

The Impact of Environmental Perception on the Motivation and Willingness for Consumption of Internet Café Customers

Feng-Hsiang Chang¹ and Chih-Yung Tsai^{2,*}

¹Department of Leisure, Recreation and Tourism Management, Tzu Hui Institute of Technology, Pingtung 926, Taiwan

²Department of Education, University of Taipei, Taipei 100, Taiwan

ABSTRACT

This study used environmental quality to investigate the influence of Internet café environmental quality on the motivation and willingness for consumption of customers in Pingtung, Taiwan. Results from questionnaire surveys indicated that the environmental perceptions of Internet café customers have a significant influence on their motivations and willingness to engage in consumption. Consumer motivations also exert a significant influence on consumer willingness. The results of this study suggest that owners and operators of Internet cafés improve the lighting, room temperature, and cleanliness of Internet cafés to help increase consumer motivation. In addition, to help raise consumer willingness, Internet cafés must be located in an area convenient for travel; the seats and doors within must be designed for convenience and smooth traffic flow; and the levels of interpersonal communication and activity among consumers must be increased.

Keywords:- internet café, environmental perception, consumer motivation, consumer willingness

1. INTRODUCTION

Over the course of a single day, most people spend at least 15 hours at home, in an office, and in other indoor environments. Researchers have previously conducted indoor environmental quality surveys for homes, offices, schools, shopping malls, and restaurants, with past results indicating that poor ventilation causes high concentrations of suspended particulate matter, high total bacterial counts, and carbon dioxide concentrations exceeding 1000 ppm [1]. These factors are closely related to asthmatic and allergic reactions [2]. Additionally, the solvents used in building materials, furniture, and interior decoration effuse high concentrations of formaldehyde [3] and volatile organic compounds [4]. Smoking also causes high concentrations of suspended particulate matter, carbon dioxide, and volatile organic compounds [5]. However, in one study, when an increased supply of outside air was able to reduce the average indoor carbon dioxide concentration from 1300 ppm to 900 ppm, students were able to detect the improved air quality [6], illustrating the importance of indoor environmental quality for human health. Internet cafés constitute an important indoor recreational locale in Taiwan. In a survey of Internet café environmental factors, Lin [7] found that "establishment of a smoking area" was a necessary consideration. Shen [8] further analyzed overall factors for consumer choice of Internet cafés and found that this factor ranked at number five. However, after the amendment of the Tobacco Hazards Prevention Act on January 11, 2009, Article 15 Item 10 states that smoking is completely prohibited in indoor areas of computer entertainment businesses and other leisure entertainment locations open to the general public [9]. Whether this type of act would have an impact on original Internet café patrons and their consumer motivation or willingness was the first motivation for this study. Although previous scholars have provided a wealth of studies on Internet café consumer behavior, after Internet cafés were deemed a "computer entertainment business," there has been a lack of research on consumer motivation from the perspective of environmental quality. Therefore, the second motivation behind this study was to investigate the changes in consumer motivation and willingness that occur due to changes in consumers' environmental perceptions after the environmental quality in Internet cafés is improved. It is hoped that the results of this study can serve as a reference for experts and governmental authorities during future discussion and drafting of relevant regulations.

2. LITERATURE REVIEW

2.1 Internet Cafés

According to the "Regulations on the management of computer entertainment businesses" drafted by the Executive Yuan, Internet cafés in Taiwan constitute an aspect of the computer entertainment industry which is defined as "a for-profit business providing a designated venue and computer equipment for non-specified persons to engage in gaming and online socialization through the integration of online data, hard disks, CDs, floppy disks, etc." In recent years,

Internet cafés have represented a popular place of leisure for the younger population. Chen [10] pointed out that Internet cafés are popular not only in Taiwan, but are becoming an emerging business model in other countries as well, albeit with slightly different nomenclature. Internet cafés in China are called wangba (as opposed to wangka in Taiwan). In Hong Kong they are called cyber cafés, and in Korea they are called PC bang.

2.2 Environmental Perception

Hou and Yao [11] stated that environmental perception consists of a mental process used to recognize and understand objects through conscious activity. Humans bring motivations, desires, and objectives into substantial contexts and choose to accept environmental information through feelings and actions [12]. During interactions between people and the environment, individuals cannot be withdrawn from environmental elements; as such, individual experiences and the environment must be viewed together [13]. Physical environments affect consumers' satisfaction with services [14]. Tangible facilities also have a profound impact on the communication of an enterprise's image [15], which can in turn influence consumers' expectations regarding that enterprise's services [16]. Compared to other industries, retail industry facilities located in physical environments have a more significant impact on image and consumers [17-19]. This shows that people perceive their environments according to their goals, characters, attitudes, and past experiences. This is precisely why different people have different feelings while in the same environment; in other words, people in the same environment actually see and perceive that single environment as different environments.

