

An Observation Study of Chinese Baccarat Players

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Abstract

The Chinese gaming market, Macau in particular, is one of the biggest opportunities in the world today. Many industry observers have reported a clear interest among Chinese in playing baccarat. Together, VIP and non-VIP baccarat accounted for as much as 85% of Macau's 2005 gross casino gaming revenue. This paper documented and examined the psychology of Chinese baccarat players through a 'non-participatory' observation study. The study discovered some peculiar behaviors about these Chinese gamblers that included a display of high illusion of control. Chinese baccarat players appeared to derive monetary, excitement, entertainment and social values from baccarat gaming. The results of this study would have significant implications to casino operators and game manufacturers.

Key words: baccarat, Macau, social behavior

Introduction

The very first accounts of human gambling were recorded in China. Keno, a form of gambling product, was played in China since 3,000 years ago (Access Asia Limited, 2002). Gambling was very popular in ancient China and throughout Chinese history despite under strict regulatory controls and, sometimes banned (Ge, 2004). Today, social gambling in the form of mahjong and card playing (c.f. Home Affairs Bureau, 2002) is common among mainland and overseas Chinese (Sweets, 2002). Government-approved lottery games are also available to 95% of China's cities and counties, with a forecasted annual ticket sales approaching US\$20 billion by 2006 (Access Asia Limited, 2002). Legal racetrack (i.e. horse and dog) betting is available in Hong Kong and Macau. Macau, the only place in China where casino gaming is legally available, is perhaps one of the best gaming opportunities in the world today, expected to rival Las Vegas as the world's biggest casino gaming city within the next one to two years. By the end of 2005, Macau's casino (games of fortune) gross revenue had reached US\$5.59 billion (Gaming Inspection and Coordination Bureau, 2005). As of January 2006, there are 18 casinos in Macau.

In 2005, there were 3,421 slots versus 1,388 tables (ratio of 2.5) in Macau (Gaming Inspection and Coordination Bureau, 2005). In term of revenue contribution, Macau casinos' slot revenue represented only 2.7% of their 2005 total gaming revenue. In contrast, the slot-to-table ratio of Las Vegas Strip was 19.8:1 (i.e. 19.8 slots to one table) and that of Nevada State was 30.4:1 in November 2005 (Nevada Gaming Commission and State Gaming Control Board, 2005). Comparatively, Australia's casino market in 2003/2004 had a slot-to-table ratio of 10.7:1 (Australian Casino Association, 2005). In Malaysia, it was a 7.4:1 split (Casinocity, 2005). Many industry observers have reported a clear interest among Chinese in table games, baccarat in particular (e.g. Miller, 2005). Hype (1987) reported Chinese casino gamblers' preference in baccarat in his Wall Street Journal's article almost 20 years ago. From 1977 to 1985, Macau's casino gross revenue for baccarat game grew from 37% to 65% (c.f. Leong, 2002). In 2005, VIP baccarat

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accounted for 63% of Macau's total casino gaming revenue and non-VIP baccarat accounted for another 22% (Gaming Inspection and Coordination Bureau, 2005). Macau's non-VIP baccarat, being the highest earner on the floor for the mass market, registered a 77% jump in gross revenue from 2004.

Why are Chinese so obsessed with the baccarat game? Despite numerous studies on gambling in the western countries, few researchers examine Chinese gambling behavior and motivations. This paper attempts to fill this gap by examining how Chinese behave during baccarat gaming. It reports the findings of an observation study on Chinese baccarat players' verbal and behavioral mannerisms during gaming. It is important to note that this is an exploratory study and is undertaken in a qualitative manner. It is the purpose of this study to document Chinese baccarat gaming behavior. Ultimately, the results of this study would help casino operators and game manufacturers to gain a better understanding of Chinese casino gaming psychology and serve as a foundation for future quantitative research.

