

Superstition as a personal moderator in the development of commitment and loyalty to and within casinos

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Gambling is a popular leisure activity for people around the world and the global casino industry has expanded rapidly in recent years. Behavioural loyalty among gamblers can be very important to the success of casinos, which will benefit from marketing strategies used to induce loyal patronage. However, it must also be appreciated that extremely loyal behaviour may be an indication of problem gambling, by which this leisure activity becomes detrimental. This article presents 12 propositions related to behavioural loyalty and casino gambling, focusing on superstition's role as a personal moderator influencing the formation of casino gambling loyalties. This conceptualization is based on a pre-existing model that delineates the process by which behavioural loyalty develops in a leisure context. The propositions are divided into six main categories: the basic functions of superstition as a personal moderator, types of superstition, the casino as a setting for the development of superstition, loyalty towards different types of games, socio-demographic and cultural variables, and the prevention of problem gambling. Implications for casino management and the prevention of problem gambling are discussed.

Keywords: loyalty; gambling; casinos; superstition; propositions

Le jeu d'argent est une activité de loisirs très appréciés partout dans le monde et les casinos ont connu une expansion mondiale très rapide durant ces dernières années. La loyauté de comportement chez les joueurs est un aspect très important du succès des casinos. Plusieurs stratégies du marketing sont utilisées pour induire le patronage fidèle. Toutefois, il doit aussi être apprécié que le comportement extrêmement loyal peut-être une indication de jeu compulsif, par lequel cette activité de loisir devient nuisible. Cet article présente 12 propositions relatives à la loyauté et les jeux de casino, en se concentrant sur le rôle de la superstition en tant que modérateur personnel. Cette conceptualisation est basée sur un modèle préexistant qui définit le processus par lequel la fidélité de comportement se développe dans un contexte de loisirs. Les propositions sont réparties en six grandes catégories: les fonctions de base de la superstition en tant que modérateur personnel, les types de superstition, le casino en tant que cadre le développement de la superstition, la loyauté envers les différents types de jeux, des variables sociodémographiques et culturelles, et la prévention du jeu compulsif. Les implications pour la gestion du casino et de la prévention du jeu compulsif sont discutées.

Mots-clés: la loyauté; les jeux; les casinos; la superstition; les propositions

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The psychological study of gambling behaviour has evolved considerably over the last century. In the early twentieth century, psychoanalytic theory stipulated that people were drawn to gambling by subconscious motivations, and excessive gambling was caused by a disease of the mind. Psychoanalytic theory eventually influenced the emergence of personality theory, which focused on excessive gambling and explained it as a consequence of a personality defect relating to childhood experiences. Behavioural psychology theories then emerged in the 1950s, focusing primarily on gambling behaviour as a function of conditioned learning involving gamblers' external environments and stimuli. Finally, more recent cognitive-behavioural theories have somewhat blended the various approaches together by explaining gambling behaviour with an acknowledgement of both internal psychological factors and external environmental factors, with a noted recognition of irrational thinking (Aasved, 2002).

The study of participation in leisure activities has also been evolving and has frequently been inspired by consumer behaviour research (Havitz & Dimanche, 1997). Many leisure researchers have investigated how individuals engage in and perceive their leisure activities and how these actions and attitudes ultimately influence people's loyalty towards specific brands. Based on this research, Iwasaki and Havitz (1998, 2004) introduced a model proposing a sequential process in which involvement with a leisure activity can lead to psychological commitment towards specific brands and may ultimately be expressed as behavioural loyalty towards those brands. Promoting behavioural loyalty among customers is very important for many leisure service providers (Iwasaki & Havitz, 1998, 2004; Morais, Dorsch, & Backman, 2004), including casinos. The worldwide casino industry has expanded rapidly during the past few decades, often as a direct result of government attempts to generate tax revenue and stimulate their economies with new jobs and casino-generated tourism (Eadington, 2001; Morse and Goss, 2007). Whether involving tourists or locals, gambling has often been recognized as a form of leisure (e.g. Cotte, 1997; Hope & Havir, 2002; Jang, Lee, Park, & Stokowski, 2000; Lam, 2007a; Lucas & Bowen, 2002; Saunders and Turner, 1987), and therefore, gambling loyalties can be better understood by viewing the activity within the context of existing leisure research.

This article blends together existing theories of gambling behaviour and leisure behaviour while focusing specifically on the role of superstitious beliefs as influential factors in the development of psychological commitment and behavioural loyalty to and within casinos. This focus has been chosen because irrational beliefs, including superstition, have been widely recognized as frequently influencing gambling behaviour (Aasved, 2002; Walker, 1992b). As Aasved (2002) remarked, "It is no secret that gamblers are among the most superstitious people in the modern world" (p. 133). By viewing research on superstition and gambling behaviour through the lens of Iwasaki and Havitz's (2004) theoretical model, one can gain unique insights into the role superstition may play in the development of gambling loyalties. Twelve propositions are presented regarding the relationship between superstition and gambling loyalties, and these propositions are meant to provide a foundation for future research in this area. A greater understanding of gambling loyalties will be valuable for efforts in casino marketing and the prevention of problem gambling.

Personal moderators in the sequential process towards behavioural loyalty

The sequential process delineating the development of behavioural loyalty within a leisure setting was initially proposed by Iwasaki and Havitz (1998), who built their model upon previous conceptual frameworks, and later refined and validated it in a study on the use of

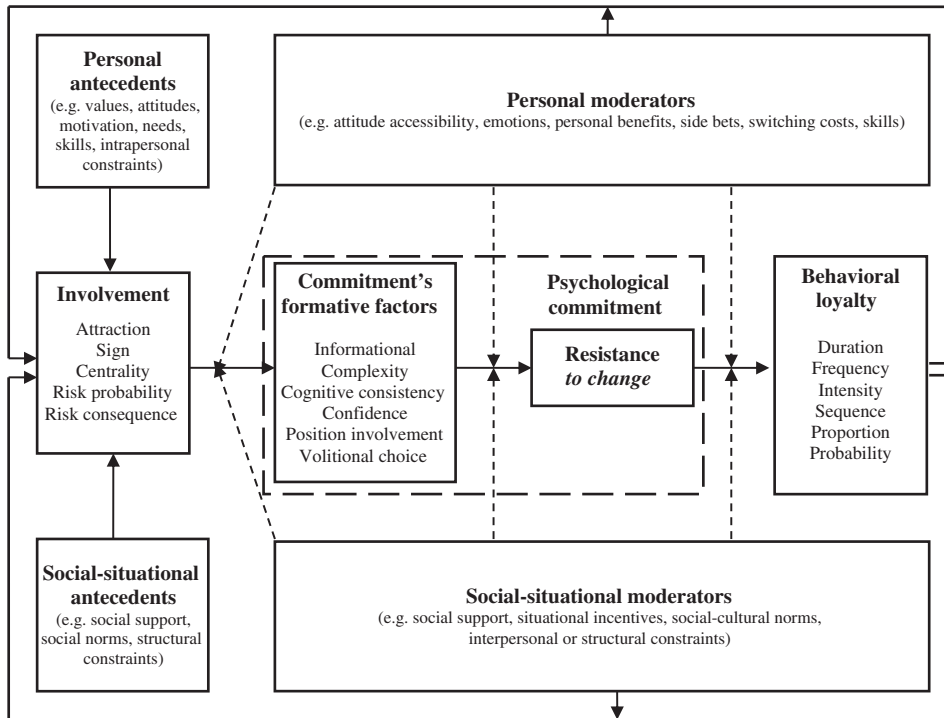


Figure 1. A conceptual model of the relationship among involvement, psychological commitment, and behavioural loyalty.

