PREDICTING AND UNDERSTANDING COLLEGE STUDENTS’ GAMBLING INTENTIONS USING AN EXTENDED MODEL OF THE THEORY OF PLANNED BEHAVIOR: MEDIATING ROLES OF MEDIA EXPOSURE AND GAMBLING-RELATED COGNITION VARIABLES

By

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To my family, friends, and Debbie
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgments</td>
<td>4</td>
</tr>
<tr>
<td>List of Tables</td>
<td>8</td>
</tr>
<tr>
<td>List of Figures</td>
<td>9</td>
</tr>
<tr>
<td>Abstract</td>
<td>10</td>
</tr>
<tr>
<td>Chapter 1: Introduction</td>
<td>12</td>
</tr>
<tr>
<td>Theory of Reasoned Action and Planned Behavior</td>
<td>19</td>
</tr>
<tr>
<td>Theory of Reasoned Action (TRA)</td>
<td>19</td>
</tr>
<tr>
<td>Theory of Planned Behavior (TPB)</td>
<td>23</td>
</tr>
<tr>
<td>Principle of Correspondence (or Compatibility)</td>
<td>25</td>
</tr>
<tr>
<td>External Variables and the Theory of Planned Behavior</td>
<td>26</td>
</tr>
<tr>
<td>Chapter 2: Literature Review</td>
<td>32</td>
</tr>
<tr>
<td>Model Overview and Current Research</td>
<td>32</td>
</tr>
<tr>
<td>Predicted Effects on Gambling Intentions</td>
<td>35</td>
</tr>
<tr>
<td>Predicted Effects on Attitudes, Social Norms, and PBC</td>
<td>38</td>
</tr>
<tr>
<td>Predicted Effects on Gambling Media Exposure</td>
<td>44</td>
</tr>
<tr>
<td>Prior Gambling Experience</td>
<td>44</td>
</tr>
<tr>
<td>Personality: Sensation Seeking</td>
<td>46</td>
</tr>
<tr>
<td>Religiosity</td>
<td>49</td>
</tr>
<tr>
<td>Other Research on Gambling: Brief Overview</td>
<td>51</td>
</tr>
<tr>
<td>History of Gambling</td>
<td>51</td>
</tr>
<tr>
<td>College Student Gambling</td>
<td>52</td>
</tr>
<tr>
<td>Gender and Gambling</td>
<td>55</td>
</tr>
<tr>
<td>Accessibility</td>
<td>56</td>
</tr>
<tr>
<td>Chapter 3: Method</td>
<td>59</td>
</tr>
<tr>
<td>Elicitation Study for Indirect Measure of Attitude, Social Norm, and PBC</td>
<td>59</td>
</tr>
<tr>
<td>Participants and Survey Procedure</td>
<td>61</td>
</tr>
<tr>
<td>Measures</td>
<td>62</td>
</tr>
<tr>
<td>Exogenous Variables</td>
<td>62</td>
</tr>
<tr>
<td>Endogenous Variables</td>
<td>64</td>
</tr>
<tr>
<td>Analyses and Model Evaluation Criteria</td>
<td>70</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1</td>
<td>Open-ended questions used in the elicitation study</td>
<td>72</td>
</tr>
<tr>
<td>3-2</td>
<td>Coding categories and frequency (percentage) for the “advantages,” “disadvantages,” and “other associations” questions about casino gambling</td>
<td>73</td>
</tr>
<tr>
<td>3-3</td>
<td>Coding categories and frequency (percentage) for the “advantages,” “disadvantages,” and “other associations” questions about online gambling</td>
<td>74</td>
</tr>
<tr>
<td>3-4</td>
<td>Coding categories and frequency (percentage) for the “approve,” “disapprove,” and “other people’s views” questions about both casino and online gambling</td>
<td>75</td>
</tr>
<tr>
<td>3-5</td>
<td>Coding categories and frequency (percentage) for the “easy,” “difficult,” and “other issues” questions about casino gambling</td>
<td>76</td>
</tr>
<tr>
<td>3-6</td>
<td>Coding categories and frequency (percentage) for the “easy,” “difficult,” and “other issues” questions about online gambling</td>
<td>77</td>
</tr>
<tr>
<td>3-7</td>
<td>Modal salient beliefs for the indirect measure of attitude, social norms, and perceived behavioral control about both casino and online gambling</td>
<td>78</td>
</tr>
<tr>
<td>3-8</td>
<td>Constructs, indicators, and key statistics</td>
<td>79</td>
</tr>
<tr>
<td>4-1</td>
<td>Descriptive data and correlations among measures for casino gambling</td>
<td>101</td>
</tr>
<tr>
<td>4-2</td>
<td>Goodness-of-fit results for measurement and structural models</td>
<td>102</td>
</tr>
<tr>
<td>4-3</td>
<td>Descriptive data and correlations among measures for online gambling</td>
<td>103</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>Hypothesized Model for both Direct and Indirect Measures of Casino and Online Gambling</td>
<td>58</td>
</tr>
<tr>
<td>3-1</td>
<td>Direct Measure of Theory of Reasoned Action and Theory of Planned Behavior</td>
<td>84</td>
</tr>
<tr>
<td>3-2</td>
<td>Indirect Measure of Theory of Reasoned Action and Theory of Planned Behavior</td>
<td>85</td>
</tr>
<tr>
<td>4-1</td>
<td>Final Model with Direct Measures of Attitudes, Social Norms, and PBC of Casino Gambling</td>
<td>104</td>
</tr>
<tr>
<td>4-2</td>
<td>Final Model with Indirect Measures of Attitudes, Social Norms, and PBC of Casino Gambling</td>
<td>105</td>
</tr>
<tr>
<td>4-3</td>
<td>Final Model with Direct Measures of Attitudes, Social Norms, and PBC of Online Gambling</td>
<td>106</td>
</tr>
<tr>
<td>4-4</td>
<td>Final Model with Indirect Measures of Attitudes, Social Norms, and PBC of Online Gambling</td>
<td>107</td>
</tr>
</tbody>
</table>
Given that current television programming contains numerous gambling portrayals and gambling related advertisements, it is imperative to understand whether and to what extent these gambling behaviors in media influence individuals' beliefs, attitudes, and intentions. Thus, the present study was concerned with an application of the theory of planned behavior to college students’ gambling intentions. In specific, the present research explored an extended model of the theory of planned behavior by including gambling media exposure as a distal, mediating and mediated factor in predicting college students’ gambling intentions. That is, the present research posits that gambling media exposure mediates effects of individual differences, such as prior gambling experience, level of sensation seeking and gambling addiction, and religiosity, on gambling-related cognitions and intentions within the theory of planned behavior.

The findings were aligned with the theory of reasoned action (TRA) rather than the theory of planned behavior (TPB). The extended models of the TRA clearly indicated that the constructs of gambling media exposure, prior gambling experience, and level of gambling addiction as distal factors contribute to the prediction of gambling intentions. The extended
models by and large focused on mediated effects on intentions, implying that as expected, those
distal variables affect gambling-related cognitions which in turn affect gambling intentions.
Overall, the extended models provided good fit to gambling intentions and served as a more
sufficient model for mediating gambling media exposure.

In sum, the results of this study support the utility of the TRA as a theoretical framework
for predicting college students’ gambling intention in casinos, as well as on online sites. All
hypothesized models tested in the present study showed good model fits and substantially
improved predicting powers of the TRA or the TPB by introducing direct paths between
gambling media exposure and intention, prior casino gambling experience and intention, and
gambling addiction and intention. Theoretical and practical implications of mass media exposure
and gambling intentions are discussed, and future research directions are outlined.
CHAPTER 1
INTRODUCTION

Given college students’ higher susceptibility to problem gambling and today’s saturation of gambling TV shows and gambling advertisements, it is important to understand the relationships between gambling-related media exposure and their gambling intentions. Thus, the present study was concerned with an application of the theory of planned behavior (TPB; Ajzen, 1988, 1991) to college students’ gambling intentions. In specific, the present research explored an extended model of the theory of planned behavior by including gambling media exposure as a distal, mediating and mediated factor in predicting college students’ gambling intentions.

Gambling can be characterized as “staking money on uncertain events driven by chance,” or taking voluntary risks in exchange for greater value (Abbott & Volberg, 2000; Bernstein, 1996; Productivity Commission, 1999, p. 6). Gambling includes casino gaming (e.g., table games, slot machines, keno), pari-mutuel wagering (e.g., horse/greyhound racing, jai alai frntons), lottery (e.g., lotto, powerball, daily number: pick-3, pick-4), charitable gaming (e.g., pull-tabs, Las Vegas Nights), cardrooms with premises devoted to playing card games for money, sports betting, Internet gaming, and others (e.g., bingo, scratchcards, dead pool, video lottery machines, video poker) (National Opinion Research Center [NORC], 1999).