Baccarat in Macau

So, what is baccarat? Baccarat is a traditional Italian card game (of chance), where 'baccarat' means zero (Hashimoto et al., 1998). Around 1490 A.D., baccarat was introduced into France and became a popular game in public casinos by 1830 (Thorp & Walden, 1966). Since 1958, a few casinos in Nevada started to offer chemin-de-fer – a form of baccarat derived from France (Thorp & Walden, 1966; See also Downton & Lockwood, 1975).

Baccarat was introduced into Macau's casinos by Sociedade de Turismo e Diversões de Macao (STDM), the sole casino concessionaire in Macau for more than 40 years before the recent gaming liberalization. For 20 years after the opening of STDM's first casino in 1962, more than 10 games (including baccarat) were authorized to be played in Macau's casinos (Gaming Inspection and Coordination Bureau, 2005). During this period, baccarat became a popular game for many Chinese. Today, there are numerous types of table games offered in Macau's 18 casinos, which include poker, Sic Bo, baccarat, roulette, black jack, and Fantan. Baccarat is, by far, the most popular game available to Chinese casino players in Macau and accounts for 85% of Macau's gross casino gaming revenue.

In baccarat, players bet on two hands: the 'Player' or the 'Banker'. Because players in baccarat can choose to be the 'Banker' or the 'Player', it is often perceived to be the fairness game (Leong, 2002). The aim of the game is to assemble a hand of two or three cards with a total sum of nine (Reith, 2002). The perfect hand is one that totals nine in the first two cards. If 'Player' or 'Banker' hand has a natural eight or nine, the other may not draw a third card. In a tie, bets are called off. In Macau, players can bet on tie and pair on either hand. Ten, Jack, Queen and King cards are 'baccarat', synonymous to zero. The ace is counted as one, while cards two to nine retain their face value. If a hand's total is a double figure, the first figure will be ignored. Thus, a hand totaling 19 would count as nine. Baccarat is known to have a low house edge. The house edge for 'Player' is approximately 1.36%, versus 1.17% for 'Banker' (Hashimoto et al., 1998). The next section examines the various gambling motivations of Chinese gamblers.

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Chinese Gambling Motivations and Hypotheses

Gambling embraces the essence of risk taking (Bernstein, 1996) in exchange for something of greater value (Abbott & Volberg, 2000). Humans may derive excitement, entertainment, monetary, and social values from participating in gambling activities. According to numerous accounts, the wagering of games of chance was founded around the period of Xia (2000-1500 B.C.) and Shang (1700-1027 B.C.) dynasties in China (Ge, 2004; Lam, 2004). Chinese appear to be motivated to play table games for various reasons.

A study commissioned by Hong Kong Home Affairs Bureau in 2001 found that an overwhelming 87% of Hong Kong residents who made bets in Macau's casinos regarded casino gambling as exciting. Gambling is an absorbing experience in which gamblers become so deeply occupied in their games that they lose track of their playing time (Titz, Andrus, & Miller, 2001). According to Titz, Andrus, & Miller (2001), casino gamblers derived excitement from rolling dice and often fantasized about what to do with the money if they win. Walker (1992) postulates that gambling is exciting and some individuals gamble to increase emotional arousal. This happens when gamblers are 'under-aroused' (i.e., bored), which acts as a strong intrinsic motivational force that may result in them gambling despite losses. Hence, Walker (1992) suggests that heavy gamblers are likely to be more 'under-aroused' compared to light gamblers. Various researchers share this view and link sensational seeking to gambling (Conventry & Hudson, 2001; Conventry & Brown, 1993; Dickerson, Hinchy, & Fabre, 1987; Anderson & Brown, 1984). According to Zuckerman (1979, p. 10), sensational seeking is the "need for varied, novel, and complex sensations and experiences, and the willingness to take

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physical and social risks for the sake of such experience". So, do Chinese baccarat players derive the same type of excitement when feeling their cards as their fellow casino gamblers who are rolling dice? One would certainly hypothesize that these Chinese baccarat players do derive much excitement from playing their games.