(Source: Iwasaki & Havitz, 2004, p. 47.)

recreation agencies (Iwasaki & Havitz, 2004). This sequential process (Figure 1) begins with involvement, which is defined as, “An unobservable state of motivation, arousal, or interest toward a recreational activity or associated product” that is multi-faceted and tends to “remain stable” (Iwasaki & Havitz, 1998, p. 260). Involvement can subsequently lead to psychological commitment, which is an expression of one’s attitudes towards a brand (Pritchard, Havitz, & Howard, 1999) and is defined as having five formative factors: informational consistency, informational complexity, confidence, position involvement, and volitional choice (Iwasaki & Havitz, 1998). Iwasaki and Havitz (1998) used the term “brand” in this leisure context to refer to agencies, sites, specific events, or brands of equipment. Numerous authors have noted that loyalty conceptualizations should involve an attitudinal component in addition to a behavioural one (e.g. Backman & Crompton, 1991; Baloglu, 2002; Dick & Basu, 1994), and psychological commitment reflects this important concept of “attitudinal loyalty” in Iwasaki and Havitz’s theoretical model (Iwasaki & Havitz, 2004; Pritchard et al., 1999). The model posits psychological commitment as a frequent precursor of loyalty, which is a notion supported by research findings made by Iwasaki and Havitz (2004) and Pritchard et al. (1999). It also suggests that psychological commitment is evidenced by a “resistance to change” (Iwasaki & Havitz, 2004; Pritchard et al., 1999), which “refers to individuals’ unwillingness to change their preferences towards, important associations with, and/or beliefs about a brand” (Iwasaki & Havitz, 2004, p. 50). Finally, resistance to change may be expressed as behavioural loyalty,

which is exhibited in a variety of ways: duration, frequency, intensity, sequence, proportion, and probability of brand use (Iwasaki & Havitz, 1998).

Iwasaki and Havitz (1998) suggested that this developmental process can be influenced by personal and social-situational moderators, which become significant once an individual has already developed his or her involvement in an activity. "Personal moderators reflect an individual's cognitive, affective, and/or behavioral characteristics" (Iwasaki & Havitz, 1998, p. 264). For instance, the authors provided the example of a fictional golfer whose financial investment in a course membership, referred to as a type of "side bet" (Buchanan, 1985), would influence how his involvement in golf would lead to a psychological commitment towards this specific course. The importance of personal moderators has been illustrated in various studies, including Backman and Crompton's (1991) study of golf and tennis players, in which it was found that players' skill levels impacted their placement in the different loyalty categories the article proposed. Also, Iwasaki and Havitz (2004) found significant evidence regarding the effects of a variety of personal moderators on the development of psychological commitment and behavioural loyalty towards recreation agencies. Iwasaki and Havitz's (2004) theoretical model proposed numerous potential personal moderators: attitude accessibility, emotions, personal benefits, side bets, switching costs, and skills. Nevertheless, their list was not meant to be exhaustive. This article expands upon that list by proposing that superstitious beliefs function as a significant personal moderator in the development of behavioural loyalty to and within casinos.

Consumer loyalty is obviously highly desirable to most leisure service providers, as it embodies the common and logical goal of customer retention (Iwasaki & Havitz, 1998, 2004; Pritchard et al., 1999). The importance of loyalty certainly holds true within the gambling industry, and gamblers will sometimes exhibit loyalty towards a specific casino (e.g. Baloglu, 2002). Casinos' desire for such loyalty is exemplified in part by the loyalty programmes and complimentary favours that casinos have long used to encourage and reward gamblers' patronage (Hendler & Latour, 2008). Gamblers may also exhibit loyalty towards specific details of a casino (e.g. Griffiths, 1990), such as a slot machine, a card dealer, or a particular seat. The use of Iwasaki and Havitz's (2004) model to describe loyalty towards dealers or seats, for example, extends the authors' definition of "brand." However, this extension is deemed acceptable because the cognitive process defining the development of such loyalties is predicted to be similar and because loyalty towards such casino details would often inherently entail indirect loyalty towards a casino (e.g. a gambler loyal to a blackjack dealer may well exhibit loyalty towards the casino employing the dealer). The relevance of these more detailed loyalties is illustrated by one slot machine manufacturer's comments within a Canadian casino trade magazine. The company stated, "Generally the more experienced consumer is more 'brand' conscious and has built and maintained a bond through the many years of memorable experiences on our machines" (Canadian Gaming Business, 2008b, p. 31).

In some contexts, however, behavioural loyalty may be undesirable, such as if loyalty leads to the overuse of environmentally sensitive public land resources (Iwasaki & Havitz, 2004). Gambling provides a poignant example of the potential negative aspects of behavioural loyalty, as the most extreme levels of behavioural loyalty would be indicative of a gambling problem. A large portion of gambling research focuses on problem gambling, whereas another large body of gambling research focuses on gambling marketing – two areas that may seem wholly contradictory. However, "problem gambling" and "behavioural loyalty in gambling" are distinct terms, meaning casino managers can, in fact, promote loyal behaviour among their patrons without promoting problem gambling. Even

though extreme levels of behavioural loyalty (towards a brand) would entail excessive gambling, problem gambling is really a reflection of extreme involvement (towards the activity). Some level of gambling involvement is obviously necessary for the development of loyalty towards a gambling brand, but one can develop behavioural loyalties without increasing his or her level of gambling involvement. In fact, a gambler can increase all six aspects of his or her gambling loyalties without increasing the amount of time or money spent gambling. For example, imagine a gambler who spends one evening each month at one of various nearby casinos, where he or she stays for a maximum of 2 hours and leaves as soon as a maximum of 25 dollars is lost. If this gambler then develops a psychological commitment towards a specific casino, and eventually spends every casino outing at this particular casino, then the gambler has begun to exhibit behavioural loyalty without increasing his or her overall gambling activity. Moreover, problem gambling is a complicated phenomenon, dependent on many more factors than those which will be discussed in the presented propositions (Ontario Problem Gambling Research Centre [OPGRC], 2008). Therefore, future research regarding the 12 propositions introduced in this article may productively benefit both casino marketing attempts to encourage loyal behaviour among recreational gamblers, while also benefiting efforts to prevent problem gambling. The goal of providing insights to benefit both casino managers and the prevention of problem gambling is not unique to this article (e.g. Jang et al., 2000), and it demonstrates a recognition that gambling is a leisure activity for many people around the world but also a serious problem for a small segment of the gambling population.

Superstition and gambling

Superstition can be thought of as an irrational belief in the existence of causality between two completely unrelated events or actions (Dawkins, 2007; Foster & Kokko, 2009; Joukhador, Blaszczyński, & Maccallum, 2004; Rogers, 1998; Scheibe & Sarbin, 1965; Skinner, 1947; Torgler, 2007). Consequently, superstition leads an individual to believe that chance events can actually be influenced or predicted. Superstitions may develop as a result of an individual's experiences, as causal connections are drawn between coincidental events, or they may simply be based on the special significance that individuals attribute to certain actions, conditions, objects, numbers, and so on. For example, one individual may decide that the number 29 is lucky because he or she bought a winning lottery ticket on the 29th day of a month, whereas another individual may decide the number 29 is lucky because he or she was born on the 29th day of a month. Also, superstitions may be based on one's religious beliefs or beliefs about the paranormal. Even though some superstitions are personal, others are socially shared and passed between members of a society or culture (Scheibe & Sarbin, 1965; Vyse, 1997). "If there is a universal truth about superstition, it is that superstitious behavior emerges as a response to uncertainty – to circumstances that are inherently random and uncontrollable" (Vyse, 1997, p. 201). Moreover, it has been found that superstitions may be more apt to develop under conditions of psychological stress (Keinan, 1994).