Today gambling is widespread around the globe both in the real world and in media portrayals. During the last three decades, the gambling industry has enjoyed incredible growth, and there is also optimism for its continued growth in the foreseeable future (Gupta, Derevensky, & Ellenbogen, 2006; Lam, 2006; Messerlian, Derevensky, & Gupta, 2005). In 2006, consumer spending on commercial casinos alone in the U.S. totaled $32 billion, about a 100 percent increase over 1996’s total expenditures. Approximately one-quarter (26 percent, 56.2 million) of all adult Americans visited casinos and participated in casino gambling that year as well.
Since legalized casino gambling was first established in Las Vegas, Nevada, in 1931 and Atlantic City, New Jersey, more than three decades ago, many states have allowed commercial casinos for different reasons, such as boosting tax revenues, adding more jobs, and financing education and health care and other state necessities (Campbell & Smith, 1998; Messerlian et al., 2005; Sauer, 2001). Consequently, there are now 460 commercial casinos in 11 states, 36 tribal casinos in 11 states, and 372 racetrack casinos in 28 states (AGA, 2007). Except for Utah and Hawaii, at least one form of legalized gambling is widely available in every other state (AGA, 2007).

In addition, the advent of Internet gambling as a result of advances in technology has led to as much as $2.3 billion per year in online gambling expenditures spread across approximately 1,400 Internet gambling sites worldwide (Kelly, Todosichuk, & Azmier, 2001; Mitka, 2001; Sinclair, 2000). While operating Internet gambling Web sites is illegal in the U.S., over the past few years, the number of Internet Web sites offshore from the U.S. territory has exploded (Cabot, 2001). The intrinsic nature of the Internet, including unlimited and convenient accessibility on a 24/7 basis, has expedited the popularity of online gambling around the world (Wood, Griffiths, & Parke, 2007). Internet gambling includes sports tipping, casino games (e.g., blackjack, roulette, etc.), bingo, lottery, and others (NORC, 1999).

Along with the expansion of the off- and online-casino gambling industry, gambling television shows, especially poker playing, and gambling advertising for casinos and Internet gambling sites have rapidly proliferated and become a part of viewers’ everyday media life. As a result, the connection between mass media and gambling has become stronger. Specifically, many TV poker shows, such as reruns of the World Series of Poker (ESPN, ESPN 2), the World Poker Tour (Travel Channel), Celebrity Poker Showdown (Bravo), High Stakes Poker and Poker
Royale (GSN), Poker Superstars (Fox Sports), Las Vegas (NBC), Heads Up Poker Championship (CNBC) and others are aired regularly across various channel genres, including sports, entertainment, gaming, and so on (Benston, 2004). Furthermore, many television stations have continually added these types of shows to their schedules, and they are rewarded by high viewership (Donaldson-Evans, 2004). It is now possible to view a gambling related show at almost any time of the day.

With an increase in the accessibility of various forms of legalized gambling and in the media exposure of gambling, including gambling TV shows and advertising, the social and cultural climate of gambling activities has changed for the positive (Breen & Zuckerman, 1999; Griffiths & Wood, 2001). That is, gambling, once considered as a dangerous or risky activity because of its potential addiction, is now regarded as a harmless recreational and leisure activity, a viewpoint accompanied by an increasing prevalence of gambling and by widespread social legitimization of gambling (Breen & Zuckerman, 1999; Griffiths & Wood, 2001; Hraba, Mok, & Huff, 1990; Messerlian et al., 2005; Wood & Williams, 2007). For example, a sample of 2,000 Iowa residents viewed gambling as a relatively common activity which is not associated with undesirable outcomes (Hraba et al., 1990). Moreover, today people view gambling activity as a socially acceptable way to spend leisure time, and assume that it has minimal harmful effects on their lives in general (Gupta et al., 2006; Wood & Williams, 2007). For example, about 82 percent of Americans view casino gambling as an acceptable activity. They view gambling activity as a matter of individual choice (AGA, 2007). In addition, they think the casino industry has a significant role in economic development and as sources of local or state revenue (AGA, 2007).
The increased opportunities and popularity for gambling in the real world and in media, however, have not escaped the notice of individuals who worry that the explosive proliferation of gambling might lead to many negative consequences. In terms of psychological and public health, even though gambling is a harmless social activity for some individuals, it could become problematic for others. Although often not as evident as consequences of other addictive behaviors such as alcohol, smoking, or drug abuse, gambling behavior can easily become problematic for individuals who can become addicted, and in fact, gambling addiction is a recognized psychological disorder (Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998; Korn & Shaffer, 1999).

It is estimated that 1.6 percent to 3.8 percent of individuals have experienced a problem gambling episode (Shaffer, Hall, & Vander Bilt, 1999). College student populations seem especially susceptible to problem gambling (Neighbors, Lostutter, Cronce, & Larimer, 2002a; Neighbors, Lostutter, Larimer, & Takushi, 2002b). Studies have reported that 5 percent of college students reported pathological gambling behaviors, with an additional 9 percent reporting difficulties associated with gambling (Lesieur et al., 1991; Shaffer et al., 1999). Furthermore, gambling is not only a problem by itself, but also it has shown high correlations with other social and health issues, such as suicide, difficulties with work, school, family, or finances, criminal activity and mental health disorders such as anxiety, depression, and drug or alcohol addictions (Bland, Newman, Orn, & Stebelsky, 1993; Gupta & Derevensky, 2000; Lester, 1998; Petry, Stinson, & Grant, 2005).

Although most countries have laws restricting or banning gambling-related advertising, many gambling entities circumvent these rules by advertising Web sites offering gaming tips and using a .net web address while including links to other (.com) sites that offer Internet gambling.
Furthermore, the gambling portrayals in mass media, such as TV poker shows and gambling related advertising, have become a major concern in terms of public health because they overwhelmingly depict gambling activities and their outcomes in a quite positive light. It has been speculated that these unidirectional gambling media portrayals would lead more people to initiate, continue, and increase consumption of gambling behavior (Griffiths, 1997; Griffiths & Wood, 2001; Wood et al, 2007). Specifically, young people who have been frequently exposed to gambling TV shows and advertisements have a tendency to believe that gambling is daring, glamorous, romantic, fun, exciting, and an easy way to make a lot of money in a short time (Breen & Zuckerman, 1999; Ferland, Ladouceur, & Vitaro, 2002). It is likely that mass media viewing of gambling, including advertising, has an impact on the beliefs, attitudes, intentions, and behaviors of individuals by contributing to their initiation and continuation of gambling (Griffiths, 2005).

To date there have been numerous studies on pathological gambling and problem gambling behaviors from a variety of perspectives, at the intrapersonal level (e.g., personality traits, impulsivity, self-esteem, anxiety, depression, cognitive or affective styles, etc.), the interpersonal level (e.g., social networks, family history of gambling, peer norms, etc.), and the economic/social/institutional level (e.g., local, state, federal polices and laws, availability and accessibility, social norms, etc.). Researchers in these studies have tried to explain why people gamble, why they take risks, and how they make gambling consumption decisions (Herman, 1976; Lam, 2006). However, it is very interesting to note that very little empirical research has attempted to examine the influence of media on gambling intention and behavior. The media influence on peoples’ gambling attitudes, intention, and behavior has often been neglected by past gambling researchers. Given today’s saturation of gambling TV shows and gambling
advertising around the world, it is clear that this issue needs more attention. That is, it is now more important than ever to understand the relationships between exposure to gambling-related television programs, and gambling advertising and viewers’ gambling intentions and behaviors. In particular, research efforts should identify mechanisms that can explain how gambling TV shows and advertising are associated with viewers’ gambling intentions and behavior.

Mass media have long been considered as a significant predictor of individuals’ values, beliefs, attitudes and consumption behavior (Bush, Smith, & Martin, 1999; Churchill & Moschis, 1979; Moschis & Churchill, 1978). A great deal of studies have been conducted on the effects of mass media’s contribution to increasing problem behaviors such as smoking, alcohol, and drug use. Previous research in these areas has found a positive relationship between individuals’ media consumption and their attitudes, intentions, and behaviors. Specifically, based on social learning theory (Bandura, 1977, 1986), a number of researchers have demonstrated that the media portrayals and advertising for controversial products such as tobacco, alcohol, and drug use might encourage viewers to engage in high-risk behaviors (e.g., Atkin, 1990; Byrne, Dickson, Derevensky, Gupta, & Lussier, 2005; Gidwani, Sobol, & DeJong, 2002; Grube, 1995).