Gambling is also a major form of entertainment among the Chinese. According to the play theory, the need to play is derived from a basic human drive and gambling provides a chance for humans to fulfill such need (Aasved, 2003). Gambling induces pleasure and even enhances self-esteem (Cotte, 1997). It is a way of relaxation (Brown, 1986) and offers amusement as well as a chance for people to escape from their daily lives (Aasved, 2003). As they gain entertainment value, people may gamble despite losses. In a survey on the general gambling attitudes and behavior of Macau's residents, Kwan (2004) found the top reason for gambling among respondents was for entertainment. While 92% of these respondents generally did not gamble in casinos (in fact, the most popular games cited were mahjong, lottery and soccer betting), the survey did support the hypothesis that many Chinese gamble for entertainment value. Hence, one would hypothesize that Chinese baccarat players gamble for fun.

Many Chinese gamble for financial reasons and hence, to win (c.f., Access Asia Limited, 2002). Gambling reflects 'human desires to get something for nothing and to get rich quick' (Aasved, 2003, p. 36). According to economic perspectives of gambling, individuals are hypothesized to be motivated to gamble purely because of the chance to acquire money despite risks (e.g. Walker, 1992). Traditionally, wealth and fame have been treated by the Chinese as collective representations of a person's achievement, deserving of ancestral glorification (Yu, 1996). In the past 25 years, China's economy has been growing at an average better than 9% per annum (Anonymous, 2004). The road to prosperity has fueled the desire for the Chinese to pursue quick individual wealth, which at the same time created an unequal distribution of wealth (Tse, 1996). The potential for earning quick wealth may explain why Chinese engage in gambling activities (Ozorio & Fong, 2004). Gambling is seen as a shortcut to financial achievement for many Chinese. Chinese's desire to win and gain quick wealth means that many would go for games that offer the highest perceived probability of winning. Hence, one would expect Chinese baccarat players to exhibit a strong desire to gamble to win despite taking high monetary risks.

According to Rogers (1998), some gambling activities such as card games have social elements in them. These games are seen as a way to socialize with other people (Home Affairs Bureau, 2002; Aasved, 2003). In these activities, people derive gambling pleasure not just from the excitement of gambling but also from their interactions with the dealers and with other gamblers. According to Walker (1992), people gamble in order

to be in the company of others, either socially or officially. Socialization is a major reason why people gamble and represents a form of reward from persistence gambling, which may exceed the economic value of gambling (Aasved, 2003). As a collectivistic society in which group bonding is stressed over individualistic behavior (Yu, 1999), many Chinese consider gambling (i.e., card games and mahjong) in friends or relatives' homes an acceptable form of social activity. Gambling is, historically, performed as a form of social activity among the Chinese and has become a form of *'habit'* for many of them. The social reward of gambling, hence, may be seen as an important factor for some Chinese gamblers. In fact, a survey by Hong Kong Home Affairs Bureau (2001) found that about 19% of Hong Kong Chinese respondents saw casino gaming as a form of social activity. This finding would support a hypothesis that some Chinese baccarat players gamble because of social reasons.