Given the inherent unpredictability in gambling, perhaps it should come as no surprise that gamblers are recognized as an especially superstitious group of people (Aasved, 2002; Vyse, 1997). Toneatto (1999) has identified three categories of gambling superstitions: "talismanic superstitions," which feature certain objects (e.g. lucky hat), object attributes (e.g. red), or numbers (e.g. birthdates); "behavioural superstitions," which involve actions (e.g. sitting at a specific seat) or rituals (e.g. blowing on dice); and "cognitive superstitions,"

which involve certain mental states (e.g. confidence). The list of gambling superstitions is infinite, but some common ones include blowing on dice (Kusyszyn, 1984), throwing dice harder or softer for higher or lower numbers (Statman, 2005), finding “hot” or “paying” slot machines (Walker, 1992b, p. 73), using lucky bingo dabbers (King, 1990), and timing the placement of roulette bets (Aasved, 2002). “Illusion of control” is a term used to describe a common irrational gambling belief (Toneatto, 1999) that is linked to superstition (Rudski, 2001) and often so closely related that the two concepts will be considered conjunctively for the purposes of this article. Illusion of control is defined as “over-estimations of the personal capacity to influence outcomes, so that people have a subjective probability of winning that is greater than the objective odds” (Lambos & Delfabbro, 2007, p. 158), and it can often provide the basis for a superstition (Keinan, 1994; Vyse, 1997). For example, a craps player who throws the dice harder so that they will land revealing a higher number is exhibiting an illusion of control that is also a superstition.

Not only are superstitions especially prevalent among gamblers, but Joukhador et al. (2004) found a positive correlation between the endorsement of superstitious beliefs and various measures of gambling behaviour. These findings are consistent with other studies that have found positive correlations between gambling levels and irrational gambling beliefs (e.g. Lambos & Delfabbro, 2007; Miller & Currie, 2008; Strickland, Taylor, Hendon, Provost, & Bizo, 2006; Toneatto, Blitz-Miller, Calderwood, Dragonetti, & Tsanos, 1997). However, as Joukhador et al. (2004) noted, the correlation they found does not identify causality, because it could be the case that gambling encourages the creation of superstitious beliefs or it could be the case that superstitious beliefs encourage more gambling. In fact, evidence exists supporting both directions of causality. The idea that gambling foments the development of superstitious beliefs has been supported by numerous studies highlighting the development of superstition and illusion of control in gambling situations (e.g. Bersabé & Arias, 2000; Griffiths, 1990, 1994; Henslin, 1967; King, 1990; Langer, 1975; Langer & Roth, 1975). Additionally, it appears as though the endorsement of superstition and other irrational beliefs may encourage gambling behaviour, even if it is not directly responsible for such behaviour (e.g. Dickerson, 1993; Griffiths, 1990; OPGRC, 2008; Walker, 1992b). In other words, “It would not be surprising if individuals that hold erroneous beliefs about chance events and their ability to control them might be drawn towards gambling activities more strongly (than) individuals that do not, and that once individuals begin to gamble that their levels of erroneous beliefs are affected by their gambling experiences” (Strickland et al., 2006, p. 52).

The basic functions of superstition as a personal moderator

Given the purported relationship between superstitious beliefs and gambling involvement, it seems reasonable to predict that superstitious beliefs would function as a significant personal moderator in the development of casino gambling loyalties. More specifically, it would appear to have a positive relation on this process, in other words catalysing the creation of these loyalties. This suggestion is supported by evidence reported in a variety of studies. For instance, Hayano (1978), whose research involved participant observation at several California poker parlours, found that most players appeared to endorse superstitious beliefs regarding luck, including “beliefs in certain lucky seat numbers, days of the week, and playing times and locations” (p. 480). Similarly, in King’s (1990) study of bingo players, which involved participant observation and interviews, superstitious beliefs were found to be extremely common, and they sometimes manifested themselves in clear

expressions of behavioural loyalty. For example, King stated, "Tables and chairs inside the bingo parlor come to have certain meaning attached to them" and, consequently, "Many regulars can be seen sitting in the same seats week after week" (p. 56). Additionally, Griffiths (1990) held an informal discussion with eight problem gambling fruit machine (British slot machine) players and determined, "The fact that most of them had 'favourite machines' reflected the belief that they were better (through familiarity) on one particular fruit machine than other less familiar ones" (p. 36). Griffiths (1990) proposed that this perceived skill was based on an illusion of control, and he later supported this hypothesis in subsequent research that indicated there were no significant, genuine skills that fruit machine players could utilize at that time (Griffiths, 1994). Such findings provide illustrative examples of how superstition may encourage the development of psychological commitment and, ultimately, behavioural loyalty among gamblers.

PROPOSITION I: Superstitious beliefs function as a personal moderator exhibiting a positive relationship with all of the formative factors associated with psychological commitment to and within casinos: informational consistency, informational complexity, confidence, position involvement, and volitional choice.

In other words, Proposition I states that superstitions beliefs will promote a tendency by gamblers to resist change as they patronize casinos. It is hypothesized that this relationship will be expressed in each of the five formative factors that define psychological commitment: informational consistency, which refers to stability and congruency in one's beliefs and attitudes towards a brand; informational complexity, which refers to how informed an individual is about a brand; confidence, which refers to the levels of sureness with which an individual judges his or her behaviours and attitudes towards a brand; position involvement, which refers to the extent to which one's self-image is associated with a brand; and volitional choice, which refers to the number and quality of options one enjoys when patronizing a brand (Iwasaki & Havitz, 1998; Pritchard et al., 1999).

Fostering psychological commitment is important for casinos and other leisure service providers even if seemingly loyal behaviour is perceived among patrons, because patrons' apparent loyalty may be simply a result of convenience or a lack of alternatives, for example, as opposed to any genuine attitudinal attachment with an agency (Backman & Crompton, 1991; Baloglu, 2002). In fact, Baloglu (2002) investigated the loyalty exhibited by members of a Las Vegas slot club and found that over half of the respondents exhibiting behavioural loyalty did not exhibit attitudinal loyalty (i.e. psychological commitment). Baloglu restricted his study to Las Vegas residents, but it should also be noted that many casinos are located in tourist destinations (Eadington, 2001), and gambling tourists' behavioural loyalties may be influenced by loyalties towards other brands associated with a destination that are unrelated to casino gambling. Consequently, Iwasaki and Havitz's (2004) theoretical model should not be perceived as defining the development of every behavioural loyalty exhibited by every gambler, but rather defining a cognitive and behavioural pathway that commonly defines the development of loyal behaviour. Also, the model is particularly appropriate for the discussions in this article because the model acknowledges the role of personal moderators and because this article focuses on gamblers whose behavioural loyalties are a function of a psychological commitment. In cases where psychological commitment does exist, Iwasaki and Havitz (1998, 2004) suggested that it may eventually result in behavioural loyalty, which is a casino's ultimate goal. It is theorized that this progression from psychological commitment to behavioural loyalty also will be impacted by the moderating effects of superstition.

PROPOSITION II: *Superstitious beliefs function as a personal moderator exhibiting a positive relationship with all aspects of expressed behavioural loyalty to and within casinos: duration, frequency, intensity, sequence, proportion, and probability.*

In other words, Proposition II hypothesizes that superstitious beliefs may encourage the ultimate development of gamblers' behavioural loyalties, which will be expressed in a variety of ways: duration, which refers to the length of time an individual has been patronizing a brand; frequency, which refers to how often an individual patronizes a brand during a specific period of time, such as 1 month; intensity, which refers to the number of hours per week (or other unit of time) that an individual patronizes a brand; sequence, which refers to patterns of brand use and may reflect exclusive patronage of one brand or varied patronage of numerous brands; proportion, which refers to an individual's percentage of patronage of a certain brand, based on the sum of his or her total patronage of that brand and all competing brands; and probability, which refers to the likelihood an individual will patronize a brand in the future (Iwasaki & Havitz, 1998; Pritchard, Howard, & Havitz, 1992).