2.3 Environmental Perception and Consumer Motivation

Wakefield and Baker [20] stated that tenant variety in the physical environment of shopping malls excites and stimulates consumers, positively influences their desire to remain in a given shopping mall, and impacts their consumer motivations. For example, background music can possibly influence subconscious purchasing behavior [21]. Empirical results reported by Bitner [22] indicated that the cleanliness of a store environment has a significant impact on consumers' selection and assessment of products, that neat store assemblies allow for smoother browsing of products, and that clean and brightly lit stores are more able to leave a positive impression on consumers. In accordance with the above literature, this study proposed Hypothesis 1: Internet café consumers' environmental perceptions and consumer motivations are significantly correlated.

2.4 Environmental Perception and Consumer Willingness

Turley and Milliman [23] stated that store variables related to environment and atmosphere have an extensive influence on consumers; a good environmental design allows consumers to conveniently find products and raises their perceptions and attitudes toward a given store's practical value and service [24,25]. Good environmental design also stimulates consumers' willingness to purchase, raises the inventory turnover rate, and improves the functionality of the commercial image [26]. For most consumers, the notion of convenience puts an emphasis on rapid entry into and exit from a store and the ability to easily locate desired products, and the impression of convenience this is mainly achieved through consumers' environmental perceptions. Therefore, one extremely important indicator of perceived value is that it influences the formation of consumers' shopping efficiency. As such, a poorly designed environment can deter target consumers and a poor store layout or product display can lower consumers' target shopping efficiency, resulting in anger and impatience [27]. When the temperature, aroma, ambient noise, music, and lighting within a store exceed customers' acceptable levels, this has a negative impact on consumers, lowering their perception of time [28], stirring negative emotions [27], increasing their willingness to remain in the store, and raising their intentions to return to the store [20,21]. In accordance with the above literature, this study proposed Hypothesis 2: Internet café consumers' environmental perceptions and consumer willingness are significantly correlated.

2.5 Consumer Motivation and Consumer Willingness

Under normal circumstances, all human behaviors have their various motivations that excite us to do something. In other words, "motivation" plays an important role in whether we participate in any activity. Therefore, a motivation is a stimulated need that drives consumers to fulfill their needs. Consumers lower their anxieties and restlessness through the satisfaction of their needs. In other words, all consumer behaviors begin with motivations because motivations are the agents that incite consumers to take actions [29]. Liu [30] stated that motivation is what leads individuals to enact a determined inner process and that it constitutes the driving force behind individual behavior, even though it is not primary. When individuals are subject to inner or outward stimulation, a need is created which drives the individual to take action in order to fulfill it. However, travel motivation is the inner drive that causes individuals to travel to satisfy social and psychological requirements and goals [31]. Therefore, motivation is an important factor that influences behavior, and thus, the relationship between motivation and behavior shall be discussed in this study. In accordance with the above literature, this study proposed Hypothesis 3: Internet café consumers' consumer motivations and consumer willingness are significantly correlated.

3. METHODS

3.1 Research framework

The research framework of this study is shown in Figure 1 below. It mainly investigated whether environmental perception influences consumer motivation and consumer willingness through changes in environmental quality.

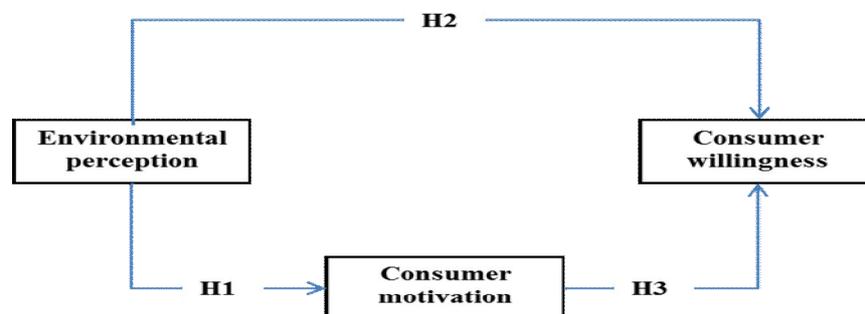


Figure 1 Research framework

3.2 Questionnaire design

The design of the questionnaire used in this study divided the questionnaire into four parts:

Part one consisted of an "environmental perception scale." The five major variables for store environmental perception proposed by Turley and Milliman [23] were referenced in revising the environmental perception questionnaire for consumer perceptions of department stores used by Lin [32], yielding a total of 15 questions. Scoring used a five-point Likert scale. Part two consisted of a "consumer motivation scale." The questionnaire used by Korgaonkar and Wolin [33], which focuses on two major motivations for Internet use, namely, "escape from society" and "sociability," was altered for use in the present study, and yielded a total of five questions. Scoring used a five-point Likert scale. Part three consisted of a "consumer willingness scale." The methods used by Swinyard [34] were modified to create a total of seven questions. Scoring used a five-point Likert scale. Part four consisted of items used to collect population statistics. Variables for population statistics used in this study included gender, age, level of education, and family members.