According to these authors, because the great majority of televised characters for those controversial products often have been glamorized without showing negative consequences, those portrayals are associated with desirable outcomes. Individuals believe that these behaviors are socially approved and desirable; therefore, they imitate the behaviors. For example, individuals who were heavily exposed to alcohol advertising were more likely to have a favorable attitude toward drinking and were more likely to drink heavily (Atkin & Block, 1984; Atkin, Hocking, & Block, 1984; Atkin, Neuendorf, & McDermott, 1983).
However, compared to other controversial products such as cigarettes and alcohol, few researchers have investigated the influence of media usage on gambling behavior. Although there is widespread belief that TV gambling shows and advertising encourage the initiation and continuation of gambling behavior, the available published research on media influence on gambling activities is limited. As a result, concerns have been raised about the overly positive portrayals of gambling on TV as well as the pervasiveness of gambling advertisements in today's media environment. If it is demonstrated that media gambling portrayals and gambling advertisements have indirect or direct effects on gambling intention and problem gambling behavior, these public issues will continue to be investigated (Griffiths, 2005). Along with the concerns, a question has continually arisen: Does media exposure to TV poker shows and advertisements influence viewers’ intentions to gamble and their gambling behaviors? Breen and Zuckerman (1999) suggested that attitudes and beliefs about gambling might be learned through gambling TV programs and gambling advertising, as well as personal experience, such as observing parents’ or peers’ gambling behaviors.

Thus, this study investigates the relationships between gambling media exposure, specifically TV poker shows and gambling-related advertising, and individuals’ gambling beliefs and their attitudes toward and intention to engage in gambling activities. Specifically, this research examines how an important social influence, gambling media exposure, is associated with gambling intention among college students and investigates several mediators of that relationship. Since no research has simultaneously examined the impact of media exposure with other important variables influencing gambling attitudes, intentions, and behaviors, this research also examined the role of other important determinants (e.g., personality- sensation seeking, past gambling experience, gambling addiction, and religiosity). The test model comprised a
combination of the social learning theory (Bandura, 1977), the theory of reasoned action (TRA; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), the theory of planned behavior (TPB; Ajzen, 1988, 1991) and sensation seeking (Zuckerman, 1979). With a sample of college students, the model was tested using survey questionnaires containing the TPB measures and additional variables (e.g., individual differences and gambling media exposure).

Specifically, both the TRA and the TPB behavior provide a sound theoretical framework that enables the present study to simultaneously examine relationships among individual differences, gambling media exposure, attitudes toward gambling, social norms, perceived behavioral control, and gambling intention among college students. Moreover, by using structural equation modeling, the present study might strengthen the causal directionality of media exposure influences on intention that had been a weakness in the early exposure literature (Atkin, 1995; Grube, 1995; Smart, 1988).

Theory of Reasoned Action and Planned Behavior

Theory of Reasoned Action (TRA)

The theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) is based on the assumption that human social behaviors are the outcomes of logical sequence of cognition on the basis of his or her analysis of available information. The cornerstone of the theory of reasoned action is the fact that most human social behavior can be predicted by their behavioral intentions alone and behavioral intention is the single best determinant of behavior (Ajzen & Fishbein, 1980; Armitage & Christian, 2003; Fishbein & Ajzen, 1975; Sutton, 1998). Behavioral intentions can be characterized as a summary of the motivation or willingness required to perform the behavior (Ajzen, 1988; Armitage & Christian, 2003). A behavioral intention to perform a particular behavior is the most immediate and proximal determinant of actual behavior since motivation usually precedes action (Ajzen, 1988). Furthermore, the model suggests that the
impact of attitude on behavior is mediated by behavioral intentions rather than attitudes being related to directly to behavior. Such an approach stands in contrast to more traditional attitude-behavior relationship research traditions, which view attitudes as a primary predictor of behavior. Beyond the inclusion of intention as a mediator of the attitude-behavior relationship, the model also suggests that peoples’ behavioral intentions to behave are predicted by his or her subjective norms about the behavior as well as attitudes toward the behavior.

Thus, according to the model, behavioral intention to perform a particular behavior in question is the immediate determinant of actual behavior. Behavioral intentions are, in turn, determined by two basic determinants, attitude toward the behavior (personal determinant) and subjective norm (social determinant). Ajzen and Fishbein (1980) defined attitude toward the behavior as “the person’s judgment that performing the behavior is good or bad, that he is in favor of or against performing the behavior,” and subjective norm as “the person’s perceptions of the social pressure put on him to perform or not perform the behavior in question” (p. 6). In other words, the theory postulates that individuals consciously deliberate the costs and benefits of engaging in a behavior and important others’ (family and friends) approving or disapproving of the behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Thus, within the theory of reasoned action, people are more likely to intend to perform a particular behavior in question when they evaluate it positively or favorably and when they perceive normative support for performing the behavior from important others. In this case, prediction of intention is very accurate and straightforward because the two components are in agreement.

However, the theory of reasoned action permits that the relative importance of the two components varies as a function of the behavior under consideration as well as individual (or the population being studied) differences such as demographic variable (e.g., age, gender, social
status), personality traits (e.g., authoritarianism, introversion versus extraversion), and other individual differences. In other words, for some behaviors or some groups of people, attitudinal considerations are more primary determinant in determining behavioral intentions than are normative considerations. For other behaviors the reverse might be true. For example, a student who has a favorable attitude toward visiting to a casino for gambling but who believes his/her important others think that he/she should not visit a casino. If the student places more emphasis on attitudinal consideration than on normative consideration, he/she should visit a casino for gambling. On the other hand, if the student places more emphasis on normative considerations, he/she would not visit a casino. According to the theory of reasoned action, the weights of the attitudinal and normative components vary with its relative importance as a determinant of the intention and the weighted components are summed to predict the intention under consideration (Ajzen & Fishbein, 1980).

Unlike with the theory of reasoned action, however, other theories of behavior and behavior change such as social learning theory (Bandura, 1986), problem behavior theory (Donovan, Jessor, & Jessor, 1983), and social comparison theory (Festinger, 1954) emphasize the importance of descriptive norm as a powerful predictor of individual behavior as well as subjective norm. Descriptive norm refers to the perception of what is, or the prevalence of a given behavior, whereas subjective norm refers to the perception of what should be, or the degree of actual or perceived approval of a given behavior (Ajzen, 1991; Berkowitz, 1997; Cialdini, Reno, & Kallgren, 1990; Fishbein & Ajzen, 1975; Neighbors et al., 2007; Sheeran & Orbell, 1999).

For example, some researchers have supported social norms that include both descriptive and subjective norms are powerful determinants of gambling behavior and pathological
gambling behavior (Moore & Ohtsuka, 1997, 1999; Takushi et al., 2004). Similarly, Larimer and Neighbors (2003) found that college students with more approval of gambling from their parents or friends and with more perceived prevalence of gambling among college students gambled more frequently, had more gambling problems, and spent more money on gambling. Some previous studies suggest that parental and peer gambling is a consistent predictor of gambling behavior and has consistently been found to be related to problem gambling (e.g., Fisher, 1993; Govoni, Rupcich, & Frisch, 1996; Jacobs, 2000; Jacobs et al., 1989; Winters, Stinchfield, & Fulkerson, 1993).

In parallel fashion, some research on adolescent smoking behaviors suggests that descriptive norm including overestimation of peer smoking or the perception of prevalence is one of the most powerful factors of their smoking initiation (Botvin, Goldberg, Botvin, & Dusenbury, 1993; Collins et al., 1987). Furthermore, these researchers argued that these types of descriptive norms might be established by exposure to cigarette advertising that suggests smoking is normative in their peer group and in the larger social world (Botvin et al., 1993; Collins et al., 1987). Similar with the findings of smoking studies, young people who show high intention to drink more frequently as adults also perceived that they would get more approval of drinking from their peers and their parents drank more often (Grube & Wallack, 1994).

The theory of reasoned action also holds that both attitude and subjective norm are the functions of a set of salient behavioral beliefs and salient normative beliefs, respectively. The theory posits that although people may have a number of beliefs about performing a particular behavior, it appears that they can retrieve only a relatively small number of beliefs at any one time. Thus, both attitude and subjective norm are determined by a small number of salient underlying beliefs. According to the theory, salient behavioral beliefs are the immediate
determinants of a person’s attitude toward a behavior and the behavior belief consists of two components: consequences of performing a behavior (outcome belief) and an outcome evaluation. The outcome belief refers to the likelihood of particular outcomes occurring (e.g., the likelihood of making a big money from gambling) while the outcome evaluation refers to the evaluation of each of the consequences. This outcome belief can be weighted by the evaluations of the outcome to form each behavioral belief.

Like attitudes, normative beliefs are comprised of two components: referent beliefs and motivation to comply. According to the theory, people’s subjective norm is determined by their underlying beliefs that important others (salient referents) would want them to perform a given behavior (referent beliefs) and their motivations to comply with each of the referents. Similar with attitude, the referent belief can be weighted by the motivation to comply with those referents because people are only likely to experience social pressure from particular referents if they are motivated to comply with those referents.