Propositions I and II can be illustrated best with a theoretical example of a gambler's interaction with a particular casino. This fictional gambler superstitiously believes this casino to be lucky because the casino's address ends in the same digits as his birth date, and because it is the only casino he knows of that offers a line of slot machines he perceives as lucky. These superstitions may encourage the gambler to demonstrate a positive attitude towards the casino even after possibly losing (i.e. informational consistency), they may relate to his knowledge of other nearby casinos and their slot machines (i.e. informational complexity), they may give him greater feelings of certainty when choosing the casino (i.e. confidence), they may lead to a greater self-identification with the casino because of its special address (i.e. position involvement), and they may relate to his opportunity to choose the casino instead of other venues that are not perceived as lucky (i.e. volitional choice). Consequently, the gambler may exhibit a resistance to change as his superstitions lead to a very stable preference towards the casino, even in the face of constant advertising from other casinos in the vicinity. In turn, the gambler's superstitions about the casino and its slot machines may encourage him to continue patronizing the casino for a longer period of time (i.e. duration), enter more frequently (i.e. frequency), spend more hours per week (month or year) in the casino (i.e. intensity), tend towards more unvarying use of that casino among all casino outings (i.e. sequence), use the casino for a higher percentage of all casino outings (i.e. proportion), and maintain a relatively high probability of continuing to patronize the casino in the future (i.e. probability). Through this example one can see how viewing gambling behaviour through the lens of Iwasaki and Havitz's (2004) theoretical model provides perspective on how superstition may impact gambling loyalties. However, this relationship is far more complex than what has been suggested in Propositions I and II, so various nuances of this relationship will be explored in subsequent propositions.

Types of superstitions and resistance to change

Propositions I and II suggest that superstitious beliefs will encourage gamblers to develop psychological commitments that eventually manifest themselves as behavioural loyalties. Several examples of this phenomenon have already been presented, such as the poker players whom Hayano (1978) observed as believing in lucky locations, and it also probably can be witnessed easily during a visit to a casino. As Walker (1992b) remarked about

slot machine players, “Most players take precautions to prevent other people from playing *their* machine. The fact that players zealously guard *their* machine while they change money suggests that few of them believe one machine is as good as the next” (italics in original) (p. 73).

However, all superstitions are not the same, and some superstitions may actually induce change rather than encourage a resistance to change. As Aasved (2002) noted, “Slot machine players often attempt to change their luck by changing machines, blackjack players try to do so by changing playing positions or moving to an entirely new table” (p. 132). When King (1990) spoke to bingo players about luck, she found that some of their comments suggested “that assigning luck to an object or practice is an ongoing process . . . Bingo players . . . see luck as a finite entity and when the luck runs out of an object, it is time for a change” (p. 57). As an example, one player rationalizing his use of a new dabber explained, “My lucky dabber isn’t lucky anymore. This is the one that I won on last. This is now my lucky dabber” (p. 57). Also, although King found that some players regularly sat in seats they perceived as being lucky, other players constantly changed seats, supposedly to “chase luck,” such as by sitting next to previous winners in the hope that luck would “rub off on them” (p. 56). King noted that her findings were similar to those of Hayano (1978), who categorized the different behaviours poker players exhibited in attempts to influence their luck. Hayano found that the bettors frequently responded to small losing streaks by “requesting the floorman to change the deck of cards, by taking a different seat at the table (especially a vacated winner’s seat), or by moving to a new game or table entirely” (p. 480). Hayano (1978) and King (1990) also both found that bettors sometimes responded to significant losing streaks by changing their venue.

PROPOSITION III: *Superstitious beliefs may sometimes serve as a personal moderator encouraging a resistance to change among casinos and within a casino environment, but at other times superstition may induce change or impede the development of a resistance to change.*

It is worth noting that Proposition III actually contradicts Propositions I and II. This theorized dual function of superstition as a personal moderator is significant, and it certainly appears as though some gamblers will never develop certain loyalties because their superstitions inspire very frequent change. For instance, the bingo players who repeatedly move seats will perhaps never find a “lucky seat” where they would remain for an extended period. Nevertheless, there are several reasons why Proposition III should not be regarded as an invalidation of the first two propositions. Firstly, many of the same gamblers who make changes because of superstition will also likely exhibit loyalties because of superstition (e.g. the player who switched “lucky” bingo dabbers). Secondly, even superstitious gamblers appear reluctant to make drastic changes among their most significant loyalties, whether or not those loyalties are based on superstition. For example, Hayano (1978) also identified actions poker players used to induce small changes in luck (e.g. particular shuffling strategies), and they did not include any changes in gamblers’ psychological commitment or behavioural loyalty towards specific brands. Also, both Hayano (1978) and King (1990) determined that gamblers only made the significant change of switching venues in the midst of especially long losing streaks. Thirdly, once superstitions have emerged, they “exhibit a high degree of inertia” (Scheibe & Sarbin, 1965, p. 156), as they are maintained through a variety of cognitive biases. Basically, “people generally attribute their successes to internal causes or to things that are within their control but ascribe their failures to external causes or to things that are beyond their

control" (Aasved, 2002, p. 113). Moreover, gamblers may exhibit confirmation biases, in which information consistent with a theory is sought while discounting information is discredited (Keren & Wagenaar, 1985; Shewan & Brown, 1993, p. 124); hindsight biases, in which incorrect predictions are rationalized and often described as flukes (Aasved, 2002; Gilovich, 1983; Gilovich & Douglas, 1986; Shewan & Brown, 1993, p. 124); or selective memory biases, in which wins are remembered and losses are forgotten (Frank, 1993). Such biases explain why gamblers can maintain loyalty-inducing superstitions in the face of losses that would seemingly persuade a gambler that his or her superstitions were erroneous.

However, even though gamblers may employ a variety of cognitive biases to maintain their superstitions, one should not assume that gamblers are always unwilling to modify or reject superstitions they have previously held. King's (1990) example of a bingo player assigning luck to different bingo dabbers illustrated how superstitions can be modified, and another example from her study showed how a superstition may be completely rejected or reversed. In this example, a previous win convinced a bingo player that it was lucky to enter the bingo parlour behind someone of a certain racial group, but after subsequent games the player decided it was actually lucky to enter in front of a person in that racial group. As King (1990) explained, "Luck can be attributed to just about anything a player notices during a win" (p. 56), and this remark is consistent with Vyse's (1997) general observation that, among humans, "There is a strong tendency to repeat any response that is coincident with reinforcement" (p. 76).

When gamblers do not receive reinforcement, and rather receive negative contingencies (i.e. losses) that would logically discredit a superstition, then gamblers will experience "cognitive dissonance," which is a term referring to the heightened emotional arousal and psychological discomfort an individual experiences after receiving information that conflicts with a strongly held belief (Festinger, Riecken, & Schachter, 1956; Tavis & Aronson, 2007; Vyse, 1997). In some cases an individual will respond to this dissonance by altering the belief, but in many cases people will react by actually reaffirming their initial beliefs (Festinger et al., 1956; Lord, Ross, & Lepper, 1979; Tavis & Aronson, 2007; Vyse, 1997). Festinger et al. (1956) introduced this concept by describing a small religious group that had predicted the precise day a flood would lead to the apocalypse. When the apocalypse failed to occur, many members became more devoted to the leaders rather than losing faith in them. In some instances gamblers will undoubtedly reject their superstitions because of a lack of reinforcement, but cognitive dissonance theory posits that strongly held superstitions may be maintained and actually reinforced by negative contingencies, as it can be easier to reaffirm one's beliefs than accept them as flawed (Festinger et al., 1956; Vyse, 1997).

Festinger et al. (1956) suggested that one's resistance to change a belief would depend on the belief being "held with deep conviction" (p. 4), and Vyse (1997) has noted that belief in superstition can often be quite strong. Sometimes superstitions are based on one's culture or religion and can be associated with one's world view or identity (Vyse, 1997), so such superstitions logically would be most likely to produce heightened levels of cognitive dissonance. Gamblers, therefore, may be less likely to discard such superstitions and may even reaffirm them, as a rejection of such significant beliefs may be extremely upsetting. In fact, Russell and Jones (1980) found that when believers in ESP read an abstract discrediting ESP, level of belief positively correlated with emotional arousal and negatively correlated with an ability to recall conclusions of the abstract. In other words, this experiment demonstrated that strongly held beliefs lead to greater cognitive dissonance, and people in general seem to exhibit "selective learning" in which they are more apt to retain information that is consistent with their existing beliefs. Also, in a study of

Yale athletes, Womack (1979) found that athletes in a slump would experiment with new superstitious rituals without changing their primary rituals.