3.3 Participants and sampling

This study aimed to analyze the correlation between Internet café consumers' environmental perceptions and consumer willingness. As such, this study employed questionnaires for survey analysis. Owners and operators of Internet cafés in the Pintung were selected for this study; after consent was given, questionnaires were distributed both to proprietors and consumers.

3.4 Reliability and validity analysis

Internal consistency testing was performed on the questionnaire to find Cronbach's α to understand the internal consistency of this scale. A higher α coefficient indicates higher consistency between questions, higher homogeneity between responses, and higher suitability for the sampled content. The main focus of validity evaluation was content validity. Development of the questions referenced tools and scales which had been previously used or composed by experts. Multiple revisions were made and the final questionnaire was finished after item analysis was completed; as such, it has content validity.

3.5 Statistical analysis

SPSS 12 software for Windows was used for data analysis. Statistical analyses included descriptive statistical analysis, factor analysis, reliability analysis, and other tests. Descriptive statistics were used to show statistical data for each item, such as mean and standard deviation. Validity analysis was used to calculate the alpha coefficient. Relevant tests were used for regression analysis.

4. RESULTS

4.1 Basic statistics

One hundred and thirty questionnaires were distributed and 72 effective responses were returned, for an effective return rate of 55.4%. Results are shown in Table 1 below according to individual variables as a simple descriptive statistical table. Table 1 shows basic data for this study's sample. 29.6% of participants were students, 14.1% were in the manufacturing industry, 15.5% were in the service industry, 12.7% were in the freelance industry, 1.4% were military, civil servants, or teachers, 15.5% were unemployed, and 11.3% were employed in other industries. 76.1% of participants were male and 23.9% were female. 32.4% of participants were between the ages of 11 and 20, 49.3% were between 21 and 30, 15.5% were between 31 and 40, and 2.8% were above the age of 40. 21.1% of participants graduated middle school or below, 52.21% graduated high school or vocational school, 11.1% graduated junior college, and 15.6% graduated college or above. 33.8% of participants go to Internet cafés alone, 16.9% with family members,

47.9% with friends, and 1.4% with classmates. Disposable income was below NT\$5,000 for 43.7% of participants, NT\$5,001-10,000 for 26.8%, NT\$10,001-15,000 for 8.5%, NT\$15,001-20,000 for 8.5%, NT\$20,001-25,000 for 5.6%, NT\$25,001-30,000 for 4.2%, and above NT\$30,001 for 2.8%. 83.1% of participants were single, 12.7% were married with children, and 4.2% were married without children. 98.6% of participants lived in Southern Taiwan and 1.4% lived in Eastern Taiwan.

Table 1: Descriptive statistics for population variables

Variable		No.	%	Variable		No.	%
Gender	Male	54	76.1	Residence	Southern Taiwan	70	98.6
	Female	17	23.9		Eastern Taiwan	1	1.4
Age	11-20	23	32.4	Education level	Middle school or below	15	21.1
	21-30	35	49.3		High school or vocational school	37	52.1
	31-40	11	15.5		Junior college	8	11.3
	41-50	2	2.8		College or above	11	15.6
Marriage status	Single	59	83.1	Disposable income	Below NT\$5,000	31	43.7
	Married with children	9	12.7		NT\$5,001-10,000	19	26.8
	Married without children	3	4.2		NT\$10,001-15,000	6	8.5
Occupation	Student	21	29.6		NT\$15,001-20,000	6	8.5
	Manufacturing industry	10	14.1		NT\$20,001-25,000	4	5.6
	Service industry	11	15.5		NT\$25,001-30,000	3	4.2
	Freelance industry	9	12.7		Above NT\$30,001	2	2.8
	Military, civil servants, teachers	1	1.4	Companion	Alone	24	33.8
	Unemployed	11	15.5		Family	12	16.9
	Other	8	11.3		Friends	34	47.9
			Classmates		1	1.4	

4.2 Factor analysis and reliability analysis

To concentrate dimensions and raise the internal consistency of each factor, factor analysis was conducted for the environmental perception, consumer motivation, and consumer willingness scales. The factor analysis employed in this study was principal component analysis. After the factor analysis was completed, factors with a characteristic value greater than 1 were separated, then varimax rotation was used to find factor loadings with an absolute value greater than 0.5 to serve as the elements behind the factors. Finally, names were given to these elements in accordance with their meaning.