**Theory of Planned Behavior (TPB)**

Over the past three decades, the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) has been widely used as one of most influential and popular theoretical frameworks in predicting relationship between behavioral intentions and actual behavior because a large percentage of variance in behavior can be explained by intention alone (Armitage & Christian, 2003; Sutton, 1998). However, some researchers have argued that the theory’s predicting and explaining power of intention and behavior works successfully only when the behavior is completely under the person’s volitional control (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). In fact, Ajzen (1988) permitted that “the theory of reasoned action was developed explicitly to deal with purely volitional behaviors” (p.127). Thus, the theory of reasoned action implies that the strength of relationship between intention and behavior might be
reduced and behavioral intention might be inaccurate predictor of actual behavior when the behavior is not completely under the person’s control (Ajzen, 1988; Ajzen & Madden, 1986).

To address this issue, Ajzen (1988, 1991) proposed the construct of perceived behavioral control as a third determinant of intention and a direct predictor of behavior, which works in situations where the behavior is not entirely under the person’s volitional control. The extended version of the theory of reasoned action by adding the concept of perceived behavioral control was named as the theory of planned behavior (Ajzen, 1988, 1991). The theory of planned behavior states that if the behavior is not completely under the person’s control, the accuracy of predicting behavior is dependent on the extent to which the behavior is under the person’s volitional control. Due to the difficulty of measuring the actual controllability of the behavior, perceived behavioral control has been suggested as a proxy measure of actual control as well as a measure of confidence in person’s ability (Ajzen & Madden, 1986).

The perceived behavioral control has both indirect and direct effects on behavior (Ajzen & Madden, 1986). Within the theory of planned behavior, it is proposed that when a person is uncertain about the extent to which the behavior controllable, the person will not be motivated to perform the behavior. In this case, the perceived behavioral control serves as a significant determinant of behavioral intention and its effects on actual behavior is assumed to be mediated through behavioral intention (Ajzen & Madden, 1986). For instance, when a person feels that performing a behavior is easy, he is more likely to intend to perform the behavior. The theory also posits that the perceived behavioral control has a direct effect when the behavior is not entirely under the person’s control (Ajzen & Madden, 1986). According to Ajzen and Madden (1986), the effects of the perceived behavioral control on behavioral intention and behavior have somewhat interactive characteristics, rather than additive. Thus, relative high scores on measures
of both the perceived behavioral control and behavioral intention are required in order to increase the possibility of performing the behavior (Ajzen & Madden, 1986).

Like attitude and subjective norm constructs, the perceived behavioral control is the functions of a set of salient control beliefs. The theory posits that the control beliefs consist of two components: control belief strength and control belief power. The control belief strength refers to “the perceived likelihood of a given control factor being present,” while control belief powers refers to “the extent to which the control factor’s presence has the power to facilitate or impede performance of the behavior” (Ajzen, 2002, p. 669). In accordance with the other belief components of the theory of planned behavior, perceived behavioral control can be obtained by multiplying belief strength and power and then summing the scores over all accessible factors (Ajzen, 1988, 1991, 2002).

**Principle of Correspondence (or Compatibility)**

Unlike with other models such as the health belief model and the transtheoretical model, the theory of reasoned action and the theory of planned behavior put stress on the importance of using compatible measures for each component of the model including behavior, intention, attitude, subjective norm, and beliefs (Ajzen & Fishbein, 1977; Fishbein & Ajzen, 1975; Sutton, 1998). The principle of correspondence states that the measures must be measured at the same level of specificity (or generality) in terms of four elements: action, target, time and context. Within the theory of reasoned action and the theory of planned behavior, behavioral intention (predictor) and actual behavior (criterion) should be measured at the same level of specificity by using the same form of wording with respect to action, target, context, and time. For example, if the goal is to predict which students visit a casino to play blackjack during the next summer break, the following two questions are appropriate: “Do you intend to visit a casino to play
blackjack during the next summer break?‖ (intention); “Did you visit a casino to play blackjack during the last summer break?” (behavior).

Consequently, the lack of correspondence will diminish the accuracy of prediction. By the same token, the attitude toward the behavior, subjective norm, and perceive behavioral control must correspond to the behavioral intention. For example, the attitude corresponding to intention to “visit a casino to play blackjack during the next summer break” is evaluation of “my visiting a casino to play blackjack during the next summer break.” Recommended by Ajzen and Fishbein, the present study measured different gambling contexts in different ways, such as casino gambling versus online gambling.

**External Variables and the Theory of Planned Behavior**

The theory of planned behavior (or theory of reasoned action) is a general, parsimonious, widely applied expectancy-value model of attitude-behavior relationships that has been shown a high predictive accuracy of the model in a range of behaviors, including alcohol drinking, smoking, sexual risk taking, eating behavior, exercise behavior, breast feeding, and so on (Ajzen, 1988, 1991, 1998; Ajzen & Fishbein, 1980; Conner & Sparks, 1996; Fishbein & Ajzen, 1975; Godin & Kok, 1996). The theory proposes that most human social behavior can be predicted by a single (or two) most proximal behavior-specific cognitive determinant(s), behavioral intentions (and perceived behavioral control). Furthermore, the model specifies the predictors of a person’s intention to enact a particular behavior, such as attitudes, subjective norms, and perceived behavioral control, and suggests that the effects of those three predictors on behavior are mediated by behavioral intention rather than being related to directly to behavior (Ajzen, 1988, 1991; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

However, although the theory of planned behavior has been regarded as a complete model of behavior with high predictive utility, recent researchers have suggested that some other
external variables, including demographics, personality, general attitudes, and past behavior, might have direct effects on behavioral intention and behavior and could increase the model’s predictive accuracy and power (Conner & Abraham, 2001; Conner & Armitage, 1998; Courneya, Bobick, & Schinke, 1999). Because effects of these external factors on intention and behavior are not specified and explained within the theory of planned behavior, the theory might be more correctly viewed as a theory of the proximal determinants of behavior (Conner & Abraham, 2001). In fact, the theory of planned behavior posits that all other external factors influence intention and behavior only indirectly when they are related to one or more behavior-specific cognitive determinants (e.g., attitudes, norms, and perceived behavioral behavior), which are already specified by the theory (Ajzen & Fishbein, 1980; Conner & Abraham, 2001; Conner & Armitage, 1998; Courneya, Bobick, & Schinke, 1999).

Although the model does not allow direct effects of external variables on intention and behavior, Ajzen (1991) recognized the usefulness of additional constructs into the model and welcomed the inclusion of other external variables (either proximal or distal variables) if they are found to enhance its predictive accuracy and power (Ajzen, 1991, 1998; Conner & Abraham, 2001; Conner & Armitage, 1998). Ajzen (1991) has stated that

The theory planned behavior is, in principle, open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behavior after the theory’s current variables have been taken into account (p. 199)

It has been suggested that the additional inclusion of either proximal determinants (e.g., perceived threat, anticipated effect) or distal determinants (e.g., demographics, personality, past behavior, media exposure) could enhance the model’s predictive utility by explaining their impact on the existing behavior-specific cognitions (Bentler & Speckart, 1979; Conner & Abraham, 2001; Courneya et al., 1999; see Eagly & Chaiken, 1993, for a review).
Furthermore, in the field of media effect research, the importance of a mediating variable has recently emerged (Aloise-Young, Slater, & Cruickshank, 2006; Chaffee & Schleuder, 1986; Fleming, Thorson, & Atkin, 2004; Slater & Rasinski, 2005; Slovic, Fischhoff, & Lichtenstein, 1985; Tickle, Hull, Sargent, Dalton, & Heatherton, 2006). Some researchers have argued that analyses that measure media exposure as only exogenous variables might underestimate the effect of media because people’ media uses are inherently embedded in other social experiences (Fleming et al., 2004). According to Zillman and Bryant (1985), audience members select types and genres of media and attend to them in a different way due to a number of different factors, including demographics, prior experience, and so on. For example, gender and gambling experience might directly influence gambling activity, but also should predict different patterns of media use that might influence gambling behavior. Viewers, for instance, might choose different genres or types of media and give attention to them in a different way because they are different in terms of demographics, prior gambling experience, personality, and so on (Fleming et al., 2004; Zillman & Bryant, 1985). Thus, the role of media might be measured through its mediating effect between independent and dependent variables as well as its direct effect on dependent variables (Slater & Rasinski, 2005). In relation to this view, it has been suggested that media usage should be treated as mediating or endogenous variables rather than exogenous independent variables (Aloise-Young et al., 2006; Chaffee & Schleuder, 1986; Eveland et al., 2003; Fleming et al., 2004; Slater et al., 2003; Slater & Rasinski, 2005; Tickle et al., 2006).