Festinger et al. (1956) also suggested that one's resistance to change a belief would depend on the existence of previous actions that have been committed based on the belief. This notion implies that gambling superstitions that have been espoused for a longer period of time will be more difficult to reject because a gambler would have to accept that all of his or her previous betting activity based on the superstitions was misguided. In fact, Knox and Inkster (1968) found that horse bettors expressed more confidence in their wagers immediately after placing their wagers than immediately before placing their wagers. Applying these ideas to a theoretical gambler, one may assume that a gambler who believes a certain slot machine is lucky because of past wins may reconsider this superstition in the face of extended losses, but the same gambler would not discredit the luckiness of a religious amulet he or she always possesses when gambling.

PROPOSITION IV: Certain superstitious beliefs, such as those that relate to one's identity or have been held for an extended period of time, serve as a personal moderator with more enduring effects than superstitious beliefs that develop as a result of recent success within a specific casino setting.

Although superstitions may change, as suggested in Proposition IV, or may induce behavioural change, as suggested in Proposition III, the end result for casinos will likely often remain constant. For example, even if a gambler who thought one slot machine was lucky ends up rejecting that belief and deciding a different slot machine is lucky, the gambler is still playing slot machines in the same casino. Nevertheless, the similar finding by King (1990) and Hayano (1978) that gamblers in the midst of long losing streaks may switch venues obviously is of significant consequence. In fact, it interestingly suggests that casinos enjoy more long-term benefits if gamblers avoid long losing streaks, even though such losing streaks would generally indicate greater winnings for the casino. Additionally, the propositions suggest that casinos should primarily concern themselves with appealing to gamblers' most closely held superstitions, as these will remain the most unwavering. Similarly, these propositions support the efforts taken in some problem gambling studies (e.g. Lambos & Delfabbro, 2007; Toneatto et al., 1997) to differentiate between types of superstition or illusion of control. By better understanding the impacts of different types of superstitions on gambling behaviour, researchers will obtain a clearer picture of their overall influence on gambling loyalties.

The casino as a fertile setting for the development of superstitious beliefs

Regardless of any distinctions between types of superstitions, they still generally all emerge as responses to uncertainty (Vyse, 1997), making gambling a virtually ideal activity in which superstitions will arise. Numerous studies have reported the emergence of superstition and illusion of control in gambling situations (e.g. Bersabé & Arias, 2000; Griffiths, 1990, 1994; Henslin, 1967; King, 1990; Langer, 1975; Langer & Roth, 1975) and various examples of superstition development have already been discussed. Importantly, when one considers this phenomenon within the context of the first two propositions, which suggest superstitions may encourage the development of psychological commitment and behavioural loyalties related to gambling, the implied result is a snowball effect in which superstitious beliefs develop within a casino and then promote behavioural loyalty towards the casino.

The notion of superstitions emerging within a casino setting is further supported by findings indicating that familiarity encourages the development of an illusion of control. Familiarity is important because when gamblers visit a casino they naturally become familiar with different aspects of the casino. In an experiment on the influence of familiarity, Langer (1975) found that participants in an office lottery were less willing to exchange previously purchased lottery tickets for tickets in another lottery with better odds if the original tickets showed a normal letter instead of an unfamiliar symbol. Inspired by Langer, Burger (1986) and Bouts and Van Avermaet (1992) conducted experiments in which subjects were asked to wager on very basic card games involving either traditional or unfamiliar cards. In both experiments subjects were willing to wager more when playing with traditional playing cards. Also, Langer (1975) conducted an additional experiment in which subjects were asked to rate their confidence in correctly choosing one of three copper wire paths that could be touched with a stylus to sound a buzzer. Half of the subjects were given 2 minutes to inspect the device, whereas the other half were not, and, although the subjects were told that the correct wire would be selected at random, those subjects given 2 minutes to familiarize themselves with the apparatus rated their confidence at choosing the correct wire significantly higher than did the other subjects.

PROPOSITION V: Superstitions may develop during participation in casino gambling and these superstitions will subsequently serve as a personal moderator in the development of behavioural loyalties to or within the casino.

This proposition clearly has marketing implications for casinos, as it suggests that a casino will benefit from the very superstitious beliefs that develop within its own walls. For example, if a gambler develops superstitious beliefs about the luckiness of a specific slot machine, then these beliefs may lead to loyalty towards the slot machine and, in turn perhaps, the casino that owns it. In fact, although this proposition can be applied to all casino games or features of a casino, it is worth focusing further analysis specifically on slot machines. Such is the case because the rapid play frequency and payout interval of slot machines create a setting in which conditioned learning can occur (Griffiths, 1993) and superstitious beliefs may emerge. As players consistently receive wins, bettors may detect seemingly meaningful connections between their behaviours or environments and the reinforcing wins. This type of conditioned learning of superstition, in which superstitious behaviours and beliefs emerge in response to random reinforcers, was first demonstrated in a famous experiment using pigeons (Skinner, 1947) and has since been repeated with experiments involving humans (e.g. Matute, 1995; Ono, 1987).

Also, a noteworthy strategy that slot machine manufacturers have implemented to attract gamblers is the use of themes based on brands with which gamblers are already familiar. *The Simpsons*, *The Flintstones*, *Indiana Jones*, *Monopoly*, *Men in Black*, *The Apprentice*, *The Price Is Right*, and *Wheel of Fortune* are just some of the many familiar brands one may encounter on a slot machine floor (Cooper, 2005; Parke & Griffiths, 2006; Rivlin, 2004). Slot machine manufacturers will sometimes even pay millions of dollars for the rights to use a major brand like *Star Wars* (Rivlin, 2004). The use of familiar themes takes advantage of psychological commitments that gamblers may already exhibit towards a brand, primarily with regard to confidence and position involvement. Parke and Griffiths (2006) recognized that such brands may be successful for several reasons, including that gamblers may simply have more fun when playing familiar themes, but the authors also pointed out that the familiarity may promote an illusion of control that may encourage continued or future use of a machine. As a Las Vegas casino executive remarked in a

New York Times article, “Customers get stuck on themes they like” (Richtel, 2006). Also, the logical marketing move to take advantage of this loyalty process is already under way with the current development, testing, and introduction of server-based slot machines in which players can choose from among dozens of themes and casino managers can easily download chosen themes to individual machines (Benston, 2008; Canadian Gaming Business, 2008a; Richtel, 2006; Velotta, 2008). As the vice president of engineering for one slot machine manufacturer remarked about the technology in a *CNET* article, “It will allow your favorite games to carry with you no matter where you are” (Terdiman, 2005).

Slot machines have become the most lucrative game for casinos (Cooper, 2005; Rivlin, 2004), but various studies have linked slot machine gambling with problem gambling in a number of ways (e.g. Breen & Zimmerman, 2002; Wiebe & Cox, 2001). In fact, Griffiths (1993) and Parke and Griffiths (2006) argued that the rapid play frequency and familiar themes of slot machines are two of the machines’ many characteristics that may contribute to the onset of problem gambling. Dowling, Smith, and Thomas (2005) have questioned the notion that slot machines are a particularly risky form of gambling, but even they acknowledge that slot machine players comprise a relatively large portion of the problem gambling population. Consequently, examining how superstition may influence problematic slot machine loyalties is important. Griffiths (1993) argued that the rapid play frequency of slot machines can induce conditioned learning that encourages repeated play through the reward of winning money. However, it should be considered that superstition may moderate this process, as the conditioned learning may involve the acceptance of superstitions or an illusion of control that subsequently encourages repeated play, as opposed to a direct process encouraging repeated play. Also, it will be useful to better understand how superstitions may relate to problem gamblers’ pre-existing psychological commitment to certain brands that are reflected in slot machine themes, and how these superstitions may promote the gamblers’ behavioural loyalties.

