24
is good for swimming	☐	☐	☐	☐	☐	25
has great festivals	☐	☐	☐	☐	☐	26
has good lake/stream fishing	☐	☐	☐	☐	☐	27
has many natural attractions	☐	☐	☐	☐	☐	28

16. In terms of tourism development, the region circled on the map is:

- 1 ☐ Underdeveloped (too few hotels, restaurants, attractions, etc.).
 2 ☐ Developed just about right.
 3 ☐ Overdeveloped (too many hotels, restaurants, attractions, etc.).

17. In general, could you please rate how important each of the following is TO YOU when on vacation.

	Not Important	Somewhat Important	Important	Very Important	Crucial	
Items	(1)	(2)	(3)	(4)	(5)	
beautiful scenery	☐	☐	☐	☐	☐	1
friendly people	☐	☐	☐	☐	☐	2
easy access to lakes	☐	☐	☐	☐	☐	3
good shopping	☐	☐	☐	☐	☐	4
fine restaurants	☐	☐	☐	☐	☐	5
quality hotel/motels	☐	☐	☐	☐	☐	6
good camping	☐	☐	☐	☐	☐	7
pleasant climate	☐	☐	☐	☐	☐	8
plenty of charter fishing	☐	☐	☐	☐	☐	9
good amusement parks	☐	☐	☐	☐	☐	10
good golfing	☐	☐	☐	☐	☐	11
availability of tennis	☐	☐	☐	☐	☐	12
uncrowded, few tourists	☐	☐	☐	☐	☐	13
clean lake water	☐	☐	☐	☐	☐	14
exciting nightlife	☐	☐	☐	☐	☐	15
good lake boating	☐	☐	☐	☐	☐	16
inexpensive prices	☐	☐	☐	☐	☐	17
interesting historic sites	☐	☐	☐	☐	☐	18
exciting sightseeing	☐	☐	☐	☐	☐	19
good beaches	☐	☐	☐	☐	☐	20
good for family fun	☐	☐	☐	☐	☐	21
peaceful and quiet	☐	☐	☐	☐	☐	22
good swimming	☐	☐	☐	☐	☐	23
excellent resorts	☐	☐	☐	☐	☐	24
beautiful fall colors	☐	☐	☐	☐	☐	25
great festivals	☐	☐	☐	☐	☐	26
good lake/stream fishing	☐	☐	☐	☐	☐	27
many natural attractions	☐	☐	☐	☐	☐	28

18. What is your age? _____

19. Are you: 1 ☐ Married 2 ☐ Single 3 ☐ Divorced/widowed/separated

20. Sex: 1 ☐ Male 2 ☐ Female

21. Please circle the number that represents the highest level of education that you have completed. (Circle only one)

1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6+
 Grade School High School College

22. Have you ever been a resident of Michigan? 1 ☐ Yes 2 ☐ No
 If yes, how many years were you a resident of Michigan? # of years _____

23. Could you please provide your phone number? () _____

24. If the address we used was in error in some way, could you please provide your correct address?

THANK YOU FOR YOUR COOPERATION! PLEASE SEND YOUR COMPLETED QUESTIONNAIRE TO:

Michigan Travel Bureau
 P.O. Box 30226
 Lansing, MI 48909

APPENDIX B

FIRST POST TRIP QUESTIONNAIRE OF MICHIGAN TRAVEL PERCEPTION STUDY

Michigan Travel Perception Study - Part II

Introduction:

Earlier in the travel season, we asked you about your travel plans and expectations for your potential trip to Michigan. In this questionnaire, we are asking you to provide perceptions and impressions of your trip. If you took more than one trip to Michigan, complete this questionnaire in reference to the trip you had in mind when completing the first questionnaire we mailed to you.

Would the person who completed the first questionnaire please complete this questionnaire as well.