4.2.1 Environmental perception scale reliability analysis

According to exploratory factor analysis results, the sampling adequacy KMO value for this scale was 0.89 and test of sphericity chi-square value was 1410.56 ($p < 0.05$), indicating data was suitable for factor analysis (Table 2). Cumulative explanatory variability was 82.18% and overall reliability and Cronbach's α for the four sub-dimensions were all greater than 0.7; therefore, this scale is reliable. This scale had four dimensions: "Equipment" mainly referred to completeness of software equipment in the Internet café; "Layout design" mainly referred to the convenience of external traffic and internal movement space; "Lighting and composition" mainly referred to the light, temperature, and overall atmosphere; "Aroma" mainly referred to the ventilation in the environment and any related odors.

4.2.2 Consumer motivation scale reliability analysis

According to exploratory factor analysis results, the sampling adequacy KMO value for this scale was 0.69 and test of sphericity chi-square value was 1410.56 ($p < 0.05$), indicating data was suitable for factor analysis (Table 3). Cumulative explanatory variability was 68.25% and overall reliability and Cronbach's α for the two sub-dimensions were all greater than 0.5; therefore, this scale is reliable. This scale had two dimensions: "Sociability" mainly referred to the Internet café as a venue that promotes interpersonal communication and activities; "Escape from society" mainly referred to the Internet café as a place where people feel happy and can relieve the stress and boredom of everyday life.

4.2.3 Consumer willingness scale reliability analysis

This scale was reorganized and given new factor names according to the factor analysis results. There was only one dimension for this scale, so that dimension was termed consumer willingness. Factor loadings for the questions were all above the 0.5 standard. Due to space limitations, only the characteristic values and cumulative explanatory variability are shown (Table 4).

Table 2: Factor analysis of environmental perceptions

Question	Equipment	Layout design	Lighting and composition	Aroma
Positioning of hardware and software within the Internet café	0.84			
Appropriateness of hardware and software configuration in the Internet café	0.81			
Explanation of hardware and software use in the Internet café	0.77			
Ampleness of space in Internet café aisles		0.54		
Unobstructed layout within the Internet café		0.66		
Ease of travel to and from the Internet café; convenient parking		0.78		
Convenience of entry into the Internet café		0.60		
Pleasant music within the Internet café		0.63		
Degree of lighting within the Internet café			0.66	
Degree of cleanliness within the Internet café			0.75	
Temperature within the Internet café			0.66	
Air odor within the Internet café				0.81
Strength of ventilation within the Internet café				0.69
Humidity within the Internet café				0.72
Cigarette odor within the Internet café				0.84
Characteristic value	3.31	3.26	2.95	2.81
Explanatory variability (%)	22.1	21.8	19.6	18.7
Cumulative explanatory variability (%)	82.18			
Reliability coefficient	0.95	0.90	0.88	0.90
Overall reliability coefficient	0.96			

Table 3: Factor analysis of consumer motivations

Question	Sociability	Escape from society
Going to Internet cafés allows me to forget about reality	0.84	
Going to Internet cafés is already a part of my life	0.82	
Going to Internet cafés provides an escape from annoyances	0.66	
My friends and I go to Internet cafés together		0.89
I don't feel lonely when I go to Internet cafés		0.99
Characteristic value	1.82	1.61
Explanatory variability (%)	36.29	32.23
Cumulative explanatory variability (%)	68.25	
Reliability coefficient	0.67	0.75
Overall reliability coefficient	0.52	

Table 4: Factor analysis of consumer willingness

Question	Consumer willingness
I am interested in the services provided by this Internet café	0.788
I think the pricing at this Internet café is reasonable	0.841
I think the positioning of hardware and software in this Internet café is appropriate	0.826
I have a need for the services provided by this Internet café	0.816
The services provided in this Internet café make me interested to learn more	0.872
The services provided in this Internet café make me want to purchase them	0.882
I am willing to become a member at this Internet café	0.731
Characteristic value	4.748
Explanatory variability (%)	67.823
Cumulative explanatory variability (%)	67.823
Reliability coefficient	0.917
Overall reliability coefficient	0.917

4.3 Environmental perception and consumer motivation

This study used regression analysis using environmental perception as the independent variable and consumer motivation as the dependent variable. Table 5 shows that overall, environmental perception and consumer motivation are significantly correlated; thus, Hypothesis 1 was correct. Further analysis indicates that only lighting and composition perception has a positive correlation with consumer motivation. In other words, the lighting brightness, cleanliness, and temperature in the Internet café have a positive impact on consumers' motivation to purchase. Also, results from regression analysis for each of the subdimensions of consumer motivation show that consumers' environmental perceptions of Internet cafés were not significantly correlated to their motivation to escape from society; however, they did have a significant positive correlation with sociability. In other words, the lighting brightness, cleanliness, and temperature in the Internet café have a positive impact on consumers' interpersonal communication and activities.

