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The Effect of Responsible Gambling on Perceived Service Quality in Macao Casinos

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Abstract

While service quality measures how well the service delivered matches customer expectations, responsible gambling boosts social stability through harm minimization and consumer protection strategies in casino cities. In this research, we attempted to test the effect of responsible gambling on perceived service quality in the context of Macao casinos to enhance economic income as well as protect social stability. Measurement scales for the Macao casino perceived service quality would be developed via this study. SPSS 22.0 would be used for statistical analysis, and the relationships between responsible gambling and perceived service quality were explored by using different analysis methods. Based on 266 valid questionnaires collected from active casino customers in Macao, this study identified and verified the service quality model. The study constructs a causal service quality model of Macao casinos. Through the analysis of 266 valid questionnaires, the perceived service quality and responsible gaming were positively related, and the hypothesis of responsible gambling has direct positive effects on perceived service quality. Practical implications for both responsible gambling and service quality of casinos in Macao are also discussed. Results of this study would be useful to organizers or managers of casinos in Macao.

Keywords: Macao casino; perceived service quality; behavior intention; responsible gaming

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1. Introduction

Responsible gambling is a concept that gaming and gambling operators, software suppliers and associated service providers need to protect players from the adverse consequences of gaming and gambling. Responsible gambling is to reduce the harm caused by betting behavior and bring gambling to a socially acceptable level, thus responsible gambling is very important, especially true in places where the industry is based on gambling. And Macao is one of the places where the gambling industry is the main industry, thus responsible gambling is more worth exploring.

Macao SAR government, gambling counseling services and other community groups, casino operators and academia have made extensive efforts collectively since 2004 to promote responsible gambling, although not utilizing a systematic, planned approach. The Macao government has a key role in developing gaming regulations and policies, and in providing funds for the promotion of responsible gambling initiatives. In Macao, no dedicated fund has been set up to support responsible gambling programs and research. Instead, general government revenue is used for such programs. Casino operators have also made donations to fund responsible gambling. Details of government and casino funding for responsible gaming initiatives are not available to the general public.

Although research on responsible gambling has been done in the past (Heather, James, & Debi, 2021; Helen & Samantha, 2018; Alexius & Grossi, 2018; McCain, Tsai, & Bellino, 2009; Monaghan, 2009). However, limited research has explored how responsible gambling affects the perceived service quality of Macao casino consumers. Service quality is an important indicator to measure whether the service level meets customer expectations. Service quality is an important factor in hotel industry or service industry research. The casino is a special place. It has a high intensity environment. In such an environment, service quality verification research is very limited. This study aims to validate the relationship between responsible gambling and perceived service quality in the context of gambling city Macao. In addition, customer loyalty, word-of-mouth recommendation and other behaviors are the key to ensure long-term profits of enterprises. Therefore, different from past studies, this study also explored relationship among perceived service quality for casinos and behavioral intention.

Based on history and the future development plan of Macao, we identified the subject of this study -- The Effect of Responsible Gambling on Perceived Service Quality in Macao Casinos. The purpose of this study is to explore responsible gambling, perceived service quality as well as behavior intention in the casinos of Macao. The findings of the study would also provide insights of responsible gambling related to a consumer's perceived service quality through the testing of customer satisfaction. Due to Macao's casino and tourism based economy, it is necessary to analyze the experience of consumers of Macao's casinos by investigating the basic information of the guests.

2. Literature Review

2.1 Responsible Gambling in Macao

2.1.1. Definitions of Responsible Gambling

Responsible gambling is a concept that gaming and gambling operators, software suppliers and associated service providers need to uphold the highest standards to ensure a fair and safe gaming experience that protects players from the adverse consequences of gaming and gambling.

Gambling stakeholders may develop and implement strategies through legislation to reduce gambling damage. In New Zealand and Australia, the national government is responsible for the implementation of responsible gambling, while each state government has a major regulatory responsibility for gambling in its jurisdiction.

In order to ensure sustained and healthy development of the gaming industry and the prevention of problem gambling, the Office of the Secretary for Economy and Finance of the Macao Special Administrative Region commissioned the University of Macao Gambling Research in 2007 to conduct a relevant study. The research institutions referred to the advanced experience of tackling problem gambling in countries such as Canada, Australia and the United States. The research team submitted a report in 2008 to introduce the "responsible gambling" concept to the SAR Government in combination with Chinese culture and social characteristics.

According to the definition of the Macao University Gaming Institute, "responsible gambling" means that in a moderately regulated environment, the gambler's participation in the betting does not pose a threat to the well-being of himself, family, relatives, other gamblers, casino employees, or to the local and gambler's residence to bring a negative impact. In other words, "responsible gambling" is to reduce the harm caused by betting behavior and bring gambling to a socially acceptable level.

2.1.2. Objectives of Responsible Gambling

In order to give the public a clear understanding of the concept of "responsible gambling", the Gaming Inspection and Coordination Bureau of Macao SAR, together with the Social Welfare Bureau and the Macao University Gaming Research Institute have co-sponsored responsible gambling activities since 2009. These are co-organized by the Civic and Municipal Affairs Bureau and the local gaming operators. Organizers create a series of promotional activities each year to disseminate information about "responsible gambling" and "prevention problem and pathological gambling" to the people and tourists of Macao.

The main objective of "responsible gambling" is to prevent and reduce the potential risks and social problems associated with gambling activities, to prevent and mitigate the occurrence and impact of problem gambling and to assist gamblers to limit their gaming spending to affordable levels. Feng pointed out that the five principles of "responsible gambling" were included in this goal, including Harm Minimization, Informed Decision, Balanced Development Model, Shared Responsibility, and Best Practice (Feng, 2014). He said in the "Responsible Gambling Work Report (2009-2013)" that "responsible gambling" is a co-responsibility established between all related

gambling stakeholders, including government, gaming operators, problem gambling control Institutions, education and community groups, gamblers and family members, to limit the possible harm caused by the gambling behavior and operations to the socially acceptable level (Feng, 2014).

2.1.3. Responsibility of Responsible Gambling Stake-holders

A healthy development and management of problem gambling control and responsibility gaming strategy is necessary for the community. At the same time, effective responsible gaming strategies are critical to achieving the sustainable development of the gaming industry.

Hao analyzed the relationship between the betting business and the shareholders, employees, customers (gamblers), suppliers, competitors, government, civil society or community in terms of corporate social responsibility (Hao, 2011).

Macao former Chief Executive Fernando Chui specifically pointed out in his fiscal policy in 2014: "There is a need to continue to promote responsible gambling and to move slot machines out of the community, and to assist the casino in implementing the " Prevention and Control of Smoking Act. " In addition, "responsible gambling information boards not only being placed inside of six casinos, but also expanding to various types of betting stations to enhance public awareness of responsible gambling. Regarding preventing pathological gambling, we should establish a 24-hour detoxification counseling hotline and online counseling services to enable residents in need to be properly serviced. Also, we need to implement a wise financial plan to guide young people to obtain the right perspective of financial management. Lastly, we should set up a responsible gambling training course within the industry. "

In an ideal and responsible gaming industry, gamblers are responsible for their own gambling behavior and consequences; gambling operators and related service providers are responsible for their stakeholders, delivering accurate and appropriate gambling information to gamblers and their surroundings; the government is also responsible for supervision and enforcement.