Many researchers postulate that Chinese gamblers believe that their luck and skills can help them to win (e.g. Ozorio & Fong, 2004). According to Ladouceur and Walker (1996), many gamblers often behave as if they can control the outcome of gambling events. These beliefs or illusions of control are commonly portrayed in successful Chinese gambling television series and movies since the early 1980s such as *The Shell Game*, *God of Gamblers*, *Casino Raiders*, *Conman*, and *All for the Winner*, where the actors used their gambling skills and wit to beat their opponents (c.f., Nepstad, 2000). According to a study by Pitta, Fung, and Isberg (1999), Chinese believe that success in businesses depends on several factors namely, (1) fate, (2) luck, (3) feng shui, (4) accumulation of good deeds, and (5) knowledge (ranked according to level of importance). Business knowledge is deemed to be the least importance of all, while the first three factors (i.e. fate, luck and feng shui) may aggravate a Chinese's illusion of control on events. Chinese have also demonstrated unique characteristics in their decision making that may explain their high illusion of control. Past research has found that Chinese showed a lack of concern for uncertainty (Pollock & Chen, 1986) and used their intuition extensively when making decisions. Research conducted by Yates et al. (1989) on mainland Chinese and American subjects, which was also supported by Wright and Philips (1980), found that the Chinese subjects were significantly overconfident in their judgment compared to the American subjects. Such a key difference was proposed to be a result of differences in adopted learning techniques. Americans were taught to adopt 'critical thinking' and challenge the validity of ideas and statements. Chinese subjects, influenced by Confucian philosophy for centuries, were taught to accept 'facts' and adhere to 'ideals' (Yates & Lee, 1996). Relating all these findings to Chinese gambling, these unique characteristics of the Chinese were likely to aggravate Chinese's illusion of control in situations of gambling. A person's perceived control over an event is positively associated to his or her appetite for risk (Wehrung et al., 1990). Higher perceived (or illusion of) control would increase risk appetite and, hence, fuel more gambling among Chinese. Hence, one would speculate that Chinese baccarat players have a high illusion of control that would fuel an observable high risk-taking appetite.

Based on the review on previous research, one would speculate that Chinese baccarat players were motivated by monetary, entertainment, excitement and social elements of the game. At the same time, they would demonstrate high illusion of control. The next section details the research methodology designed to explore the behavior of Chinese baccarat players.

Research Methodology

In order to gain a better understanding of Chinese gamblers, an observation study was conducted with at least 45 hours of 'non-participatory' observation on Chinese baccarat players in a naturalistic environment - a casino in Macau. This study was purely exploratory in nature. A 'non-participatory' observation is non-intrusive and provides a third-party objective investigation of the phenomenon in a naturalistic setting (Singleton, 1988; Berg, 2001). Hence, players were unaware that their behaviors were

under-examination. Moreover, these players were investigated in an actual gaming situation – hence, the real setting. Since the observation was conducted in a public area, there was no personal privacy concern. As players were less likely, or perhaps, not capable of providing complete information about their gaming behavior or habit, a ‘non-participatory’ observation method was deemed suitable given the exploratory nature of this study.

The study was conducted for 15 days or periods (consecutively) in the months of December 2005 and early January 2006, with three to four hours of observation a day. Around 10 tables were covered each day. During the study period, the researcher observed tables with minimum bets of HKD 300, 500 and 1,000 (USD 1 = HKD 7.78) based on a 40%-40%-20% split. The decision to follow this split was based on prior observation that tables with minimum bets of HKD 300 and HKD 500 were most popular among Chinese gamblers in the chosen casino. Notes were made and recorded in an audio recorder outside the casino almost immediately after each observation period.

In total, the researcher estimated an observation of at least 1,300 baccarat sitting

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players as most, if not all, of the tables observed were fully occupied by players – meaning tables with 9 sitting players. This figure did not include the non-sitting players, which often made up more than 50% (estimated) of the total number of players on these observed tables during the study period. Assuming for every non-sitting player there were two sitting players, the actual number of players observed would exceed 2,000. Approximately one third, or 3 out of 9, of the observed sitting players on each baccarat table were female.

The hours spent observing each table varied according to circumstances. A deliberate attempt was made to observe the ‘hot’ tables (i.e. tables that were crowded and noisy) first and then move on to the more quiet ones. A typical ‘hot’ table observation would take around half-an-hour and at least five hands of betting.

Research Results

A number of interesting behaviors were observed and recorded during the study. The observed behaviors included players’ (sitting and non-sitting) card reading, betting, and social behavior (physical and verbal) on the tables. The next section describes these observed behaviors.