Gamblers may develop superstitions or an illusion of control at any moment when they are in a casino, but research indicates that early success is particularly important in the development of an illusion of control. Early chance success can induce conditioned learning through which gamblers develop a greater “internal control orientation,” meaning the gamblers attribute the early successes to skill rather than luck (Aasved, 2002). This phenomenon was demonstrated in an experiment conducted by Langer and Roth (1975) in which 90 Yale students were asked to guess the heads or tails results of 30 coin flips. However, the students could not see how the coins actually landed, and subjects in a “descending” group were told they had guessed correctly on 10 of the first 15 flips and only 5 of the final 15, students in an “ascending” group were told the exact opposite, and students in a “random” group were told the truth about their guesses. Afterwards, the subjects were asked to rate their perceived skill level at guessing coin flips, to remember how many of the 30 flips they had guessed correctly, and to predict how many of a following 100 flips they could guess correctly. The researchers found significant differences between the groups for all three measures, with the descending group (which did well at the beginning) ranking the highest and the ascending group (which did poorly at the beginning) ranking the lowest in all three measures. In fact, the descending group overestimated its past and future ability in all regards, whereas the ascending group underestimated its ability in all regards. Consequently, the authors remarked, “An early, fairly consistent pattern of success leads to a skill attribution, which in turn leads subjects to expect future success” (p. 954).

Similar results were yielded by subsequent experiments conducted by Bersabé and Arias (2000). In one of these experiments, subjects rolled poker dice 20 times, alternating

between throwing the dice five times while wearing a biomagnetic bracelet and throwing the dice five times without the bracelet, with half of the subjects beginning with the bracelet on and half beginning with it off. After a mere 20 throws, those subjects who, by chance, threw the dice more successfully while wearing the bracelet expressed more confidence in throwing the dice with the bracelet on, effectively considering it a “lucky charm” (p. 32). On the other hand, those subjects who, by chance, threw the dice more successfully without the bracelet expressed the opposite belief.

PROPOSITION VI: Gamblers who win very early in a new casino setting are more likely to develop superstitious beliefs that will serve as an influencing moderator in the players’ development of behavioural loyalty.

Such a suggestion has very direct implications for casinos because it opens the door to specific strategies that could be utilized to catalyse the development of superstitious beliefs. Once again, this suggestion is best analysed with a focus on slot machines, because they are controlled by computerized random number generators, so the pay-off odds can be changed (Benston, 2006, 2008; Harrigan, 2007). Therefore, a casino could increase its machines’ pay-off odds on special promotional days that attract new patrons, or a cruise ship casino could offer especially high pay-off odds during the first evening of a trip. Consequently, gamblers would be more likely to win early and develop superstitions and an illusion of control over specific machines, which may lead to psychological commitment towards those machines, thereby encouraging the gamblers to return to play the machines again on a later date by which time the pay-off odds would have been decreased. Additionally, a casino could offer higher pay-off odds early in the evening, when more people would tend to be arriving and playing a machine for the first time, and lower odds later at night, once some early skill attribution biases had developed.

The server-based slot machine technology that is slowly being introduced and appears to be the future of the slot machine industry permits slot machine pay-off odds to be changed remotely and instantly (Benston, 2006, 2008; Richtel, 2006; Terdiman, 2005; Velotta, 2008). With this capability, a casino could increase its odds for a machine that had been idle for a set period of time, such as 5 minutes, indicating that its subsequent user would likely be a new player. When a new player began, high pay-off odds – perhaps even over 100% – could be offered and then quickly decreased after the player had enjoyed a few initial wins, which would possibly engender an illusion of control and psychological commitment. Even if the ultimate decrease in pay-off odds only returned them back to the normal amount – meaning the gambler had simply been offered an early benefit that was then taken away – many people would certainly consider such manipulation to be deceptive and, therefore, unethical. Nevertheless, for the purpose of this exploratory discussion it is valuable to consider how gamblers would be impacted by such manipulation of the machines.

Not surprisingly, laws already exist in some jurisdictions to prohibit this type of manipulation. For example, Nevada casinos legally only can change the odds of a slot machine that has been idle for at least 4 minutes, and after the odds have been changed the machine cannot be played for another 4 minutes, during which time the screen must indicate that a change is being made to the game’s configuration. These regulations have been established in direct response to the emergence of this new technology, and other rules will be enacted as the technology becomes more prevalent (Benston, 2008; Richtel, 2006; Velotta, 2008). As legislators consider possible regulations, the consequences of casinos artificially offering early wins should be well understood. It should be mentioned that

various studies have implicated big wins early in one's gambling career with future problem gambling (e.g. Moran, 1970; Turner, Zangeneh, & Littman-Sharp, 2006). However, such findings only moderately apply to the discussion at hand, which is focused on wins early in a specific gambling session instead of one's lifetime gambling experience. Also, the type of pay-off odds manipulation previously described would likely not be allowed in most jurisdictions, and regulators are more concerned with issues such as whether casinos should be permitted to offer better pay-off odds to more loyal gamblers (Velotta, 2008).

Superstition and loyalty towards different types of games

Slot machines can be classified as games of pure chance (with a few minor exceptions), much like roulette, keno, and bingo, because the games involve no genuine element of skill. On the other hand, casinos also often feature games that do involve a skill element, such as horse betting, sports betting, poker, and blackjack, in which one person can genuinely be better than another (Walker, 1992b). Because superstitions emerge as responses to uncertainty (Vyse, 1997), and chance games naturally involve more uncertainty than skill games, it seems to logically follow that superstitions will be more prevalent than gamblers play chance games. In fact, Walker (1992a) used the "thinking aloud method" (Aasved, 2002, p. 141), in which subjects verbalize all of their thoughts, to investigate the thoughts players expressed as they played three games of different skill levels: a slot machine (no skill), a video poker machine (some skill), and a video game (the most skill). Walker found that irrational thoughts, such as superstition and illusion of control, were most common when participants were playing a slot machine and least common when they were playing a video game. Also, Gmelch (1972) found that the superstitions of professional baseball players typically focused on pitching and hitting, rather than fielding, with the author claiming this tendency could be explained by the much higher levels of uncertainty in the two former activities.

PROPOSITION VII: *Superstition has a more explicit role as a personal moderator in the formation of behavioural loyalty towards casino games of chance than casino games of skill.*

The direct implication of this proposition for casino managers is that it may be more important to appeal to the superstitions of gamblers of chance games than gamblers of skill games. A roulette player, for example, may favour a certain casino because he or she believes the casino has the luckiest roulette wheels, whereas a poker player, for example, may favour a certain casino where he or she is most knowledgeable about the other players. It also implies that the loyalties of problem gamblers favouring chance games may be more closely related to superstitious beliefs than are the loyalties of problem gamblers favouring skill games. Nevertheless, such conclusions should not be overstated, as there is no question that gamblers who play skill games, such as poker, are often very superstitious as well (e.g. Hayano, 1978).

The broader implication of Proposition VII is simply that segmenting gamblers by the games they play may be helpful in better understanding gambling loyalties. In fact, superstition not only may be a more explicit personal moderator in the development of behavioural loyalties involving certain games, but it also may moderate the developmental process differently. For example, slot machine players' superstitions often may be related to the gamblers' position involvement regarding certain themes and volitional choice because of the abundance of themes, whereas poker players' superstitions may be more

closely related to their informational complexity about advantages and disadvantages of the poker rooms at different casinos. Also, Proposition VII has divided gambling games as chance games and skill games, but casino games can also be categorized in other ways, such as card games and non-card games, or games played against other gamblers and games played against the house.

Although at times it may be logical to group games of chance into a single category, it should be noted that different chance games involve different levels of participant interaction. This factor deserves consideration because various studies have implicated participation and interaction with a game in the development of an illusion of control. For example, Langer (1975) conducted a field experiment involving two real business office lotteries selling \$1 tickets. In each lottery, half of the purchasers were given a random ticket, whereas half of the purchasers were allowed to choose their tickets. When all of the purchasers were asked, before the drawing took place, for how much they would be willing to sell their tickets, it was found that those who had been given random tickets were willing to sell them back at an average of \$1.96, whereas those who had chosen their tickets demanded the much higher average price of \$8.67. Also, Davis, Sundahl, and Lesbo (2000) observed craps players in several Reno casinos and found that when players were rolling the dice – as opposed to wagering on the dice rolls of fellow gamblers – the players wagered more money, placed more bets, placed riskier bets, and placed more bets that would pay off if they rolled successfully. Although the authors could not measure the gamblers' perceived levels of control, the authors noted that their results were consistent with the idea that participation increases an illusion of control. Additionally, in Griffiths' (1990) study of fruit machine gamblers he remarked, "The machines have become increasingly complex and with the emergence of 'nudge' and 'hold' buttons, elements of perceived skill have been introduced" (p. 35).