Liang believed that responsible gambling stakeholders should include five groups: government, gamblers, their relatives and friends, betting operators, problem gambling prevention agencies and education and other community groups (Liang, 2015).

As the leading industry of Macao's economy, the gaming industry should take some responsibility for the healthy and stable development of Macao's economy and society. In this study, we will also include the discussion of "responsible gambling" with regard to tourists.

2.1.4. Responsibility Holders of Responsible Gambling

Government

Government needs to lead and implement the "responsible gambling" policy and guide other stakeholders to share the responsibility. For the government, the problem of gambling endangering public health. More importantly, any expansion of the issue will directly threaten the gambling industry as a whole. This is unacceptable

for governments which rely heavily on gambling for financial revenue and to promote economic development and expand employment.

Gamblers, their relatives and friends

Gamblers have the most critical role in "responsible gambling". Although other stakeholders are actively involved, gamblers are directly involved in making gambling decisions. Those with low self-control who participate excessively or uncontrollably cannot effectively reduce the negative effects of gambling.

Gambling operators

Social responsibility is an important consideration in the management of enterprises. Macao gambling enterprises must also take appropriate management measures in order to obtain a competitive advantage and realize the sustainable development of their own enterprises. Enterprises need to be fully responsible strategically, and take ethical norms and corporate social responsibility as the core values of the enterprise (Chen & Cao, 2007).

Corporate social responsibility is becoming a global expectation. In the long run, companies that are regarded as having an irresponsible attitude by society will eventually lose their power (Davis & Robert, 1966).

Macao gambling operators need to understand the risks brought by commercial gambling and the negative impact to society, and need to cooperate with the government and other stakeholders to ensure responsible gaming operations.

Problem gambling prevention agencies

The social problems brought about by the brisk development of the gambling industry caught great attention from the Macao Government. Over the years, problem gambling and pathological gambling has been added to promote responsible gambling, prevention and control.

Problem gambling prevention and control institutions play an important role in the prevention and treatment of problem gambling behavior. Meanwhile, they also provide the appropriate counseling and treatment services for those who need help.

Education and other community groups

Macao Special Administrative Region Government prohibits persons under the age of 21 from entering any casinos engaging in any betting practices in Macao. Fernando Chui also pointed out in his fiscal policy report that "it is necessary to promote the responsible gambling along with development trend of the gaming industry, further reduce the impact of problem gambling to the public and enhance the awareness of young people on problem gambling, continue to study the development of responsible gambling guidelines. " (Chui, 2011).

"Take preventive measures" is the best way to solve the problem, education and other community groups need to actively educate and publicize the right values to help citizens understand the "responsible gambling" theory. This allows them to practice better in order to build a good foundation for the implementation of "responsible gambling".

Visitors

Macao is building a world tourism and leisure center; the current responsible gaming policy is mainly focused on local residents. Government departments and non-government departments should be responsible for expansion of the scope

of responsible gambling to include visitors. In order to better fulfill its social responsibilities, the SAR should increase the promotion of tourism while investing more resources to help visitors facing problem gambling and gamblers rehabilitation. For example, make scientific and responsible long-term planning for betting, enact betting policy for tourists and strengthen cooperation with mainland government.

2.2. Perceived Service Quality

Casino gambling is an important contributor to world economies, attracting millions of visitors to destinations, which bring tourist destinations new economic development (Bilgihan, Madanoglu, & Ricci, 2016). The gaming industry continues to generate more revenue than other forms of entertainment worldwide which leads to a peaked interest in gaming research. Although there is a business boom in Asian casinos, competition is intensifying. The casino industry in Macao has exhibited robust growth over the last five years. With spectacular growth in demand since opening the market to foreign competition, executives within the Macao casino industry have focused their attention on enhancing capacity and opening new casino properties in 2013 (Kale & De, 2013). However, Macao's casino revenues have fallen steadily in recent years, the government and researchers focus their attention on tourism quality, rather than the quantity of casino (e.g. capacity). Gaming experts have argued that service quality is predictive of player loyalty and retention (Prentice, 2013; Kale & De, 2013).

Service quality have been regarded as an important factor for service or hospitality businesses. It is a vitally important measure of how the service level matches customer expectations. Very limited research is available that confirms this relationship in high-intensity contexts such as casinos (Prentice, 2014).

Service quality refers to if service results can meet standards set by customers. Understanding service quality for the gambler is extremely important for the casino industry in Macao. In this article, customer external service quality (customers) is the main focus.

Past studies have showed the relationship between social responsibility and service quality. The research from Yuen, Thai, Wong and Wang (2018) showed that corporate social responsibility is contingent on the motivation of a firm as well as its current service capability. Seo, Moon and Lee (2015) also found out a positive synergistic effect of service quality and corporate social responsibility for full-service carriers. The research from Huang, Wei, Yen, Liu and Huang (2014) showed that corporate social responsibility has a significantly positive effect on service quality.

2.2.1. Definitions of Perceived Service Quality

There are many different definitions of service quality in different research articles. The service quality was first defined by Crosby that it is equal to the result of customer expectation, he further pointed out the service quality value is obtained after the customer expects and the actually feels the service (Crosby & Free, 1979). However, Oliver thought service quality is different from satisfaction, service quality is permanent, and satisfaction is a temporary response of consumers (Oliver, 1980).

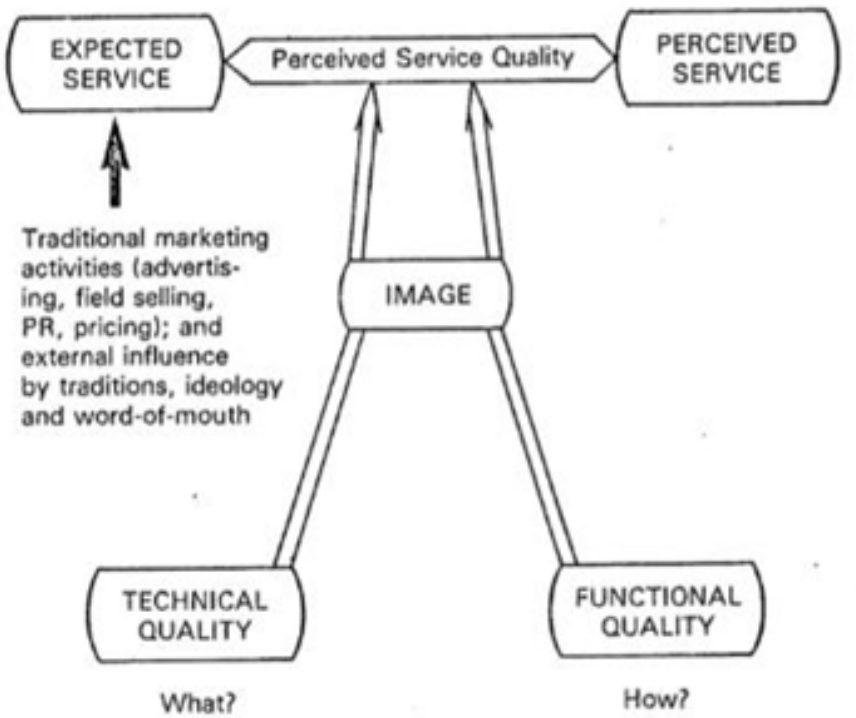
Service quality has gradually been recognized as a key factor in gaining a competitive advantage and retaining customers (Callan & Kyndt, 2001; Nasution, 2016).