Card Reading Behavior

When reading cards, Chinese players peeled their cards one at a time to reveal the card patterns. Often, they peeled the longer side of the card first, moved to the width and then back again. As a result, the cards were sometimes badly folded. This card reading behavior was almost a ritual and was observed of all the players covered in this study. The card-peeling action was often accompanied by some verbal reiterations from the player (s) peeling the cards as well as those who bet on the same side as him or her.

Depending on the contexts, a number of frequently-seen verbal actions were performed by these Chinese baccarat players. For example,

1. Players shouted ‘deng’ in Cantonese or ‘ding’ in Mandarin when peeling cards to stop ‘bad’ cards from appearing. One should be careful with the number of times that ‘deng’ is shouted since it can affect the number obtained. Hence, one should not shout ‘deng’ or ‘ding’ too many times if the number desired is marginal.
2. Players shouted ‘cheui’ in Cantonese when peeling cards to ‘blow’ away the unwanted number (s).
3. Players sometimes shouted ‘jin’ in Cantonese when peeling cards to ‘reduce’ the size of the number (s) that they would obtain.
4. Players often shouted the number of patterns they desired when peeling a card. If a smaller numbered card was desired, they would shout ‘yi bin’ (Cantonese) or ‘two

side-patterns'. If a large numbered card was desired, they would shout 'sei bin' (Cantonese) or 'four side-patterns'. For numbers in between, they would shout 'saam bin' (Cantonese) or 'three side-patterns'.

5. Occasionally, some players shouted 'cha' in Cantonese when the other side was peeling the card (s) to stop them from winning.

In one situation, all players on the table were betting on the same side ('Player') and the one with the highest bet was given the 'honor' to reveal (or rather, peel) the cards. The bets on this hand of game were, on average, way above the minimum bets of HKD 500 for this table. After the cards were issued, the 'peeler' instructed the dealer to first reveal the 'Banker' cards and the dealer complied. The numbers added up to 7 on the 'Banker' cards. The 'peeler' then proceeded with his card-peeling ritual and his first card was a '4'. He needed a '4' or '5' in his second card to secure an immediate win.

As he peeled open his second card, everyone's eyes were focused on him and his cards. The table became quiet and there was a sense of suspense and deep anxiety. Meanwhile there were two 'hoppers' standing behind the 'peeler' and they were prepared to peek at the cards. The 'peeler' first peeled the top right-hand corner of his card, then slammed the card down as he shouted out the word 'deng ah'. Immediately, four or five players started to shout in synchrony. A person who was right beside the 'peeler' lightly tapped the table with his hand as they shouted. The 'peeler' took a deep breath, peeled the entire corner of his card, and then gave a sigh of relief. Everyone stopped shouting. He then took the card by the corners with both hands and peeled it by the side. As he did so, he shouted 'yi bin' or 'two side patterns'. Everyone followed and the one beside him continued tapping the table. As he peeled, he suddenly turned the card around and slammed it to the table to reveal a number '5' to everyone's relief. He then threw the cards toward the dealer after a short moment of ponder. Laughter followed as the dealer made the payout. Situations similar to the one described above were frequently observed (i.e. at least one out of the 10 tables observed) on each day of the study period.

Betting Behavior

During observation, Chinese baccarat players were found to take extremely high risk when betting. Players on tables with minimum bets of HKD 300 and HKD 500 tables were betting much more. On numerous occasions, the observed bets could easily be five or more times greater than the minimum bets. Heavy betting often occurred when players of the table were on a winning streak. A win was usually followed by a higher bet during a winning streak, unless there were some interventions that caused a player to feel uncertain about his bets. Examples of intervention include a change of dealer, a mistake made by the dealer in the previous round, or the dealer topping his inventory of chips prior to the next hand.

Some baccarat players (or simply called 'hoppers' in this study) would 'hop' from one table to another looking for 'good' betting opportunities. These were non-sitting players, who bet in a quiet and stealth mode, moving from one table to another.