Thus, the present study explored an extended model of the theory of planned behavior by including individual difference (e.g., prior gambling experience) and gambling media exposure as distal factors in predicting college students’ gambling intentions, which are not specified by the TPB. In specific, the present research posits that gambling media exposure mediates (or
partially mediates) effects of individual differences (exogenous variables), such as prior gambling experience, level of sensation seeking and gambling addiction, and religiosity, on gambling-related cognitions and intentions within the theory of planned behavior. That is, individual differences might influence individuals’ attitudes toward gambling, social norms, and perceived behavioral control via their influence on gambling media exposure. Thus, the study examined the role of gambling media exposure as a mediator of the relation between added distal variables (e.g., prior gambling experience, gambling addiction, sensation seeking, and religiosity) and proximal gambling-related cognition variables (e.g., attitudes toward gambling, social norms, and perceived behavioral control). In addition, the present research also examined the role of gambling media exposure to determine whether its effects on gambling intentions are partially or entirely mediated by the cognitive components of the TPB model.

Collectively, the present research suggests that media exposure and gambling-related cognitive influences on behavior might be usefully integrated into a single model. In such a model, gambling media exposure would be seen as a distal determinant of gambling intention, the effects of which are mediated through more proximal predictors such as the gambling-related cognitions specified by the theory of planned behavior. Hence, given the fact that no research has examined the impact of gambling media exposure on individual’s gambling beliefs, attitudes, and intentions despite the flood of gambling media programs and advertisements, conceptualizing and testing a comprehensive model including individual, social, and media factors as predictors of intentions to gamble will provide a more complete understanding for college students’ gambling intentions. This is the first attempt to simultaneously include gambling media exposure and individual differences in a single model within the context of the theory of planned behavior.
In sum, in the current study, the five major aims are: (a) to test the applicability and efficacy of the TPB in the domain of gambling behaviors, (b) to examine the usefulness of a theoretical model that extended the theory of planned behavior by adding several distal factors in the model, (c) to test whether these distal factors have unmediated or mediated effects on gambling intentions through more proximal determinants specified by the TPB, (d) to examine the relationship between belief-based indirect and direct measures of attitude, social norm, and PBC, that is, to investigate whether the two types of measures have an appreciable similarity, and (e) to compare the findings above in two different gambling contexts, casino gambling versus online gambling.

Given that current television programming contains numerous gambling portrayals and gambling related advertisements, it is imperative to understand whether and to what extent these gambling behaviors in media influence individuals' beliefs, attitudes, and intentions. It is also worthwhile to offer an initial step in quantifying the influence of media on gambling participation and to provide greater insight into gambling as a category. Furthermore, the findings of the current study can provide practical implications for health practitioners. The framework for investigating the media effect on gambling behavior established in this study provides a theoretical foundation for those who are interested in developing prevention initiatives to prevent or delay the onset and minimize the consequences of high-risk gambling behaviors.

Previous literature used in investigating the effects of smoking and alcohol media portrayals and advertisements are used to form the current study's theoretical foundations, insights, and explanations. This is because research on media's impact on gambling is a relatively new endeavor with very little empirical research to date. Even if the relationship between problem gambling and other addictive behaviors has not been causally, systematically
specified (Lesieur et al., 1991), gambling behavior seems to share many similarities with other addictive behaviors (Byrne et al., 2005; Dickson, Derevensky, & Gupta, 2002; Griffiths, 2005; Jacobs, 1998; Lesieur, Blume, & Zoppa, 1986). For instance, Doweiko (1990) and Hyde (1978) defined compulsive gambling, alcoholism, and drug addiction as addictive disorders that share common elements. Thus, the approaches used to address other addictive behaviors are likely to be relevant to provide answers to the questions of whether exposure to TV gambling shows and advertisements influences viewers’ gambling perceptions, intention, and behaviors (Byrne et al., 2005; Griffiths, 2005).
CHAPTER 2
LITERATURE REVIEW

Model Overview and Current Research

With high rates of gambling and pathological gambling among college students, an understanding of why college students decide to gamble is an important issue from public health and social marketing perspectives. Consequently, many research studies so far have investigated different determinants of individual’s gambling behavior from a variety of perspectives, including demographic, psychoanalytic, cognitive, affective, behavioral, economic, and social (e.g., Breen & Zuckerman, 1999; Brown, 1986; Cotte, 1997; Cummings & Corney, 1987; Delfabbro, 2000, 2004; Diaz, 2000; Ellenbogen, Derevensky, & Gupta, 2007; Grant & Kim, 2001; Lam 2006; McDaniel & Zuckerman, 2003; Moore & Ohtsuka, 1999; Rogers, 1998; Walker, 1992).

However, the majority of these previous studies have failed to consider simultaneously the interplay among the factors and have presumed that their effect on gambling behavior is isolated or independent of one another (Griffiths, 2005; Moore & Ohtsuka, 1997; Welte, Wieczorek, Barnes, & Tidwell, 2006). Griffiths (2005) pointed out that the multifaceted nature of gambling behavior should be investigated with multiple levels of approaches rather than one or two highly specified perspectives. Furthermore, little research has examined the impact of gambling media exposure on an individual’s gambling beliefs, attitudes, and intentions despite the flood of gambling media programs and advertisements. Thus, conceptualizing and testing a comprehensive model including individual, social, and media factors as predictors of intentions to gamble will provide a more complete understanding for college students’ gambling behaviors and will be useful for the elaboration and implementation of intervention endeavors.
To develop and test a predictive and explanatory model of college students’ gambling intentions, the present study turned to the theory of planned behavior and the theory of reasoned action (Ajzen, 1988, 1991; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) because they provide a sound theoretical framework that enables the present study to simultaneously examine relationships among individual differences, gambling media exposure, attitudes toward gambling, social norms, perceived behavioral control, and gambling intention among college students.

Therefore, based on Ajzen’s planned behavior model (1988, 1991), the current study posits that gambling media exposure mediates the effects of individual differences (exogenous variables), such as prior gambling experience, level of gambling addiction, level of sensation seeking, and religiosity, on gambling-related cognitions. In other words, the study examines the role of gambling media exposure as a mediator of the relationships between exogenous variables and gambling-related cognitions. That is, individual differences, truly exogenous variables, influence the media to which people expose themselves, and that media exposure mediate the relationship between these exogenous variables and the cognitions.

The current research used a structural equation modeling approach to test a theoretical model of gambling intention among college students. By using structural equation modeling, the current research tested not only each individual component’s contribution to model but also the overall utility of the model. Figure 2-1 presents direct and mediating relationships for five key dependant variables (endogenous variables): gambling media exposure, attitudes toward gambling, descriptive and subjective norms (social norms), perceived behavioral control, and gambling intentions. The theoretical model suggested that individual differences (exogenous variables) that include prior gambling experience, level of gambling addiction, level of sensation
seeking, and religiosity would affect gambling-related cognitions such as attitudes toward gambling, social norms, and perceived behavioral control and that these effects would be mediated by gambling media exposure. Furthermore, the hypothesized model also suggested that gambling media exposure such as TV gambling poker shows and gambling advertisements would affect intentions to gamble, and that these effects would be mediated by attitudes toward gambling, social norms, and perceived behavioral control.

That is, the researcher of the current study predicted that prior gambling experience as well as high level of sensation seeking and gambling addiction, and religiosity (reverse coded) would positively affect college students’ gambling media exposure. In addition, this gambling media exposure would have a positive effect on gambling-related cognitions (attitudes, social norms, and perceived behavioral control) by mediating the effects of individual differences on the cognitions. For intention to gamble, the researcher predicted that these attitudes toward gambling, social norms, perceived behavioral control would have a positive effect. Furthermore, the present researcher predicted that gambling-related cognitions would mediate the effects of gambling media exposure on intention to gamble.

It is the first study to specifically examine the effect of gambling media on gambling intentions among college students under the framework of the theory of planned behavior. Furthermore, by simultaneously examining the impact of media exposure with other important variables (such as students’ prior gambling experience, gambling addiction, personality, and religiosity), conceptualizing and testing a comprehensive model including individual, social, and media factors as predictors of intentions to gamble will provide a more complete understanding for college students’ gambling behaviors. A simultaneous inclusion of gambling media exposure
and individual differences in a single testable model is first attempt and is in line with contemporary theoretical tendency in today media effect research.

**Predicted Effects on Gambling Intentions**


The TPB and the TRA have been widely used to explain a variety of health care behaviors, such as smoking, alcohol drinking, drug use, exercise behavior, HIV/STD prevention behavior, safer sex behavior, mammography use, and dental health behavior, among others. Consequently, the theories have been demonstrated to be useful and influential across the range of health behavior because the theories accounted for a large portion of the variance in behavior (Armitage & Christian, 2003; Armitage & Conner, 2001; Sutton, 1998). Clearly, those two theories are the most influential and dominant models for predicting and explaining individuals’ health behaviors across a range of different health care areas (Ajzen, 2001, 2002; Armitage & Christian, 2003).

Within the TRA, the single best immediate predictor of peoples’ social relevant behaviors is their behavioral intentions if the behaviors are completely under the person’s volitional control (Fishbein & Ajzen, 1975). According to the theory, there are two specified determinants of intention to perform a given behavior: attitude toward the behavior (overall evaluation of performing the behavior) and subjective norm (perceived expectations of important others for performing the behavior).