Lewis & Booms considered that service quality is the degree of consistency between the actual service and expected service. That is, the consistency between the two services and the service quality as a cognitive quality, not a target quality. In other words, service quality is the subjective response of consumers to affairs, and cannot be quantified by the nature and characteristics of things (Lewis & Booms, 1983).

Grönroos thought the perceived service quality is measured by expected service and perceived service. Though he divided the quality dimension into functional quality and technical quality dimensions, the functional quality is more important than technical quality in his opinions. The two quality associated by the specific time and perceived service quality (expectations service and perceived service) (Grönroos, 1984) (Figure 1).

Parasuraman, Zeithaml and Berry thought service quality perceptions result from a comparison of consumer expectations with actual service performance and quality evaluations are not made solely on the outcome of a service. They also considered that service quality is an assessment of service "a long-term overall judgment that can be judged by attitude". Service quality is produced by consumers' expectation of service and perceived service performance. Quality is a comparison between expectations and performance

Figure 1. *The service quality model (Grönroos, 1984)*



(Parasuraman, Zeithaml, & Berry, 1985).

In 1988, Parasuraman, Zeithaml and Berry stressed service quality is the quality of service in the process of service delivery, service implementation and customer interaction. It emphasizes that service quality is defined by "customer", not by "manager" (Parasuraman, Zeithaml, & Berry, 1988).

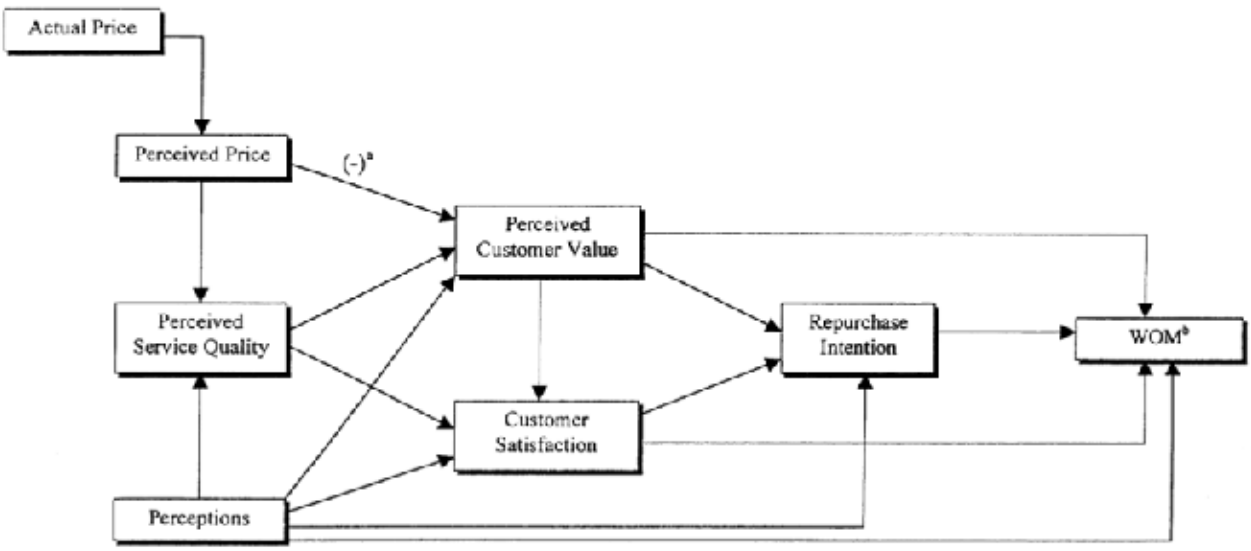
Oh developed a model to show practical validity as well as explanatory ability. He put the perceived service quality into a model of customer value, and customer satisfaction (Oh, 1999) (Figure 2).

In the service industry, the delivery of high-quality services to consumers is a key factor affecting the performance of firms. Service quality measurement has become the main subject of several empirical and conceptual studies in services marketing. The historical development of the service quality literature presents several theories and measurement scales (Akinci, Atilgan-Inan, & Aksoy, 2010).

2.2.2. Definitions of Service Quality for Casino

Researchers pointed out that casino service

Figure 2. *A proposed model of service quality, customer value, and customer satisfaction. (Oh, 1999).*



Note: Arrows indicate hypothesized causal effects.

[a] The hypothesized relationship is negative; all the other causal paths are hypothesized to be positive.

[b] Word-of-mouth communication intention.

quality exhibits a direct impact on satisfaction (Chen & Chang, 2005; Prentice, 2013b).

McCain et al. contend that quality consists of two parts: technical and functional quality. Several technical aspects of service quality were found to be important to acquire loyal customers: good location, good food specials and buffets, variety of games, better odds, preferred rules and longer time on device. Additionally, from the functional quality perspective, casino management and employees can boost customers' loyalty by demonstrating their competency in the operation and delivering what they promised to the customers (McCain, Jang, & Hu, 2005).

Through focus group interviews with different segments of gamblers, Prentice found that service quality has direct impact on gambler loyalty in Asian casino (Prentice, 2013b). Lo, Tsai, & Cheung provided insights into the relationship between service quality, customer segments and customer loyalty through interviewing casino customers of different segments based on customers' services preferences and the card segmentation system employed by the surveyed casino (Lo, Tsai, & Cheung, 2013).

Shi et al. compared casino service quality evaluations, customer satisfaction and loyalty between casino members and nonmembers, and investigated the relationships among these variables. They demonstrated that service quality has both a direct and indirect effect (via customer satisfaction) on player loyalty, particularly among player's club members (Shi, Prentice, & Wei, 2014).

Bilgihan, Madanoglu and Ricci take their cues from the Theory of Reasoned Action (TRA), service quality, and the broaden-and-build theory of positive emotions to investigate the effect of casino service attributes on gambler loyalty. They found that in the context of gambling loyalty research, service quality will positive influence return patronage (Bilgihan et al., 2016).