Chinese baccarat players appeared to be looking for 'leadership' most of the time. Players and hoppers at the same table often gambled on the same side as the player with what they deem as 'lucky hands' i.e. a 'peeler' who always got it 'right' and won. At other times, however, some players would deliberately bet against the other players on the same table. Generally, players would wait patiently for the 'lucky' player to place his or her bet before placing their own bets. Although the player who places the highest bet normally has the honor to reveal the cards, some players prefer to let other players they deem as 'lucky' to reveal the cards. This observation was made numerous times.

Many, if not all, players recorded the sequence of results on their scorecards. Players who sat down often examined their scorecards before deciding on which side to bet. Hoppers would bet along with the 'lucky hands' until a round was lost and then they would disappear. It was observed that players who sat down loved to fiddle their chips and slam their chips on the tables when placing bets.

Social Behavior

Players sometimes discussed their opinions regarding which side would win in the next round. They often talked to each other during the game (i.e. before or after peeling the cards). Some players talked to the dealers before, during and after a hand. Conversations with dealers were commonly short and superficial with topics ranging from the discussion of house rules to the sharing of opinions about the gaming situations after a hand. During gaming, everyone paid attention to the player who was 'peeling' the cards, and the atmosphere would be tense. Those players beside the 'peeler' (and hoppers who stood behind him) would try to peek at his or her card (s) as he or she 'systematically' peeled the card. Sometimes when a 'peeler' did something which the rest of the players did not agree with, they may condemn him. In one case, a male player

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(who had the largest bet on that table) claimed that he was here to win and not to peel cards. Hence, he passed the right to reveal the cards to a presumably 'lucky' lady player. When the lady refused, the male player commented that she should not behave like that as everyone at the table should be 'united' against the house.

Concerning superstition behavior, only one instance was observed. In this particular case, a waitress was walking around the table shouting if anyone wanted 'coffee' or 'ga fei' in Cantonese. Some players immediately shouted for the waitress to go away as one of them commented their luck would 'fly' or 'fei' away. After they lost that hand, these players openly blamed their losses on the waitress for their bad luck.

Discussion and Implications

This exploratory study, conducted through a non-participatory observation, has made several findings concerning Chinese baccarat- playing behavior. From these observed behaviors, one could infer the psychological make-up of Chinese gamblers. Chinese baccarat players exhibited behaviors showing that they gambled for monetary, excitement, entertainment and social values. This study documented the betting, card reading and social involvement behavior of these players. These preliminary findings would help researchers to identify areas for future studies on Chinese gambling psychology and behavior.

One important finding of this study is that Chinese baccarat players seemed to exhibit a high illusion of control in their games. This was observed from their card reading and betting behaviors. For example, players shouted and peeled their cards in hope of manipulating the cards in their favor. Such behaviors were ritualized, often adding fun and excitement to the game. Before placing their bets, players discussed the most likely result of the next hand and examined their game scorecards to ascertain their betting choices. Players bet on the same side as those they felt were 'lucky' or 'skillful' in card reading. Often, the recording of game results in scorecards was almost as much of a ritual as the peeling of gaming cards during All these actions demonstrated that Chinese baccarat players appeared to think (or hope) that they could control the outcome of the baccarat gaming events. Recent research by Wood and Clapham (2005) found that gamblers' illusion of control and superstitious beliefs positively predict their frequency of gambling behaviors. Hence, one might infer that

The shouting and tapping on the table in the company of others added to the fun of the game, bringing laughter and excitement.

Chinese baccarat players' high illusion of control could have attributed to their observed high rate (and amount) of gambling.