PROPOSITION VIII: Greater interaction with a chance game, which allows for greater levels of perceived control, amplifies the impacts of superstition as a personal moderator influencing the development of psychological commitment and behavioural loyalty.

The idea that increased interaction increases superstition and the illusion of control, and may therefore increase psychological commitment and behavioural loyalty, has direct marketing implications for casinos. It supports the past development of slot machines with greater interactive options and similarly endorses the design of keno and other lottery-style games that permit gamblers to choose their own numbers. However, there are certainly additional strategies that casinos could employ. For instance, casinos with bingo rooms could permit players to choose their bingo cards. A casino could also allow players to create their own bingo cards and then leave the cards at the casino with the opportunity to use them again in future visits. Consequently, a player could create a card with his or her lucky numbers and theoretically develop a psychological commitment to the card that then would draw the player back to the bingo room. Also, casinos could allow roulette players to take turns spinning the roulette wheel and dropping the metal ball into it, much like craps players take turns rolling the dice. The player spinning the wheel would quite possibly exhibit a greater illusion of control and, therefore, wager more, just like the craps players observed by Davis et al. (2000), and the player may also be more inclined to return to the casino offering this opportunity.

Nevertheless, it must also be appreciated that increasing gamblers' illusion of control via methods of game interaction may contribute to problem gambling. For example, Griffiths' (1990) study focused on problem gamblers and he suggested that their false levels of

perceived skill may contribute to the development and maintenance of problem gambling, which is a notion he has since reiterated in various other studies (e.g. Griffiths, 1993, 1994; Parke & Griffiths, 2006). Griffiths (1990) found that the gamblers expressed behavioural loyalty towards specific games they were supposedly better at playing. Consequently, in order to combat these problematic loyalties it is necessary to understand how superstition and illusion of control moderate their development and maintenance.

Socio-demographic and cultural variables

Although superstition and illusion of control may involve perceptions of random events, superstitious tendencies are not necessarily exhibited at random among people. In fact, various socio-demographic characteristics have been shown to correlate with different levels of acceptance of superstitious beliefs. Torgler's (2007) research in collaboration with the International Social Survey Programme 1998 (Religion II) analysed quantitative data regarding the acceptance of superstitious beliefs in 17 different countries, primarily in Europe. Torgler found a statistically significantly higher degree of superstition in the former Communist countries than the other nations considered. He also found that higher age groups were correlated with lower degrees of superstition, perhaps because younger adults "are confronted with a stronger uncertainty about the future and lack of control" (p. 719). Additionally, women were found to be more superstitious than men. Education levels, on the other hand, exhibited a significant negative correlation with superstition, "support(ing) the argument that better educated people are more inclined to reject superstitious beliefs" (p. 728). Higher levels of commitment to a religious organization were also found to have a negative correlation with superstition, with the stated explanation possibility "that church authorities have a self-interest in disparaging superstitious claims" (p. 729). On the other hand, religiosity exhibited a significant positive correlation with superstition, prompting Torgler to reason, "A positive relationship between religiosity and paranormal belief and the analytical significance is understandable as both belief systems violate known laws of sciences" (p. 729).

PROPOSITION IX: *Certain socio-demographic characteristics impact the likelihood that an individual will be influenced by the moderating effects of superstition in the development of behavioural loyalty to and within casinos.*

This proposition importantly recognizes differences between different gamblers, suggesting that the role of superstition as a personal moderator may be stronger or weaker among certain socio-demographic segments. For example, a young, religious woman's behavioural loyalty towards a certain casino may be more likely to be influenced by her superstitious beliefs about the casino than the behavioural loyalty of an older, non-religious man. This possibility could be interpreted by a casino as reason to target specific socio-demographic markets differently. For instance, marketing towards young women should perhaps focus more on how lucky a casino is, whereas marketing towards older men should perhaps focus more on aspects unrelated to superstition, such as a casino's quality restaurant and free parking.

Recognizing these potential differences between different socio-demographic segments also is naturally important for problem gambling research. Numerous studies have considered gender differences when analysing the relationship between irrational beliefs and gambling levels (e.g. Joukador et al., 2004; Miller & Currie, 2008; Strickland et al., 2006; Toneatto et al., 1997), but few studies appear to have considered other possibly

relevant socio-demographic characteristics. It is quite possible that superstition is a much bigger factor in the development of problem gambling behaviours among certain segments of the population, so differentiating between these segments will be a useful strategy in the prevention of problem gambling.

Not only does the prevalence of superstition seem to vary between different socio-demographic segments, but different cultures also possess different superstitious beliefs that are relatively common within that culture. For example, in North America the number 13 is considered unlucky and many buildings – particularly hotel casinos – do not have a 13th floor. Additionally, \$50 bills are considered unlucky within casinos and therefore many casinos will not pay winners with them (The Greek, 2006). By contrast, in China the number four is considered unlucky because in Cantonese it is pronounced similar to the word for “die,” while the number eight is considered lucky because it is pronounced similar to the word for “prosperity.” Also, *feng shui* is a popular form of superstition in China that is based on the belief that the world is full of positive and negative forces that can be manipulated to one’s benefit, such as by arranging furniture to avoid bad fortune (Lam, 2007b, Tsang, 2004). Chinese gamblers who believe in *feng shui* sometimes believe that it is unlucky to enter a casino through its main entrance (Lam, 2007b).

PROPOSITION X: Due to the diversity in gambling superstitions that are widely espoused by different cultures, casino characteristics exhibit varying importance on the development of behavioural loyalty among people of different cultures.

As casinos target gamblers from different cultures, the casinos certainly will want to consider the superstitions commonly held by individuals in those cultures. By accommodating these superstitions casinos can build gamblers’ confidence, which will function as a formative factor in their development of psychological commitment. On the other hand, if these superstitions are ignored then gamblers may fail to develop confidence in a venue and they will also likely never develop a position involvement with the casino. Consequently, these elements would influence the gamblers’ likelihood of developing behavioural loyalty towards the casino. As an example, a casino targeting North American gamblers may struggle to inspire loyal behaviour from gamblers who are given rooms on the 13th floor of the casino’s hotel and then provided with \$50 bills when they win. On the other hand, a casino targeting Chinese gamblers may need to avoid having a fourth floor, rather than a 13th floor; should strive to fit as many rooms as possible on the eighth floor; and should provide an easily accessible and nicely decorated side entrance. Also, Proposition X suggests that culture should be added to the socio-demographic variables discussed in Proposition IX that may influence the role of superstition in the development of behavioural loyalties among problem gamblers.

Preventing problem gambling

Different cultures not only espouse different superstitions, they also appear to reflect different attitudes towards gambling. Although some cultures are quite permitting of gambling and involve high participation rates, other cultures completely disapprove of the activity (Raylu & Oei, 2004). Nevertheless, it is reasonable to assume that, even in cultures permissive of gambling, there will frequently be a disapproval of what can be considered problem gambling behaviour. Viewed within the context of Iwasaki and Havitz’s (2004) theoretical model, such cultural or community attitudes can be viewed as a “social-situational moderator,” which is a term used to denote social and situational factors

that influence the development of behavioural loyalty. In fact, Iwasaki and Havitz (2004) specifically highlighted socio-cultural norms as a type of social-situational moderator.