Based on the above literature, service quality of a casino can be defined as: customer's evaluation of the subjectivity of business after receiving the whole service process. Scholars suggested that the dimensionality of service quality may depend on the type of industry being studied (Parasuraman & Grewal, 2000). The service quality measurements of each business are different according different situations. In a casino context, we need more work on the specific situation. Therefore we need more research in the context of the Macao casino industry.

2.2.3. Measurement Model of Service Quality

Over the last 20 years, research on service quality has grown extensively and substantively. The service quality model gained a lot of attention after the controversial findings of Parasuraman et al.'s, (PZB) in 1985 (Parasuraman et al., 1985). The model looked at service quality as a comparative differentiation between the customer's perception and expectation of the service and the actual performance of the service received by the customer provided by the company at a certain period of time (Parasuraman et al., 1985). In this study, PZB developed a gap model of perceived service quality and revealed ten dimensions to measure service quality.

In a second study in 1988 of Parasuraman et al., the ten dimensions were reduced to five di-

mensions. PZB developed a 22-items questionnaire and called it the SERVQUAL model (Parasuraman et al., 1988). The SERVQUAL model has provided a comprehensive conceptualization of service quality as an instrument to measure perceived service quality. Parasuraman, Zeithaml, and Berry identified five generic dimensions that customers use as criteria in judging service quality (Parasuraman, Berry, & Zeithaml, 1991a).

- tangibles (appearance of physical components);
- reliability (dependability of service provider and accuracy of performance);
- responsiveness (promptness and helpfulness);
- assurance (knowledge and courtesy of employees and their ability to inspire trust and confidence); and
- empathy (caring, individualized attention the firm gives its customers).

Parasuraman et al. stated that the SERVQUAL measurement has more diagnostics and more than 194 practical implications than was previously thought. This is a generic model and instrument for all service encounters. In fact, a number of researchers and academics have recently studied the conceptualization and measurement approach used for developing the SERVQUAL scale in different industries (Parasuraman, Berry, & Zeithaml, 1991b).

Although the SERVQUAL model has greatly contributed to the literature on service quality, it has also been criticized. Generally, critics have questioned the multidimensional nature of the instrument, measurement scales, psychometric properties and the feasibility of SERVQUAL as a framework in measuring service quality.

Cronin and Taylor suggest that the SERVPERF scale explains more variation in service quality than does SERVQUAL and the SERVQUAL is unidimensional. They argued that using the difference score between expectation and performance in SERVQUAL may not be appropriate. They have developed a new instrument, a performance-based measure called SERVPERF, to measure service quality based only on customer's perception of performance. They give more information about (1) the causal order of the relationship between service quality and customer satisfaction and (2) the impact of service quality and customer satisfaction on purchase intentions (Cronin & Taylor, 1992).

Teas revealed that the P-E model indicates a number of problems of the conceptual and operational definitions of the expectations and the revised expectations components of the model (Teas, 1993).

Rust and Oliver and Brady and Cronin propose a three-component service quality unified model that addresses these critiques (Rust & Oliver, 1993; Brady & Cronin, 2001). The model views customers' evaluation of service quality in three aspects: service product (technical quality or outcome quality), service delivery (or functional quality), and service environment (or physical environment quality).

More recently, Lee, Wang, Chien, Wu, Lu, Tsai, and Dong developed an evaluation of service quality for the Taiwanese hotel industry from the perspective of customers, service providers

and managers. This is considerably valuable for hotel managers. They revealed 10 Gaps to measure the service quality. And they revealed that Gap 1 (management perceptions vs. customer expectations) and Gap 9 (service provider perceptions of management perceptions vs. service delivery) were more critical than the others in actual perceived service quality, making service delivery the main area for improvement (Lee, Wang, Chien, Wu, Lu, Tsai, & Dong, 2016).

Recently, SERVQUAL scale has been employed to measure system service quality in e-commerce. Most existing research on the measurement of casino service quality focuses on rewording the SERVQUAL scale. Parasuraman et al. also comment that the SERVQUAL is far from perfect as it is not general enough, but they argue that it does provide the basic skeleton for others to study service quality even though some degree of customization is probably needed. Although SERVQUAL's construct validity is being challenged, it is still the most widely used model employed to measure customer expectations and perceptions of service quality.

Whilst its impact in the service quality domain is undeniable, SERVPERF being a generic measure of service quality may not be a totally adequate instrument by which to assess the perceived quality in casino context.

2.2.4. Measurement Model of Perceived Service Quality

Quality in the context of service industries has been conceptualized differently and based on different perceptions, alternative scales have been proposed for service quality measurement (Brady, Cronin, & Brand, 2002; Cronin & Taylor, 1994; Dabholkar, Shepherd, & Thorpe, 2000; Jain & Gupta, 2004).

Although measurement of service quality has been debated extensively in the relevant literature, SERVQUAL is widely acknowledged as a valid measure across contexts. The scale is based on a gap model suggesting that service quality results from comparing customer expectation and perception of the service (Parasuraman et al., 1985). The scale involves five generic dimensions: tangibles, reliability, assurance, responsiveness and empathy and consists 44 items measuring customer expectations and perceptions. However, the original scale is rather lengthy. Researchers (Cronin & Taylor,1992; Teas, 1993; Cronin & Taylor, 1994) suggest that its 22 performance-based items are adequate to measure a firm's service quality. The performance items have been used in the context of casinos (Prentice, 2013a; Chen & Chang, 2005; Shi, Prentice, & Wei, 2014).

According to Brady and Cronin's qualitative study (Brady & Cronin, 2001), there are three aspects of functional quality perceived by customers: attitude, expertise and behavior. First, in terms of the attitudinal aspect, casino managers should educate all employees, whether they work in table games, slots or cage departments, to be friendly and courteous to the players. This is because each interaction with any casino employees is part of the players' entire casino gaming experience. Second, in the expertise aspect, a casino workers' level of knowledge about his or her job plays an important role in a customer's casino gaming experience. Third, the behavior aspect states it is essential to make players feel that they

receive special (customized) treatment because the more customized services the customers receive from the service providers, the closer relationship they will have with the service provider (Parasuraman, Berry, & Zeithaml, 1991a).

McCain et al. considered that quality consists of two parts: technical and functional quality (McCain, Jang, & Hu, 2005). Technical quality refers to the tangible aspects of the service. A high-quality casino must possess the required core product features, such as a good location, a variety of games and good restaurants (Brady & Cronin, 2001; Murgulets, Eklöf, Dukeov, & Selivanova, 2002). They insist that a casino should deliver the particular core product features (technical quality) to customers in each different segment (e.g. table-game players vs slot players). Functional quality refers to the intangible aspects of the service. It describes how the service is delivered. More specifically, it describes the interaction between employees and customers during the service encounters. According to Brady and Cronin's qualitative study (Brady & Cronin, 2001), there are three aspects of functional quality perceived by customers: attitude, expertise and behavior. The results of their study indicated that there were statistically significant differences in ten out of 16 service quality features.