1. Did you take the trip for which you requested Michigan travel information?
1 ☐ Yes 2 ☐ No
2. Have you taken any trip to or through Michigan since you requested Michigan Travel Information? 1 ☐ Yes 2 ☐ No (If no, please continue with question #25.)
3. When did you take this trip? _____ (month/day/year)
4. Where was your primary destination? Nearest city or town: _____
4a. Was your primary destination or touring area included in the region outlined on the attached map? 1 ☐ Yes 2 ☐ No
5. Was this a vacation and/or pleasure trip? 1 ☐ Yes 2 ☐ No
6. What was your primary reason for visiting Michigan? (Check only one.)

1 ☐ Visit family	7 ☐ Shopping
2 ☐ Visit friends	8 ☐ Entertainment and relaxation
3 ☐ Personal or official business	9 ☐ Attend a sports event
4 ☐ Outdoor recreation	10 ☐ Attend a conference or convention
5 ☐ Sightseeing/touring	11 ☐ Visit a specific attraction
6 ☐ Passing through to another destination	12 ☐ Other: _____
7. How many nights did you spend in Michigan on this trip? Number of nights: _____
8. How many times in the last 10 years have you visited the region circled on the map? Number of times: _____
8a. In what year was your last visit (besides this trip) to this region? 19__
9. Did you visit or pass through the region outlined on the attached map on this trip?
1 ☐ Yes 2 ☐ No (If no, please continue with question #24.)
10. How many nights did you spend in the region circled on the map? Number of nights: _____
11. As a result of your trip, please rate Michigan and the region circled on the map for the recreation and tourism opportunities provided.

	Poor (1)	(2)	(3)	(4)	Excellent (5)
Michigan	☐	☐	☐	☐	☐ 1
Region Circled	☐	☐	☐	☐	☐ 2

12. After your trip, how familiar are you with Michigan and the region circled on the map?

	Extremely Familiar (1)	Very Familiar (2)	Somewhat Familiar (3)	Not Very Familiar (4)	Not At All Familiar (5)
Michigan	☐	☐	☐	☐	☐ 1
Region Circled	☐	☐	☐	☐	☐ 2

13. Overall, how satisfied were you with your trip to the region circled on the map?

- 1 ☐ Very satisfied
 2 ☐ Somewhat satisfied
 3 ☐ Satisfied
 4 ☐ Somewhat dissatisfied
 5 ☐ Very dissatisfied

14. Was your visit to Michigan longer or shorter than originally planned?

- 1 ☐ longer 2 ☐ shorter

If longer, how many nights longer? Number of nights: _____

If shorter, how many nights shorter? Number of nights: _____

15. Based upon your trip experiences, please evaluate the region circled on the map.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	
REGION CIRCLED ON THE MAP:	(1)	(2)	(3)	(4)	(5)	
has beautiful scenery	☐	☐	☐	☐	☐	1
has fine Great Lakes beaches	☐	☐	☐	☐	☐	2
has friendly people	☐	☐	☐	☐	☐	3
offers an inexpensive vacation	☐	☐	☐	☐	☐	4
has fine restaurants	☐	☐	☐	☐	☐	5
has quality hotels/motels	☐	☐	☐	☐	☐	6
is too crowded	☐	☐	☐	☐	☐	7
has interesting historic sites	☐	☐	☐	☐	☐	8
provides exciting sightseeing	☐	☐	☐	☐	☐	9
offers a pleasant climate	☐	☐	☐	☐	☐	10
has easy Great Lakes access	☐	☐	☐	☐	☐	11
offers exciting nightlife	☐	☐	☐	☐	☐	12
is good for golfing	☐	☐	☐	☐	☐	13
has numerous tennis courts	☐	☐	☐	☐	☐	14
provides easy access to dunes	☐	☐	☐	☐	☐	15
is great for Great Lakes boating	☐	☐	☐	☐	☐	16
has beautiful fall colors	☐	☐	☐	☐	☐	17
has clean Great Lakes water	☐	☐	☐	☐	☐	18
has plenty of charter fishing	☐	☐	☐	☐	☐	19
is great for camping	☐	☐	☐	☐	☐	20
offers good shopping	☐	☐	☐	☐	☐	21
is peaceful and quiet	☐	☐	☐	☐	☐	22
is good for family fun	☐	☐	☐	☐	☐	23
has excellent resorts	☐	☐	☐	☐	☐	24
is good for swimming	☐	☐	☐	☐	☐	25
has great festivals	☐	☐	☐	☐	☐	26
has good lake/stream fishing	☐	☐	☐	☐	☐	27
has many natural attractions	☐	☐	☐	☐	☐	28
has good amusement parks	☐	☐	☐	☐	☐	29