In order to predict and explain the behaviors that are not completely under volitional control, the TPB (Ajzen, 1988, 1991) includes a third determinant of intention, namely perceived behavioral control (the extent to which the person feels he or she has control over performing the behavior, or the perceived ease or difficulty of performing the behavior). In sum, the TPB posits
that the person will have strong intention to performing the behavior if he evaluates it positively or favorably, believes that his important others would want him to perform the behavior, and thinks that it is easy to perform it.

In addition, the TPB posits that perceived behavioral control will increase the predicting power of behavior over and above the effect of behavioral intention in case of the behaviors that are not completely under volitional control (Ajzen, 1988, 1991; Ajzen & Madden, 1986). For instance, there has been several meta-analyses of research using the theory of reasoned action and the theory of planned behavior, all of which have shown that the inclusion of the construct of perceived behavioral control has significantly augmented the power of prediction of behavioral intentions and behaviors (Ajzen, 1991, 2001, 2002; Armitage & Christian, 2003; Armitage & Conner, 2001; Conner & Sparks, 1996; Eagly & Chaiken, 1993; Godin & Kok, 1996; Manstead & Parker, 1995; Sutton, 1998). Sutton’s meta-analytical research (1998) found that the theory of reasoned action and the theory of planned behavior accounted for on average between 40 percent and 50 percent of the variance in behavioral intentions, and between 19 percent and 38 percent of the variance in behavior. Similarly, Armitage and Conner (2001) found that these models explained about 39 percent of the variance in behavioral intentions, and 27 percent of the variance in actual behavior. Moreover, as predicted, these meta-analyses studies found that perceived behavioral control in the theory of planned behavior significantly increased the variance in both behavioral intentions and behavior, even after controlling the effects of attitude and subjective norm (Armitage & Conner, 2001; Sutton, 1998). In sum, the theory of planned behavior is arguably one of the most influential and dominant model for the study of attitude-behavior relations (Ajzen, 2001, 2002; Armitage & Christian, 2003).
With respect to gambling behavior, some researchers argued that the theory of reasoned action might be applied and might have good explanatory power for gambling phenomena, as well as providing a methodological framework for measurement of gambling intention and behavior (Cummings & Corney, 1987; Moore & Ohtsuka, 1999). For instance, Cummings and Corney (1987) supported the theory’s good explanatory power and the measurement soundness as a methodological framework in the context of gambling by showing that people’s gambling intention and behaviors can be explained with respect to attitudes toward gambling and subjective norms. Similarly, Moore and Ohtsuka (1997) found that the theory of reasoned action explained about 30 percent of actual gambling behavior with intentions, attitudes, and subjective norms. Specifically, they showed that within the theory, intention to gamble would be a function of people’s attitudes toward gambling and their subjective norms. In turn, intention would predict actual gambling behavior (Moore & Ohtsuka, 1999).

Based on the TPB, it can be postulated that attitudes toward gambling, social norms including both perceived descriptive and subjective norms, and perceived behavioral control would uniquely predict gambling intentions.

- **H1a**: Favorable attitudes toward casino gambling will positively affect intention to gamble in a casino.
- **H1b**: Favorable attitudes toward online gambling will positively affect intention to gamble online.
- **H2a**: The perceived support for casino gambling by significant others will positively affect intention to gamble in a casino.
- **H2b**: The perceived support for online gambling by significant others will positively affect intention to gamble online.
- **H3a**: The perceived behavioral control about casino gambling will positively affect intention to gamble in a casino.
- **H3b**: The perceived behavioral control about online gambling will positively affect intention to gamble online.
Predicted Effects on Attitudes, Social Norms, and PBC

Social learning theory (Bandura, 1977, 1986) suggests that individuals learn by observing and modeling others and will shape their behaviors with anticipated response consequences such as rewards or punishments. The theory posits that these role models enact behaviors that individuals observe and imitate (Bandura, 1977, 1986). Researchers have identified several social influence factors that make individuals to imitate what they observe, including parent, siblings, friends, peer, and media. For example, in the field of smoking research, a number of studies found the effects of parent or sibling smoking and peer smoking on smoking initiation among adolescences (e.g., Chassin, Presson, Sherman, Corty, & Olshavsky, 1984; Eckhardt, Woodruff, & Elder, 1994; Greenlund, Johnson, Webber, & Berenson, 1997; Jackson, Henriksen, Dickinson, Messer, & Robertson, 1998).

In addition to the influence of family and peers, a number of researchers have also demonstrated that the media portrayals and advertising for controversial products such as tobacco, alcohol, drug use, and gambling might encourage viewers to engage in high-risk behaviors (e.g., Atkin, 1990; Byrne et al., 2005; Gidwani et al., 2002; Grube, 1995). According to these authors, because the great majority of televised characters for those controversial products have often been glamorized without showing negative consequences, those portrayals are associated with desirable outcomes. Individuals believe that these behaviors are socially approved and desirable, and therefore they imitate the behaviors.

For example, viewers who are repeatedly exposed to glamorized portrayals of cigarette consumption on television programs or in advertisements appear to assume smoking behavior as a way to look attractive, sexy, successful, and appealing. They tend to have more positive smoking attitudes, resulting in smoking initiation at a younger age (e.g., Gidwani et al., 2002; Gutschoven & Bulck, 2005; Pechmann & Shih, 1999; Tickle, Sargent, Dalton, Beach, &
Heatherton, 2001). In line with this view, some previous research has argued that the image of smokers become more positive with increased age due in part to exposure to cigarette advertising (Aloise-Young & Hennigan, 1996; Botvin, Botvin, & Baker, 1983). It seems very plausible given the fact that an important goal of cigarette advertising is to associate the act of smoking with certain favorable images or attractive personal characteristics such as popular, cool, sexy, glamorous, and smart (Barbeau, Dejong, Brugge, & Rand, 1998; Pechmann & Ratneshwar, 1993). Consequently, exposure to cigarette advertising is likely to increase the development of a positive smoker image and the act of smoking, and then this increased positive smoker image increases the probability of smoking initiation and consumption by increasing individuals’ desires to belong to ‘reference group,’ any and all groups that influence individuals’ attitudes and behaviours (Barton, Chassin, Presson, & Sherman, 1982; Gibbons & Gerrard, 1995; Hyman & Singer, 1968). In other words, individuals who have more positive views of smokers are more likely to engage in smoking initiation when a smoking chance is given. Thus, exposure to cigarette advertising might work as a stage for smoking initiation by affecting individuals’ images of smokers and smoking (Aloise-Young et al., 2006).

A number of studies have shown that the effects of cigarette advertising on smoking behaviors among young people, including adolescents and college students, with respect to a variety of varied approaches. For example, time-series studies have found a positive relationships between cigarette brand recognitions and market shares and their advertising expenditures (e.g., Aitken, Leathar, O’Hagan, & Squair, 1987; Pierce, Lee, & Gilpin, 1994; Pollay et al., 1996). Moreover, some survey-based studies also found that exposure to magazine advertising for certain brands was positively related to future use of specific brands among new smokers (Botvin, et al., 1993; Pucci & Siegel, 1999). Finally, experimental studies have found that
viewing image-based cigarette advertising was more likely to increase positive attitudes toward smoking than viewing black and white advertising (Kelly, Slater, & Karan, 2002).

In the case of alcohol, a social learning perspective predicts that media portrayals and advertising may influence adolescents to be more favorably predisposed drinking by attributing drinking behavior with highly valued outcomes such as success, relaxation, romance, and adventure (e.g., Atkin & Block, 1984; Aitken, Eadie, Leathar, McNeill, & Scott, 1988; Grube, 1995; Neuendorf, 1985; Rychtarik, Fairbank, Allen, Foy, & Drabman, 1983; Tudor, 1979). Moreover, these positive alcohol portrayals in programming and advertising might shape viewers’ perceptions and attitudes toward alcohol drinking through the dissemination of overall cultural values that tend to normalize and sanitize drinking behaviors (Austin & Knaus, 2000; Gerbner, 1995; Wallack, Grube, Madden, & Breed, 1990). For instance, according to Casswell (1995), alcohol advertising has more used image-oriented appeals such as consumers’ desires and dreams rather than product-oriented appeals. In other words, today advertisers are trying to sell fantasies and lifestyles that usually associated with positive attributes of life such as happiness, wealth, success, sophistication, prestige, power, social approval, elegance, and so on (Atkin & Block, 1984; Fleming et al., 2004; Gerbner, 1995; Wallack et al., 1990).