Wannenburg, Drotsky, & Jager used SERVPERF measurement and included 17 items in their service quality of casino research (Wannenburg, Drotsky, & de Jager, 2009). They believed the performance-based scale SERVPERF is an improved means of measuring the service quality construct in comparison with the SERVQUAL scale.

More recently, Wong and Fong developed a scale on the basis of a casino patrons' perceptions of casino service delivery (Wong & Fong, 2012). This scale, named CASERV, was specifically designed to measure casino service quality. Though the scale development followed a rigorous psychometric process, CASERV deployed a sample with Chinese gamblers in Macao only. The authors have indicated that the scale is only generalizable to this population (Prentice, 2013). CASERV, a model by Wong and Fong to explicitly measure casino service, is a refinement of the model by Rust and Oliver (1993) and Brady and Cronin (2001) and assesses three facets of casino service offerings: game service, service environment and service delivery.

Wong and Fong (2010) attempted to validate the importance of satisfaction in casino customers' loyalty intention in the context of the Asian casino gaming service among non-VIP Chinese gamblers. The objective of their article is to examine the roles of casino service quality drivers—casino game service, service environment, and service delivery—on customer satisfaction. The current research adopts the three-component service quality model proposed by Rust and Oliver (1993) as the framework for the hypothesized research model.

In 2012, Wong and Fong developed a CASERV of the casino service quality scale for measure the service quality for casinos. CASERV include four parts, called game service, service environment, service delivery and food service. In sum, their analyses performed thus far warrants satisfactory content validity, convergent validity, discriminant validity, nomological validity,

criterion validity, and scale reliability. Furthermore, CASERV is able to explain more than 50% of customer satisfaction.

Prentice (2013) adopted (Cronin and Taylor's performance-based approach) SERVQUAL's 22 performance-based items (five dimensions stated above) to measure casino service quality, and has been applied to hospitality management research.

Lo, Tsai, and Cheung (2013) Found that tangible facilities, staff attitudes, variety of games, activities, and supporting services are important dimensions for customers in evaluating a casino's service quality. This was based on the service quality and service level literature available on casinos.

In 2014, Prentice studied service quality of casino, the CASERV (Wong & Fong, 2010) method was developed by using a sample of casino players in Macao, and was designed specifically to measure four dimensions of casino service quality (Shi, Prentice, & Wei, 2014). These were service delivery, service environment, game service and food service. However, items measuring the first two dimensions are similar to those in SERVQUAL. After deleting the repetitive items, 28 items remained to measure seven dimensions of casino service quality. These included service environment, assurance, responsiveness, reliability, responsiveness, empathy, table service and food service. The items are reworded to suit the study context. Additionally, this study used one item to measure player perception of a casino's overall service quality.

The finding that casino service quality factors generate different effects on the criteria variables supports the perspective that service quality is viewable as a multi-dimensional construct. A single dimensional approach is insufficient for assessing service quality. Additionally, the analysis of service quality and its criterion variables should incorporate customer segmentation, as the current study shows that service quality exerts different effects in customer switching behaviors among different segments (LPs, MPs, and HPs in this study). To ensure customers' loyalty and retention, casinos should look into service aspects that impact a specific segment's attitudes and behaviors.

Shi et al. (2014) adapted SERVQUAL items (1. Tangibility; 2. Reliability; 3. Responsiveness; 4. Assurance; 5. Empathy) to measure respondents' perceptions of casino service quality.

In 2014, Wu researched behavioral intentions, customer satisfaction, perceived value, corporate image and perceived service quality in a Macao casino setting. He identified the dimensions of service quality and examined the interrelationships among behavioral intentions, customer satisfaction, perceived value, corporate image and service quality in the gaming industry.

- The overall quality of the casino services is good;
- Casinos provide high quality services;
- I believe that casinos offer a service that is superior in every way.

Bilgihan, Madanoglu and Ricci (2016) used the service quality dominations from Parasuraman (1985), and researched the importance of positive emotions, ambience and staff attitude to customer loyalty. They found that casino opera-

tors should focus on service quality attributes that influence their players' intention to return. Their findings highlight the key role of emotions (feeling entertained, excited, important, and welcomed) in services.

CASERV and SERVQUAL models are the most used for finding the service quality of a casino (Prentice, 2013; Prentice, 2014; Shi et al., 2014). Although CASERV (game service, service environment, service delivery and food service) was developed in the Macao casino context, lack of emotional caring would render this model useless for most casinos service environments. These two models include the most important factors to the consumers (gamers or non-gamers) in casinos. To investigate the service quality of casino, in this research, the perceived service quality scale from Prentice (2013) is used to measure., which including CASERV and SERVQUAL methods, were adopted and reworded to suit the study context (Prentice, 2014). It including 28 items and 7 dimensions (Table 1).

Table 1 *Research process in the measurement of perceived service quality in casino: summary from literature review*

Years	Authors	Measurements	Attributes	Segments of players
2005	McCain et al.	Technical quality; functional quality	16 items	-
2009	Wannenburg et al.	SERVPERF	17 items	Demographic variables
2011	Prentice et al.	- (about employees of casino)	-	High rollers & Low-volume gamblers
2010	Wong &Fong	game service, service environment and service delivery	9 items	Region
2012	Wong &Fong	CASERV (game service, service environment, service delivery and food service)	12 items	Demographic variables
2013	Lo et al.	Tangibles, Fairness, Responsiveness, Professionalism, and Variety	18 items	Sociodemographic & Behavioral Characteristics

2013	Prentice	SERVQUAL	22 items	average betting volume, hands per-hour and frequency-of-visit
2014	Prentice	CASERV & SERVQUAL	28 items	Demographic variables
2014	Shi et al.	SERVQUAL	22items	Demographic variables
2016	Bilgihan et al.	Positive emotions, Ambience and Staff attitude	10 items	Demographic variables

2.3. Behavior Intention

Behavioral intentions have been treated as a consequent construct (Shu & Shao, 2021; Chen & Chen, 2010; Jani & Han, 2010; Clemes, Gan, & Ren, 2011), which usually leads to customer loyalty. Since customer loyalty is positively related to profitability (Bowen & Chen, 2011; Zeithaml, Berry, & Parasuraman, 1996), it is the ultimate goal in the marketing community.