4.4 Environmental perception and consumer willingness

This study used regression analysis using environmental perception as the independent variable and consumer willingness as the dependent variable. Table 6 shows that environmental perception and consumer willingness are significantly correlated up to 61%; thus, Hypothesis 2 was correct. In other words, consumers' environmental perceptions of Internet cafés have a significant positive correlation with consumer willingness. Further analysis indicated that a better interior layout, location, and lighting and composition corresponds with a higher willingness to purchase.

Table 5: Regression analysis for environmental perception and consumer motivation

Dependant variable		Independent variable		
		Consumer motivation	Motivation to escape from society	Motivation for sociability
Environmental perception	Equipment	-0.208	-0.112	-0.177
	Layout design	-0.061	0.376	-0.405
	Lighting and composition	0.55**	0.018	0.71**
	Aroma perception	0.042	0.03	0.029
	Adjusted R ²	0.129	0.053	0.148
	F test	3.592*	1.974	4.407**

*p < 0.05 ; **p < 0.01

Table 6: Regression analysis for environmental perception and consumer willingness

Independent variable	Dependent variable	Regression analysis
	Standardized beta coefficient	
Environmental perception	Equipment	0.065
	Layout design	0.491**
	Lighting and composition	0.319*
	Aroma perception	0.106
	Adjusted R ²	57.2%
	F test	24.396**

*p < 0.05 ; **p < 0.01

4.5 Consumer motivation and consumer willingness

This study used regression analysis using consumer motivation as the independent variable and consumer willingness as the dependent variable. Table 7 shows that consumer motivation and consumer willingness are significantly correlated up to 6.1%; thus, Hypothesis 3 was correct. In other words, consumers' motivation to purchase has a significant positive correlation with consumer willingness. Further analysis indicated that Internet café consumers' interpersonal communication and activities are positively correlated with consumer willingness.

Table 7: Regression analysis for consumer motivation and consumer willingness

Independent variable	Dependent variable	Regression analysis
	Standardized beta coefficient	
Consumer motivation	Motivation for sociability	0.249*
	Motivation to escape from society	0.164
	Adjusted R ²	0.061
	F test	3.292*

*p < 0.05

5. DISCUSSION AND CONCLUSION

This study focused on Internet cafés to investigate the impact of environmental perception on consumer motivation and consumer willingness and to further understand the extent to which each potential variable in this model influences environmental perception, consumer motivation, and consumer willingness. The results obtained by this study are as follows. First, Internet café consumers' environmental perceptions were found to have a significant influence on consumer motivation, which supports Hypothesis 1. The analyses further showed that lighting and composition was the factor that most influenced consumers' motivation to purchase, especially with regards to sociability motivation. In addition, Internet café consumers' environmental perceptions were found to have a significant influence on consumer willingness, which supports Hypothesis 2. The analyses showed that interior layout and location along with lighting and composition were the factors that most influenced consumers' willingness to purchase. Lastly, consumer motivation was found to have a significant influence on consumer willingness, which supports Hypothesis 3. The analyses showed that consumers' social motivation affects their willingness to purchase. The following suggestions are proposed based on the results of this study. First, the interior environmental design of Internet cafés must consider lighting brightness,

temperature, and cleanliness, as these factors will promote social interactions between consumers, which, in turn, will increase their consumer willingness. Second, Internet cafés must be located in an area convenient for travel, and the seats and doors within a café must be designed for convenience and smooth traffic flow to help increase consumer willingness. Third, owners and operators of Internet cafés must encourage consumers' motivation to purchase, in particular by increasing their interpersonal communication and activities by various means, such as organizing team competitions or group discounts, thus raising the consumers' willingness to purchase.

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AUTHOR

Dr. Feng-Hsiang Chang is interested in exploring issues related to rural tourism and actively researching on consumer behavior and risk assessment in leisure and tourism.

Dr. Chih-Yung Tsai is working as Assistant Professor in Department of Education, University of Taipei, Taiwan. He is the corresponding author and can be contacted at: phd.cytsai@msa.hinet.net.