Similar with the results of smoking studies, the extant literature has consistently shown that adolescents and college students are more susceptible to alcohol advertising than older adults since they are actively willing to obtain information with which they are vicariously experimenting the appealing images and lifestyles (Atkin & Block, 1984; Bandura, 1977, 1986; Gerbner, 1995). Thus, the more young people are exposed to alcohol advertising associated with favorable characters and lifestyles, the more they have positive expectations about alcohol drinking (Atkin & Block, 1984; Atkin et al., 1983; Aitken et al., 1988).
Furthermore, previous literature on alcohol drinking has shown significant correlations between exposure to alcohol advertising and drinking behavior among young people (Aitken et al., 1988; Atkin & Block, 1984; Atkin et al., 1983; Grube, 1995; Neuendorf, 1985; Rychtarik et al., 1983; Tudor, 1979). For example, the viewers who are heavily exposed to alcohol portrayals and advertisements on television are more likely to possess desirable characteristics of drinkers, to hold positive attitudes toward drinking behavior, to say they intend to drink, and to show increases in drinking over time (e.g., Grube & Morgan, 1986). Those who had high intention to drink more frequently as adults have beliefs that they would get more approval of drinking from their peers and their parents drank more often (Grube & Wallack, 1994). Furthermore, they appear to assume that drinking is a socially acceptable, desirable behavior (Atkin et al., 1983, 1984).

Other addictive behaviors such as drinking, smoking, and drug use have been widely studied. Although there is widespread belief that TV gambling shows and advertising encourage the initiation and continuation of gambling consumption, the available published research on media influence on gambling activities has been limited. Even if the relationship between problem gambling and other addictive behaviors has not been causally, systematically specified (Lesieur et al., 1991), gambling behavior seems to share many similarities with other addictive behaviors (Byrne et al., 2005; Dickson et al., 2002; Griffiths, 2005; Jacobs, 1998; Lesieur et al., 1986). For instance, Doweiko (1990) and Hyde (1978) defined compulsive gambling, alcoholism, and drug addition as addictive disorders that share common elements. Thus, the approaches used to address other addictive behaviors are likely to be relevant to provide answers to the question of whether exposure to TV gambling shows and advertisements influences viewers (Byrne et al., 2005; Griffiths, 2005).
Even if little attention has been given to media as an important factor in shaping individuals’ gambling behaviors in terms of social learning theory, some efforts have been undertaken (Byrne et al., 2005; Derevensky & Gupta, 2000a, b; Hardoon & Derevensky, 2002). The findings from gambling media portrayals and advertisement indicate that gambling behaviors are generally depicted as exciting and pleasing activities, which in turn, led adolescents to view gambling as a socially acceptable behavior by reflecting a relatively positive depiction of gambling (Azmier, 2000; Gupta & Derevensky, 1998; Stinchfield & Winters, 1998). Consequently, these glamorized media portrayals and advertising result in favorable attitudes toward gambling and are linked to gambling onset at an early age that may increase the possibility of the development of gambling-related problems (Dickson et al., 2002; Gupta & Derevensky, 1998; Jacobs, 2000). For example, half of subjects who suffered from pathological gambling pointed to gambling advertising as a stimulus of their gambling onset (Grant & Kim, 2001).

From the perspective of social learning theory (Bandura, 1977, 1986), the examination of the effects of televised gambling exposure is a critical factor that explains the degrees of influence of media exposure on viewers’ gambling perceptions, intention, and behaviors. Specifically, the theory provides theoretical support for this study by proposing that observational learning (or vicarious learning) and modeling of televised gambling behavior directly influence viewers’ acquisition of gambling knowledge, cognitive skills, and new styles of behaviors. Furthermore, social learning theory also posits that the gambling portrayals and advertisement in media indirectly facilitates the social diffusion of gambling behavior because the theory explains behavior in terms of triadic, dynamic, and reciprocal interaction of the environment, personal factors, and behavior (Bandura, 1977, 1986).
However, it should be noted that the causal relationship among media exposure, attitude, and intention for gambling is difficult to analyze in a cross-sectional survey. Although exposures to gambling-related media influence viewers’ attitudes and intentions, it might be possible that viewers who are predisposed to gambling seek out information by watching TV poker shows and gambling advertising and thus have more favorable attitudes toward them and greater intentions to gamble. However, some research on media effects on drinking and smoking behaviors has disputed the latter possibility due to its lack of evidence in the literature (e.g., Atkin, 1990). For instance, Atkin (1990) assumed that media exposure typically precedes the development of drinking belief and behavior and adolescents are not forced to seek out advertising as a source of information. In this regard, the current study posits the following hypotheses:

- **H4a:** The level of gambling media exposure will positively predict attitudes toward casino gambling.
- **H4b:** The level of gambling media exposure will positively predict attitudes toward online gambling.
- **H5a:** The level of gambling media exposure will positively predict perceived support for casino gambling by significant others.
- **H5b:** The level of gambling media exposure will positively predict perceived support for online gambling by significant others.
- **H6a:** The level of gambling media exposure will positively predict perceived behavioral control about casino gambling.
- **H6b:** The level of gambling media exposure will positively predict perceived behavioral control about online gambling.

In the field of media effects research, media exposure has been usually measured as independent or exogenous variables assuming its unmediated effect on dependent variables. However, according to Ajzen (1991), in the context of the theory of planned behavior, the effect of other additional variables on behavioral intention should be mediated by the cognitive constructs of the model. Thus, the study examined whether the effects of gambling media
exposure on intentions might be mediated by attitudes, social norms, and perceived behavioral control, or whether it has unmediated effect on gambling intentions. Accordingly, the following research question is generated:

- **RQ1**: Is the unmediated effect of gambling media exposure on gambling intention greater than its mediated effect via attitudes, social norms, and perceived behavioral control on gambling intention?

**Predicted Effects on Gambling Media Exposure**

**Prior Gambling Experience**

According to the uses and gratifications theory, media audiences actively play a role in choosing and using certain media content (Blumler & Katz, 1974). The theory suggests that media use is motivated by audiences’ needs and goals and they seek out a media source that best satisfies their expectations (Katz, Blumler, & Gurevitch, 1974; Rubin, 1994). Palmgreen and Rayburn (1979) identified seven audience television viewing gratification, such as relaxing, learning, communication utility, forgetting, passing time, companionship, and entertainment. Furthermore, Katz et al. (1974) suggested that social and environmental situations also motivate audiences to use a certain medium or media content for eliciting specific values that reinforce their existing attitudes toward a certain behavior, and for providing an awareness of expected criteria in order to sustain membership in valued social groups. Accordingly, Blumler (1979) stressed that audiences’ existing interests and preferences are reflected in their media use and their prior motivation can direct the consumption of certain media content. Moreover, Shrum (1995) has suggested that amount of media usage of specific genres (e.g., TV poker show viewing) might more accurately predict the media effects on viewers than is amount of media usage in general.

Research examining the impact of prior gambling experience on individuals’ gambling media usage is virtually nonexistent. However, based on limited past research, it might be
assumed that individuals’ prior gambling experiences affect their gambling media consumption because they are likely to actively seek out gambling-related information to strengthen their gambling skills and winning strategy. Given the high rates of gambling among college students and today’s saturation of gambling TV shows and gambling advertising, it might be further assumed that students who already experimented with gambling are more likely to expose themselves to gambling media in order to sustain positive values in specific social groups. In this regard, it can be postulated that prior gambling experience and the level of gambling addiction positively affect gambling media exposure.

- **H7a:** Prior casino gambling experience will positively predict gambling media exposure.
- **H7b:** Prior online gambling experience will positively predict gambling media exposure.
- **H8:** The level of gambling addiction will positively predict gambling media exposure.

Although several studies have argued the unmediated effects of past behavior on behavioral intentions and behavior within the theory of planned behavior (e.g., Godin, Valois, & Lepage, 1993; Norman & Smith, 1995; see Corner & Armitage, 1998, for reviews), Ajzen (1991) reassured that the effect of past behavior on behavioral intentions and behavior is mediated by the other cognitive constructs such as attitude, subjective norm, and perceived behavioral role. According to Ajzen (1991), the effects of past behavior on intention and behavior should be mediated the theory’s other cognitive constructs because this repeated behavior leads to enhanced perceptions of control.

Furthermore, some media effects researchers have recently pointed out that the role of media might be measured through its mediating effect between independent and dependent variables (Fleming et al., 2004; Slater & Rasinski, 2005). In other words, they have suggested that media usage should be treated as mediating or endogenous variables rather than unmediating or exogenous variables. Thus, the present study examined whether an extended model including
gambling media exposure construct was sufficient to mediate the effect of individuals’ past gambling behaviors on their behavioral intentions. Accordingly, the following research questions are generated:

- **RQ2a:** Is the unmediated effect of prior casino gambling experience on gambling intention greater than its mediated effect via gambling media exposure, attitudes, social norms, and perceived behavioral control on casino gambling intention?

- **RQ2b:** Is the unmediated effect of prior online gambling experience on gambling intention greater than its mediated effect via gambling media exposure, attitudes, social norms, and perceived behavioral control on online gambling intention?