The benefits of favorable behavioral intentions are fully delineated by many scholars such as Zeithaml et al. (1996) and Shoemaker and Lewis (1997), which mainly include loyalty, favorable word-of-mouth and willingness to recommend, "lifetime value", increase in profits, and reduced marketing cost. For this construct, prior studies contain dimensions such as willingness to recommend or favorable word-of-mouth, and intention to repurchase or revisit (Shu & Shao, 2021; Gallarza & Saura, 2006; Chen & Chen, 2010). Gallarza and Saura (2006) also include "same choice, given the same situation" as one of the variable for behavioral intentions. Zeithaml et al.'s (1996) 13-item scale includes five dimensions – "loyalty to company, propensity to switch, willingness to pay more, external responses to problem, and internal responses to problem". Their scale has been applied in four companies, and is found that the first dimension is more consistent than the others. The last dimension – internal responses to problem – is deleted since there is only one item and the interpretation is not clear. Focusing solely on the concept of "loyalty", Baloglu (2002) argues that "behavioral loyalty" or repeated purchase does not equal to "attitudinal loyalty". Since the customers might repeat their purchase for various reasons other than attitudinal loyalty, such as benefits derived from frequent-guest programs, convenience, and other situational factors. Therefore, Baloglu (2002) examines both attitude and behavior pertaining to the construct of customer loyalty. The behavioral variables that the author adopts include cooperation (willingness to help the company and work with it to achieve mutual goals) and word-of-mouth recommendations (promotion, positive comments and

referrals), while the attitudinal variables include trust, psychological commitment or emotional attachment, and switching cost. Baloglu's (2002) research result shows that "truly loyal customers had more trust and emotional commitment" and demonstrates that it is misleading to measure behavior only to understand customer loyalty.

Thus, behavioral intention in this research context, including loyalty, favorable word-of-mouth and willingness to recommend.

Jani and Han (2010) treat the attitude dimension of customer loyalty as two constructs between customer satisfaction and behavioral intention in their conceptual model. Their empirical study leads to a "customer satisfaction – trust – commitment –behavioral intentions" causal relationship. Jani and Han's research find a 36 highlighted influence of affect toward behavioral intentions in the restaurant setting.

2.4. Research Framework

Previous studies have shown a strong link between corporate social responsibility and service quality. Huang, Wei, Yen, Liu and Huang (2014) showed in the research on the impact of corporate social responsibility on consumer behavior that corporate social responsibility has a significant positive impact on service quality. Especially in the service industry, excellent corporate social responsibility activities will show better service quality (Kim, Keun, Lim and Chang, 2011). Service quality is also an important factor in predicting consumer behavioral intentions. In a casino environment, service quality can be used to predict player loyalty and retention (Prentice, 2013; kale & De, 2013).

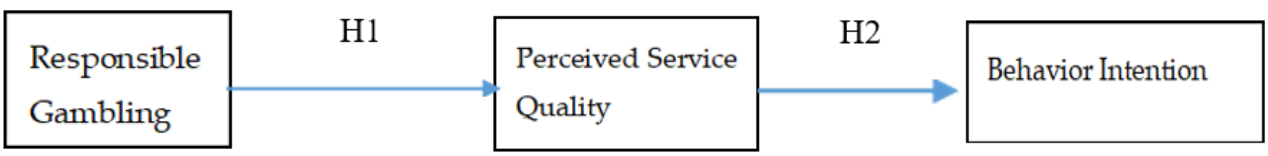
On this basis, this study proposes a conceptual framework that includes responsible gambling policy, perceived service quality, behavior intention (loyalty, favorable word-of-mouth and willingness to recommend). This conceptual framework demonstrates how the promotion and implementation of responsible gaming policies in a casino environment affects the quality of casino service and the behavioral intentions of players. This model is different from the previous research. It is applied in the casino service environment, and adds the consideration of emotional care.

Based on the extensive literature review, a theoretical framework was constructed and proposed accordingly (figure 3). The hypothesis are made as follows.

Hypothesis 1: Responsible gambling has positive effect on Perceived service quality

Hypothesis 2: Perceived service quality has positive effect on Behavior Intention.

Figure 3. *Proposed Conceptual Framework*



3. Research Methodology

This study went through two stages: scale development and main survey. Both qualitative and quantitative research methodologies were used. In the first stage, tourists perceived authenticity is identified and explored by conducting relevant literature and in-depth interviews. A pilot test was conducted to assess the reliability and validity of all the constructs. In the second stage, surveys were conducted to collect empirical data. All question items are measured by a 5-point Likert-type scale from "strongly disagree (=1)" to "strongly agree (=5)" . An exploratory factor analysis (EFA) was performed to reduce items and to determine the dimensions. Confirmatory factor analysis (CFA) was then conducted to test the goodness of fit of each measurement model and consolidate the theorized relationships among variables. This was followed by the application of correlation analysis to hypothesized relationships between the constructs and the overall validity of the proposed conceptual model. Perceived service quality was measured using 28 items from Prentice (2014). Responsible gaming was derived with 5 items from Lee, C. K et al. (2013). Finally, behavior intention was assessed using three items from Zeithaml et al. (1996) and Back, Lee & Stinchfield (2011). Data collection was performed in casinos of Macao and surveys were distributed to active gamblers who must participate gambling within 12 months in Macao. 328 questionnaires were collected and 266 usable responses were obtained after incomplete submissions excluded.

4. Data Analysis and Results

4.1. Demographic Background of Sample

Table 2 presents the demographic characteristics of the samples who visited a Macao casino and gambled. In Table 2, the descriptive statistical analysis of the individual characteristics (gender, age, occupation, personal monthly income) and the Gambling Behavior Characters of Sample (number of gambling, kind of gambling and betting amount) are shown in the following tables.

There were more males (67.3%) than females (32.7%), and the majority of the respondents were between the ages of 21-30 (63.2%), with 1.9 % at the ages of 61 or older. A little more than half of the sample had annual personal monthly income of $10,001 or more, and yet, the income category of $30,001 or more had 12% compared to the other income categories. In terms of occu-

Table 2 *Demographic Characteristics of the Sample*

Variable	Category	Frequency	Percent (%)
Gender	Male	179	67.3
	Female	87	32.7
Age	21-30	168	63.2
	31-40	58	21.8
	41-50	26	9.8
	51-60	9	3.4
	61 or older	5	1.9

Occupational	Student	57	21.4
	Professional (legal, accounting, etc.)	35	13.2
	Tradesperson	67	25.2
	Retired	3	1.1
	Unemployed	18	6.8
	Clerical	17	6.4
	Homemaker	2	0.8
	Labor	16	6
	Others (please specify)	51	19.2
Personal monthly income	10,000 or below	120	45.1
	10,000-20,000	86	32.3
	20,001-30,000	28	10.5
	30,001 or above	32	12

pational, 25.2% were trades-person, followed by others (19.2%), unemployed (6.8), clerical (6.4%) and labor (6%).

Table 3 presents the gambling behavior characteristics of the sample. There are 51.5% who participated in gambling activities in their first time, which is the largest group, followed by 2-5times which is 34.2%. Most of the sample tended to participate in table-game play (50.8%). These participants usually bet 1,000 or below in gambling, and only a few of them could bet 10,001 or above in gambling one time in a casino.

In this analysis of gamblers' behavior, most of the participants were in their first time participating in gambling activities. And most of these samples play the table-game, and they always play low amounts of money, most (75.9%) of them bet below 5,000 HK.