Nevertheless, a community's socio-cultural norms disapproving of problem gambling behaviour may be undermined by norms that emerge within gambling subcultures. Ocean and Smith (1993), whose research involved participant observation by one of the authors as a blackjack dealer in an Edmonton casino, found that regular gamblers in the casino they studied became encompassed by the gambling institution and formed a strong group identity. This assessment is consistent with Walker's (1992a) observation that "being engaged on a parallel activity with other players, each player can feel a sense of fraternity and group solidarity" (p. 249). Ocean and Smith (1993) found that this group identity was encouraged by gamblers' superstitions about the "flow of cards," an idea that cards are dealt in certain patterns and the gamblers must cooperate to take advantage of these patterns. As the authors noted, "Because the value of cooperating to beat the system is so strong, a 'fate interdependence' is fostered among the players which generates group affiliation and cohesion" (pp. 326–327). The authors found that as gamblers became more involved with the casino and their affiliation with other gamblers grew, their external social networks often eroded. In fact, the authors claimed, "For many regular gamblers, participation in the activities of the gambling institution becomes their daily reason for being. Disengagement from the institution is discomforting and anxiety producing for these regulars" (p. 325). In other words, superstition may influence group identity among gamblers that, in turn, increases their isolation from an outside community exhibiting social norms that may otherwise dissuade the gamblers from problem gambling behaviour.

PROPOSITION XI: *The existence of superstitious beliefs as a personal moderator functions to reduce the importance of social norms disapproving of problem gambling behaviour as a social-situational moderator.*

If superstitious beliefs reduce the influence of anti-problem gambling social norms among problem gamblers, then one method of preventing problem gambling would seem to be teaching problem gamblers about the falsity of their superstitions. In other words, perhaps if the gamblers studied by Ocean and Smith (1993) were taught that card patterns were nonexistent then the communal atmosphere of the casino would diminish and the gamblers would feel less isolated from the outside community. This logic can also be applied more generally, because if superstitious beliefs function to encourage gambling loyalties among problem gamblers, then a logical step would be to teach problem gamblers about the falsity of their superstitions. Not surprisingly, this strategy has been recommended by numerous researchers (e.g. Bersabé & Arias, 2000; Griffiths, 1990) and various studies have found that correcting irrational beliefs can be effective in the treatment of problem gambling (Ladouceur, Sylvain, Letarte, Giroux, & Jacques, 1998; Ladouceur et al., 2001, 2003).

Similarly, there is a growing interest and effort to provide objective gambling information in casinos, schools, and other parts of communities, such as by displaying pay-off odds in casinos (Delfabbro, 2004; Lambos & Delfabbro, 2007). This interest is based on "the belief that irrational beliefs arise from a lack of knowledge about mathematics (and) gambling odds, so that it might be possible to reduce pathological gambling through appropriate education strategies that draws people's attention to the design of gambling activities and their inevitable unprofitability" (Lambos & Delfabbro, 2007, p. 159). However, these educational initiatives meant to prevent problem gambling do not appear to be as effective as using similar efforts to treat problem gambling. This inconsistency is actually

not wholly surprising because of the numerous biases gamblers use to maintain their superstitions, as were previously discussed.

In one experiment supporting this conclusion, Williams and Connolly (2006) measured the gambling behaviours and attitudes of several hundred university students who had been divided into three different groups: students in a statistics class that involved extensive gambling examples, students receiving basic instruction on probability without gambling examples, and students enrolled in no math classes. Despite the probability and gambling-specific lessons that many of the students received, the authors found no significant changes in the gambling behaviours and attitudes expressed by students in any of the groups. Similarly, Lambos and Delfabbro (2007) measured irrational beliefs, numerical reasoning ability, and objective gambling knowledge among problem gamblers, infrequent gamblers, and non-gamblers while controlling for education level. The researchers found that the problem gamblers exhibited significantly more irrational beliefs, but this trend could not be explained by the other two variables. As Lambos and Delfabbro (2007) concluded, "The results from this study suggest that a basic understanding of mathematics, statistics or gambling odds is unlikely to be a protective factor in pathological gambling because gamblers can pick and choose which information they choose to apply when the information is applied to activities in which they have a personal interest" (p. 167).

Lambos and Delfabbro (2007) claimed that their results may be explained by the "double switching" concept proposed by Sévigny and Ladouceur (2003). These researchers found that slot machine players often exhibited superstitious behaviours when gambling despite reporting that a game was governed solely by chance both before and after playing. These observations prompted the researchers to propose the "double switching" concept, which "is defined by shifting from a rational perception of gambling events (switch on) to a behavioural manifestation of irrational cognitions (switch off), and back on to a rational perception" (p. 163). Whether or not the "double switching" concept is accurate, such research certainly brings into question the notion that problem gambling can easily be prevented by providing gamblers with objective information.

PROPOSITION XII: *Educating the public about the laws of chance often will not, in isolation, reduce the role of superstition as a personal moderator influencing the development of problem gamblers' behavioural loyalties to and within casinos.*

This proposition initially may appear to contradict Torgler's (2007) finding that education level and belief in superstition are negatively correlated. However, the two ideas easily can be reconciled if one considers a clear distinction between them: Torgler compared groups of people who had achieved different levels of education, whereas Williams and Connolly (2006) and Lambos and Delfabbro (2007) considered the influence of objective gambling knowledge among people with similar education levels. In other words, even if university-educated individuals are less apt to believe in superstition, those with superstitious beliefs may be reluctant to reject them even when taught they are false.

Also, it should be recognized that explicit, wide-ranging, and long-term education strategies may produce some positive results despite the conclusions generated by Williams and Connolly (2006) and Lambos and Delfabbro (2007). In fact, the authors of both studies argued that their findings should not be interpreted as evidence that gambling education is useless. Lambos and Delfabbro (2007) suggested that early education may be effective in teaching people to approach gambling in a rational way and Williams and

Connolly (2006) suggested that education may be effective in conjunction with other initiatives, even if it is not independently effective. These attitudes are consistent with the idea that superstitious beliefs function as a personal moderator in the development of behavioural loyalty because such a role recognizes the significance such beliefs can have but also acknowledges that the beliefs are not the sole actor promoting such behaviour.

Conclusion

Although the presented propositions are firmly grounded in the existing leisure and gambling research, the propositions remain hypotheses that require further research. Fortunately, the propositions easily lend themselves to empirical testing and the various concepts covered throughout the article have been measured previously in different manners, albeit independent of one another. For example, gambling researchers have used a variety of methods to measure gambling superstitions, such as quantitative instruments (e.g. Joukhador et al., 2004), interviews or group discussions (e.g. Griffiths, 1990), participant observation (e.g. Ocean & Smith, 1993), and the “thinking aloud method” (Walker, 1992a). Also, leisure researchers have developed methods of measuring psychological commitment and behavioural loyalty. Psychological commitment can be measured with a relevant scale based on the Psychological Commitment Instrument, which was introduced by Pritchard et al. (1999) in their assessment of commitment towards airlines and hotels. For example, the Psychological Commitment Instrument was adapted to the context of recreation agencies by Iwasaki and Havitz (2004), and it could certainly be modified to measure commitment towards casinos and different aspects of casinos. Behavioural loyalty can be measured via scales gauging some of the different loyalty facets. For example Iwasaki and Havitz (2004) focused their behavioural loyalty measurement on frequency and proportion, whereas Baloglu (2002) focused his behavioural loyalty measurement on proportion and intensity, asking gamblers the proportion of casino visits they spent at the casino in question and how many hours they spent there. Also, commitment and loyalty measurement scales logically would need to be modified to accommodate differences between locals and tourists and to effectively evaluate commitment and loyalty towards specific features of a casino, such as a slot machine or dealer, as opposed to the overall casino.

Through a better understanding of the 12 propositions it is hoped that new insights into gambling loyalties will be achieved. There is little question that superstition is associated with gambling behaviour and yet the exact nature of how superstition may influence gambling loyalties remains unclear. By viewing superstition as a personal moderator within the context of Iwasaki and Havitz’s (2004) theoretical model, numerous possible propositions have been formulated that may help to clarify the process through which gambling loyalties develop. Further research on these propositions will undoubtedly be useful to casino managers as they strive to develop behavioural loyalty among their patrons, while also contributing to the effective design of strategies that can be used to prevent problem gambling.

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