Chinese baccarat players also appeared to enjoy the interactivity of the game. The game gave them a choice of pitting against the house (i.e. when everyone bet on the same side) or against each other. The 'collaborative' shouting and tapping on the table in the company of others added to the fun of the game, bringing laughter and excitement. Gambling produces pleasure (Cotte, 1997) and is a way of relaxation for some gamblers

(Brown, 1986). Some Chinese baccarat players appeared to enjoy the exchanges of ideas and comments among themselves and at times, with the dealers. This form of interaction must be familiar to many of these players – it is the kind of interaction that they enjoy when playing the popular mahjong games at home with their family and friends. Playing baccarat in casinos may have some social elements that mimic mahjong playing, a popular social gambling activity among Chinese worldwide. These findings support the notion that Chinese baccarat players gamble for fun, excitement and social values.

Chinese baccarat players were taking high risk when gambling. This observation was in-line with Ozorio and Fong (2004), who conducted a recent study on Chinese casino gambling behavior and found that these Chinese gamblers were taking high risk (in terms of the amount of bets versus annual income) when they gamble. Chinese baccarat players appeared to be highly motivated to win and seek excitement by betting excessively above the minimum table bet.

The results of this exploratory study have meaningful implications to casino managers as well as game manufacturers. Casino managers should be aware of the gaming habits of their Chinese patrons in order to better serve them. For example, staff serving drinks should be trained not to intervene during the peak of the game (i.e. when players peeled their cards). At the same time, staff should be aware that there are taboos, like the calling out of 'ga fei' in one instance, for some superstitious baccarat players. During the observation study, some dealers and supervisors had openly expressed displeasure at the shouting and tapping of tables. In some cases, supervisors warned the players not to behave excessively. In other cases, they simply showed their displeasure through disgruntled facial expressions and gestures. For some players, the joy of the game came from the shouting and hence, managers should be more tolerant of such Chinese behaviors in their casinos. The open expressions of displeasure by casino staff on these ritualized behaviors, which some thought were excessive and redundant, would only create a negative image of the casinos, reflect poor customer service, and show a lack of cultural sensitivity.

For electronic multiplayer game manufacturers, a better understanding of what makes Chinese baccarat players tick would help to create a more successful electronic baccarat game. How can an electronic baccarat game create the same atmosphere as a live baccarat game? Are the Chinese players allowed to 'peel' their cards? Surely, a successful electronic baccarat gaming product aims to provide the monetary, excitement, entertainment, and social values similar to those experienced at live baccarat tables. Casino patrons who are new to baccarat want to have a taste of what it is like playing the game - a machine that will train and help them to progress to the more intimidating live table game in the future. These are the questions and issues that manufacturers should ask themselves if they want to create the ultimate multiplayer baccarat gaming machine - one that will eventually replace live baccarat table game and help reduce the operational costs of casino floors.

Limitations

This study was intended to stimulate more discussion on Chinese gambling behavior and provide a basis for more scientific research. Despite the confidence that the researcher of this exploratory study had in the findings, they should nevertheless be read with caution given that the observation was conducted within a single casino in Macau. Moreover, the non-participatory nature of the observation meant that many of the psychological aspects of these Chinese baccarat players could not be examined. A participatory observation study, along with personal interviews, would yield greater psychological understanding of these players. However, as stated earlier, participatory observation in a natural environment would be limited by the willingness and capacity of these players to participate. Past research has shown that the Chinese were less open to sharing information with strangers or people of weak ties compared to their Western counterparts (e.g. Chow, Deng, & Ho, 2000). Participatory observation with interviews

would be difficult to administer without players' consent or willingness to disclose in a natural setting. At the same time, self-reports are subjected to various limitations (e.g. Lee, Hu, & Toh, 2000; Feldman & Lynch, 1988). For example, Woodside and Wilson (2002) found that many consumers never truly report their purchases and false reporting of purchases may be significant. Lange (2001) made similar findings in his study on gamblers' perceptions of their gambling behaviors. Future research could employ participatory observation with interviews in a laboratory gaming situation, with subjects invited to participate and given some forms of incentives. The results could be used to supplement or complement this current non-participatory observation study in order to gain a more holistic view of the psychological and behavioral make-up of Chinese baccarat players.

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