Table 3 *Gambling behavior Characters of Sample*

Variable	Category	Frequency	Percent (%)
Number of gambling	once	137	51.5
	2-5times	91	34.2
	6-10times	15	5.6
	10 times above	23	8.6
Age	Slot play	41	15.4
	Table-game play	135	50.8
	Electronic table games	40	15
	All above	50	18.8
	1,000 or below	120	45.1
	1,000-5,000	82	30.8
Bet amount	5,001-10,000	42	15.8
	10,001 or above	22	8.3
	10,001 or above	22	8.3

4.2. Description Analysis of Measurements

From the table 4 above, the 42 topics of data in the questionnaires included statistical analysis of the results, including the number of cases, mean, standard deviation, skewness, kurtosis and factor loadings to obtain the information to verify whether the information obeys a normal distribution. Whether the data obey a normal distribution will have a critical impact on the subsequent analysis, Kline purposed that, when the skewness of the absolute value of less than 3, the absolute value of kurtosis is less than 10, the results showed that the sample basically obeyed a normal distribution (Kline, 2005). The table shows the formal sample ranged from 2.58 to 4.07 between each subject, the standard deviation between 1.042 to 1.457, ranging from -1.059 to 0.241 skewness, kurtosis ranged from -1.33 to 0.83, skewness and kurtosis can satisfy the conditions of normal distribution, indicating that these 42 problems can be subject to a normal distribution. The data collected by the questionnaires can be used for statistical analysis of the reliability and validity of the following data. The selected representative good, factor loadings of each measurement items were higher than 0.5. Each item falls into the corresponding factors, indicating that the scale has good construct validity, so keep all measurement topics for further analysis.

According to the Table 5 , all the values are

Table 4 *Description Analysis of Measurements and factor loading*

Survey Items	Mean	S.D.	Skewness	Kurtosis	Factor loading
SEM1 The atmosphere of casino is comfort and exciting.	3.48	1.137	-.242	-.805	.802
SEM2 The casino's physical facilities are visually appealing.	3.55	1.188	-.403	-.800	.782
SEM3 The casino's appearance of personnel are visually appealing.	3.40	1.105	-.416	-.462	.624
SEM4 Other customers in the casino are usually polite and behaving.	3.39	1.066	-.352	-.421	.621
SEM5 Materials associated with the service such as decor and layout are visually appealing and stylish.	3.65	1.163	-.608	-.503	.614
SEM6 The casino's signage and direction are effective.	3.59	1.235	-.581	-.616	.553
R1 Casino shows a sincere interest in solving problem for you.	3.55	1.102	-.269	-.781	.680

R2 The casino performs the service right the first time.	3.57	1.148	-.438	-.643	.681
R3 The casino provides its services it has promised.	3.50	1.170	-.499	-.533	.656
R4 The casino insists on error-free records.	3.56	1.142	-.486	-.557	.342
RM1 Employees of the casino give your prompt service.	3.58	1.164	-.461	-.697	.808
RM2 Employees of the casino are always willing to help you.	3.57	1.123	-.376	-.710	.397
AM1 The behavior of employees instills confidence in customers.	3.44	1.079	-.431	-.347	.610
AM2 You feel safe in your transactions with the casino.	3.76	1.097	-.556	-.620	.451
AM3 Employees of the casino are consistently courteous with you.	3.74	1.073	-.723	.049	.710
AM4 Employees of the casino have knowledge to answer questions.	3.65	1.048	-.404	-.490	.707
EM1 The casino gives you individual attention	3.14	1.170	-.132	-.704	.685
EM2 The casino has convenient operating hours	3.72	1.222	-.656	-.536	.111
EM3 The casino has employees who give your personal attention	3.32	1.221	-.307	-.813	.752
EM4 Employees of the casino understand your specific needs	3.28	1.234	-.260	-.844	.751
FSM1 The casino offers a variety of food and beverage	3.32	1.225	-.342	-.803	.675
FSM2 The price of food and beverage is reasonable	3.25	1.113	-.296	-.428	.615
FSM3 The quality of food and beverage is excellent	3.36	1.142	-.199	-.696	.620
GSM1 The casino has sufficient number of table games available	3.80	1.157	-.759	-.216	.689

GSM2 The casino has sufficient number of slot machines available	3.91	1.080	-.823	.028	.595
GSM3 The casino provides variety of games	3.76	1.146	-.692	-.356	.689
GSM4 The dealers of casino provide polite and friendly.	3.69	1.154	-.624	-.455	.569
GSM5 The dealers of casino service efficient and accurate.	3.83	1.131	-.870	.083	.499
RG1 Casino requests visitors show identification to exclude minors and other restricted persons	2.93	1.439	.050	-1.258	.092
RG2 Casino publicizes dangers to society from problem gambling	2.83	1.309	.171	-1.038	-.635
RG3 Casino provides treatment programs for problem gamblers and their families.	2.68	1.318	.225	-1.100	-.822
RG4 Casino supports rehabilitation programs for problem gamblers	2.58	1.327	.241	-1.183	-.830
RG5 Casino supports research activities associated with prevention of problem gambling.	2.74	1.457	.201	-1.330	-.836
BI1 Gamblers' recommendations	3.62	1.107	-.366	-.662	.573
BI2 Gamblers' repeat patronage	3.50	1.058	-.424	-.328	.823
BI3 Gamblers' desire to stay	3.63	1.042	-.454	-.531	.513

SEM=service environment; BI=behavior intention; R=reliability; RM=responsiveness; AM=assurance; EM=empathy; FSM=food service; GSM=gaming service; RG=responsible gambling

above the minimum criterion (Cronbach's Alpha > 0.7, CR > 0.7, AVE > 0.4), Average Variance Extracted (AVE) is higher than 0.5 but we can accept 0.4. Because Fornell and Larcker said that if AVE is less than 0.5, but composite reliability is higher than 0.6, the convergent validity of the construct is still adequate (Fornell & Larcker, 1981; Lam, 2012), so the data has adequate reliability and a good convergent validity. Table5 also shows the correlation matrix, and that the square-root of each construct's AVE is greater than the correlations with other latent constructs, so the model meets discriminant validity criteria (Table 5).

Table 5 *Reliability, validity and latent variable correlations*

	Cronbach's Alpha	CR	AVE	SEM	R	RM	AM	EM	FSM	GSM	RG	BI
SEM	0.836	0.827	0.446	0.675								
R	0.854	0.812	0.520	0.61	0.576							
RM	0.790	0.805	0.674	0.337	0.377	0.485						
AM	0.846	0.806	0.510	0.61	0.613	0.434	0.628					
EM	0.848	0.871	0.630	0.412	0.424	0.306	0.511	0.454				
FSM	0.710	0.771	0.530	0.424	0.401	0.298	0.469	0.407	0.639			
GSM	0.813	0.824	0.484	0.61	0.572	0.363	0.589	0.329	0.362	0.616		
RG	0.918	0.940	0.758	0.165	0.194	0.195	0.197	0.176	0.26	0.112	0.708	
BI	0.786	0.875	0.701	0.294	0.325	0.228	0.364	0.343	0.302	0.259	0.194	0.642

4.3. Validity Analysis

Validity Analysis is an important part of empirical analysis. Normally, researchers do not have enough time or resources to develop new measurement tools. Therefore, in order to save time and cost, researchers will refer to existing measurement tools such as questionnaires. The use of existing measurement tools can help to find out whether the same measurement tool is compatible across different research. It is therefore important to test the measurement tool for the effective and accurate application and interpretation of the currently studied object.