16. In terms of tourism development, the region circled on the map is:

- 1 ☐ Underdeveloped (too few hotels, restaurants, attractions, etc.)
 2 ☐ Developed just about right
 3 ☐ Overdeveloped (too many hotels, restaurants, attractions, etc.)

17. What one natural feature, if any, impressed you the most (stands out in your mind) about the coastal region included on the map? _____

18. What one man-made feature, if any, impressed you the most (stands out in your mind) about the coastal region included on the map? _____

19. Based upon your trip experience, how likely are you to recommend the coastal region on the map to friends for their vacation?

- 1 ☐ very likely 2 ☐ likely 3 ☐ do not know 4 ☐ unlikely 5 ☐ very unlikely

20. Approximately how much did your travel party spend on your Michigan trip in Michigan?
(Do not include what was spent at home while preparing for the trip, i.e., airline transportation for getting to and from your destination.) Check only one.
- | | | |
|---|--|---|
| 1 ☐ Less than \$50 | 4 ☐ \$301 to \$600 | 7 ☐ \$1,201 to \$1,500 |
| 2 ☐ \$51 to \$100 | 5 ☐ \$601 to \$900 | 8 ☐ \$1,501 or more |
| 3 ☐ \$101 to \$300 | 6 ☐ \$901 to \$1200 | |
21. What type of transportation did you use to travel to Michigan (i.e., train, car, plane)?

22. What type of transportation did you use while in Michigan? _____
23. What type of overnight accommodations did you use when in the region circled on the map?
(Check all that apply.)
- | | |
|---|--|
| 1 ☐ Hotel | 6 ☐ Bed & Breakfast |
| 2 ☐ Motel | 7 ☐ Private campground |
| 3 ☐ Resort | 8 ☐ Public campground |
| 4 ☐ Rented cabin/condo | 9 ☐ Friend's house |
| 5 ☐ Owned cabin/condo | 10 ☐ Relative's house |
| | 11 ☐ Did not stay overnight in region |
24. How many people were in your travel party, including yourself? Number of people: _____
25. Are you likely to travel to the region on the map in the next 12 months?
- 1 ☐ very likely 2 ☐ likely 3 ☐ do not know 4 ☐ unlikely 5 ☐ very unlikely
26. Have you ever been a resident of Michigan? 1 ☐ Yes 2 ☐ No
If yes, how many years? Number of years: _____
27. Sex: 1 ☐ Male 2 ☐ Female
28. Were you the person who completed the first questionnaire we sent to you before your summer/fall trip? 1 ☐ Yes 2 ☐ No

**The following is voluntary, but if you can share the information we would appreciate it.

29. What was your approximate total household income before taxes in 1986 from all sources?
(Check only one)
- | | |
|--|--|
| 1 ☐ LESS THAN \$10,000 | 5 ☐ \$40,000 - \$49,999 |
| 2 ☐ \$10,000 - \$19,999 | 6 ☐ \$50,000 - \$59,999 |
| 3 ☐ \$20,000 - \$29,999 | 7 ☐ \$60,000 - \$69,999 |
| 4 ☐ \$30,000 - \$39,999 | 8 ☐ \$70,000 or more |
30. Could you please provide your phone number? _____

THANK YOU FOR YOUR COOPERATION! PLEASE PUT YOUR COMPLETED QUESTIONNAIRE IN THE ENCLOSED ENVELOPE AND MAIL TO:

Michigan Travel Bureau
P.O. Box 30226
Lansing, MI 48909