The exploratory factor analysis was performed using SPSS22.0. The scale was subjected to KMO and Bartlett's spherical test. The results are shown in the following table 6.

From the above table 6, we known KMO=0.888(>0.7), Bartlett's test value is significant (Sig.<0.001), indicating that the questionnaires' data meet the premise requirements of factor analysis. In this study, the principal component analysis was used to extract the factor and the maximum variation axis method to estimate the load of the factors. The factor of root was greater than 1, and the extraction principle was used for factor analysis to obtain the following table 7.

Table 6 *KMO and Bartlett's Test*

Kaiser-Meyer-Olkin Metrics for Sampling Sufficiency		.888
Bartlett's test	Approximate chi-square	947.343
	df	10
	Sig.	.000

From the table 7 we can see that the factor analysis results for a total of 1 factor, explained the total capacity reached 75.716%, more than 50%, this factor indicates the selected representative good load factors, each measurement item was greater than 0.5, and the cross loads were less than 0.4. Each question and the corresponding factors showed that the scale has good reliability and validity, so we kept all measurement topics for further analysis.

Table 7 *Responsible Gambling Factor Analysis Results*

Measurements	Component Responsible Gambling
RG3	0.908
RG4	0.887
RG2	0.877
RG5	0.875
RG1	0.801
characteristic value	3.786
Explain variance (%)	75.716
Cumulative explanatory variance (%)	75.716

4.4. Correlation Analysis

As shown in the above table 8 above, perceived service quality and responsible gaming ($r=0.475$, $p<0.01$) were positively related. Responsible gambling has direct positive effects on perceived service quality. In the meanwhile, perceived service quality positively impacts the behavior intention.

Table 8 *Correlation Analysis*

	Mean	Standard deviation	Perceived service quality	Responsible gambling	Behavioral Intention
Perceived service quality	3.5360	.64873	1		
Responsible gambling	2.7511	1.18997	.475**	1	
Behavioral Intention	3.2320	1.2467	.523**		1

**. Correlation is significant at the 0.01 level (2-tailed).

5.Discussion

This study constructed a conceptual model of responsibility gambling. This model connect the gambling company and gambling tourists, shows the relationship between responsibility gambling, per-

ceived service quality and behavior intention. In addition, responsibility gambling is validated as one of factors that influence perceived service quality. And the relationship among perceived service quality and behavior intention is validated under the context of gambling.

6. Conclusion and Suggestion

Through summarizing previous research results, we found that although some scholars have studied service quality as it relates to Macao casinos, few had related responsible gambling to service quality. This research based on previous studies, intended to study the connection of service quality and the responsible gambling in Macao casinos in order to make up this research gap.

A combination of quantitative and qualitative methods were used to do this research. The expert interview and 266 questionnaires have been used to test the hypothesis. The connection and interaction between perceived service quality and responsible gaming are applicable in the Macao casino context. The findings of analysis show that perceived service quality and responsible gaming have implications for the success of the casino industry. These findings could be useful to establish responsible gaming strategies. These strategies would improve service quality without reducing a gamblers' enthusiasm.

The thesis mainly discusses the relationship between responsible gambling and the quality of service in the gambling industry, and draws a highly positively correlation between them. The relationship between responsible gambling and quality of service in the gambling industry is related to the interaction between public policy and the development of the industry. For Macao, it affects the overall layout of economic and social development which is quite a critical policy issue related to social governance. The greatest significance of our research is to actively provide recommendations to policy makers in charge of responsible gambling, especially the government and industry associations. This initiative strengthens the discussion on policy connotation, implementation and effectiveness of responsible gambling with industry service providers. It also aids in monitoring, evaluating and improving various issues in the implementation of relevant policies.

First and foremost, the government and relevant departments should recognize the hazards of addictive gambling on public health, strengthen market supervision of the gambling industry, continue to lead and implement policies for responsible gambling, perfect relevant legal systems and guide other stakeholders to share responsibility. It is suggested that the Macao SAR Government should further strengthen the publicity and promotion of responsible gambling at this stage, expand the scope of publicity and strengthen the publicity of responsible gambling to Macao residents and visitors. For example, each gambling company is required to install a TV screen in a smoking room of the casino to broadcast responsible gambling messages. In addition, the construction of responsible gambling kiosks should be expanded. In addition to being placed in casinos, kiosks should be added to areas surrounding casinos as well as areas that are very densely populated. They should also build various types of gambling stations to enhance the city residents and visitors awareness of responsible

gambling. For the prevention and treatment of addictive or problem gambling, we should increase the publicity of responsible gambling for tourists, invest more resources to help in the rehabilitation of compulsive gambling, and reduce addictive gambling. For example, formulate a scientific medium or long term plan for responsible gambling, formulate a responsible gambling policy for tourists and strengthen the cooperation with the mainland.

Social responsibility of enterprises is becoming a global expectation. Social responsibility is an important area in the management of a company. To make Macao's gambling companies healthy and sustainable, to maintain a high level of competitiveness and to enhance the customer satisfaction, it is necessary to formulate corresponding management strategies for social responsibility. This helps to identify the risks and negative social impacts of commercial gambling. It also allows for coordination with the government and other stakeholders to carry out a responsible gambling policy.

Finally, the development of youth is closely related to the future of our society, and prevention is the best way to improve a situation. Therefore, the participation of education and other relevant social groups must be vigorously exerted. The government's academic institutions and voluntary associations should work closely together to actively promote responsible gambling and the education of safe gambling habits. They must strive to reduce the negative impact of the gambling industry. In order to improve the quality of healthy and normal operations of the gambling industry, the academic community should continue to study the development of responsible gambling. They also must provide ideas to help the government and enterprises expand the promotion and training of responsible gambling and improve the legal system. Colleges and universities should also actively take advantage of talents, improve the specialized training certificate courses for responsible gambling and cultivate the skills required for a more responsible gambling industry.

7. Limitations and future research

The limitations of this study have the potential opportunities for future research. Firstly, this study did not assess the differences of group based on social demographic characteristics. However, the effect of social demographics has been validated in past studies. Social demographics define cognitive, effective, behavioral and responses of consumers (Wolin & Korgaonkar, 2003). For example, in the tourism context, Wei and Tasci (2017) showed differences based on gender in emotion-based and logic-based decisions making. Therefore, focus on social demographic characteristics need to be validated in future research. Secondly, due to time constraints, the effect of perceived service quality as a mediator was not thoroughly explored in this research. Future studies can be devoted to this aspect. Finally, due to the influence of external factors such as COVID-19, the research area of this survey is limited. Future studies can expand the research scope to better prove the applicability of the model of this research.

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