- **RQ3:** Is the unmediated effect of gambling addiction on gambling intention greater than its mediated effect via gambling media exposure, attitudes, social norms, and perceived behavioral control on gambling intention?

**Personality: Sensation Seeking**

Given the rising popularity of gambling activities and the negative consequences related to gambling, there has been an effort to examine gambling behavior in terms of psychology, including the personality traits of sensation seeking and arousal (McDaniel & Zuckerman, 2003). According to Zuckerman (1979), sensation seeking is defined as the “need for varied, novel and complex sensations and experiences, and the willingness to take physical and social risks for the sake of such experience” (p. 10). He also pointed out a relationship between gambling and sensation seeking in which “individuals entertain the risk of monetary loss for the positive reinforcement produced by states of high arousal during the periods of uncertainty, as well as the positive arousal produced by winning” (Zuckerman, 1979, p. 211).

In keeping with Zuckerman’s (1979) theory, high sensation seekers perceive risk-taking behaviors to be less dangerous and anticipate the arousing experience as being more positive than do low sensation seekers (Zuckerman, 1979, 1983a). In addition, high sensation seekers are more likely to become bored with routine and to search out exciting things to increase arousal, whereas low sensation seekers prefer routines that do not call for a continuous level of
stimulation. In general, sensation seeking has been found to be an important predictor of involvement in risky activities, such as driving fast and drunken driving (Arnett, 1990; Zuckerman & Neeb, 1980), dangerous sports such as bungee jumping and skydiving (Zuckerman, 1983b), dangerous vocations (Zaleski, 1984), risky sexual behavior (Sheer & Cline, 1994), gambling (Coventry & Brown, 1993), financial risk taking (Wong & Carducci, 1991), smoking (Zuckerman, Ball, & Black, 1990), and alcohol and drug use (Castellani & Rugle, 1995; Donohew et al., 1999; Johnson & Cropsey, 2000; Newcomb & McGee, 1989; Zuckerman, 1987).

A number of studies found that sensation seeking was significantly correlated with gambling activity including gambling frequency (Kuley & Jacobs, 1988), betting levels (Anderson & Brown, 1984; Dickerson, Hinchy, & Fabre, 1987), problems associated with gambling (Kuley & Jacobs, 1988), gambling intention (Wolfgang, 1988), preference of gambling types (Coventry & Brown, 1993; Coventry & Norman, 1997), and attitudes toward gambling (Breen & Zuckerman, 1999). Some researchers suggested that gambling has been found to raise arousal to a preferable level in both winning and losing money (Leary & Dickerson, 1985) and high sensation seekers were more likely to become problem gamblers by persisting in gambling even following successive financial losses (Breen & Zuckerman, 1999; Kuley & Jacobs, 1988).

In addition, Brown (1986) noted that even moderate sensation seekers might be potentially addicted to gambling because gambling increases their level of arousal, which is perceived as pleasant and rewarding. He suggested that both high sensation seekers and low sensation seekers are likely to have a desire to gamble in order to raise their level of arousal.

This individual difference of sensation seeking can be reflected in audience media selection and preferences (Stephenson, 2003). Some researchers have pointed out that higher
sensation seekers prefer messages that elicit higher sensory, affect, and arousal emotion, whereas low sensation seekers prefer far less stimulating messages (Everett & Palmgreen, 1995; Palmgreen, Stephenson, Everett, Baseheart, & Francies, 2002). For instance, Donohew, Lorch, and Palmgreen (1991) suggested that high sensation seekers were more likely to watch novel, dramatic, intense, exciting, suspenseful, and fast TV advertisement compared to low sensation seekers. They also pointed out that high sensation seekers were more likely to attend to a message when the message held sufficiently stimulating contents and audiovisual features that met their optimal arousal level. Given that the nature of gambling increases their level of arousal and TV poker shows and gambling related advertising typically portrait gambling as a daring, thrilling, fun, and exciting activity, it can be postulated that higher sensation seeking positively affects gambling media exposure.

- **H9:** The level of sensation seeking will positively predict gambling media exposure.

Just as prior gambling experience and gambling addiction are held as an external variable that are not explained by the theory of planned behavior, so the personality is also held as another external variable. Although the theory of planned behavior admits the potential importance of this variable, Ajzen (1991) theorized that the effect of personality on behavioral intentions and behavior should be mediated by the other cognitive constructs of the model. Based on the model, the present study assumed that the effects of individual personality (sensation seeking) on their behavioral intentions might be mediated by gambling media exposure and other cognitive constructs. Thus, the present study examined whether an extended model of the theory of planned behavior including gambling media exposure construct was sufficient to mediate the effect of sensation seeking on behavioral intentions. Accordingly, the following research question is generated:
• **RQ4:** Is the unmediated effect of sensation seeking on gambling intention greater than its mediated effect via gambling media exposure, attitudes, social norms, and perceived behavioral control on gambling intention?

**Religiosity**

Religion has been regarded as a major force of individuals’ social and consumer decision making by influencing their values, beliefs, and behavior (Clarke et al., 2006; Delener, 1990; Fam, Waller, & Erdogan, 2004; Lam, 2006). That is, religion defines the ideas for life and mirrors the values and attitudes of member of cultures (Fam et al., 2004; Lam, 2006). According to Roof (1979), religion can be described as “an individual’s beliefs and behavior in relation to the supernatural and/or high-intensity values” (p. 18).

Considerable research has found that individuals’ religious commitments have a strong positive relationship with their moral standards or ethics and are positively related to their subjective life satisfaction or well-being, more conservative beliefs and attitudes, and opinion leadership by providing a sense of meaning for life (Barbera & Gurhan, 1997; Barnett, Bass, & Brown, 1996; Fam et al, 2004; Giorgi & Marsh, 1990; Peterson & Roy, 1985; Terpstra, Rozell, & Robinson, 1993; Vitell & Paolillo, 2003; Wiebe & Fleck, 1980; Wilkes, Burnett, & Howell, 1986). Furthermore, some researchers found the effects of affiliation or practices of religiosity on several risky behaviors including drinking, drug abuse, criminal behavior and suicide (Amoateng & Bahr, 1986; Jessor, 1976; Kandel, 1980; Kednler, Gardner, & Prescott, 1997; Miller, Davis, & Greenwald, 2000; Wallace & Bachman, 1991).

However, the literature on the influence of religiosity on individuals’ gambling attitudes and behavior has been limited, and little is known about the impact of religiosity on the development of problem gambling (Clarke et al., 2006; Lam, 2006). Despite of the limited number of literature, some researchers recently found a relationship between religiosity and gambling (Abbott & Volberg, 2000; Clarke et al., 2006; Diaz, 2000; Ellison & Nybroten, 1999;
Grichting, 1986; Lam, 2006; Lesieur, 1994; Miller & Hoffmann, 1995; Walker, 1992). For example, Catholics had a more positive attitude toward gambling, a greater frequency, and a higher average gambling spending than other religious groups, especially Protestants (Abbott & Volberg, 2000; Diaz, 2000; Grichting, 1986; Walker, 1992). More importantly, researchers found a significant difference in the frequency of religious participation between non-gamblers and gamblers. That is, the more people attend religious services, the less frequency of gambling participation and the less amount money spending on gamble (Diaz, 2000; Lam, 2006). In addition, Ellison and Nybrot (1999) found that religiosity was the strongest factor that determined opposition to state lotteries. Similarly, religious persons were more like than non-religious people to have negative attitudes toward addictive product advertising, such as cigarette, alcohol, and gambling (Amoateng & Bahr, 1986). They suggested that religious individuals have a negative attitude toward controversial product and its advertising, and are less likely to engage in gambling (Amoateng & Bahr, 1986; Lam, 2006; Ellison & Nybrot, 1999; Lesieur, 1994; Miller & Hoffmann, 1995).

As with the cases of past gambling experience, gambling addiction, and sensation seeking, research examining the impact of religiosity on individuals’ gambling media usage is virtually nonexistent. However, based on limited past research, it might be assumed that individuals’ religiosity affect their gambling media consumption because religious individuals are likely to have negative attitudes toward gambling-related media programming and advertising and thus they are unlikely to expose themselves to those gambling media. In this regard, it can be hypothesized that religiosity negatively affects gambling media exposure.

- **H10**: The level of religiosity will negatively predict gambling media exposure.

Hence, the present study examined whether an extended model including gambling media exposure construct was sufficient to mediate the effect of religiosity on their gambling intentions.
• **RQ5:** Is the unmediated effect of religiosity on gambling intention greater than its mediated effect via gambling media exposure, attitudes, social norms, and perceived behavioral control on gambling intention?

**Other Research on Gambling: Brief Overview**

**History of Gambling**

Gambling is one of the oldest and most widespread pursuits of mankind (Schwartz, 2006). It has existed since ancient times and there is archeological evidence suggesting even the earliest caveman played gambling. Various forms of gambling have existed in every age and culture of most civilizations. For example, gambling materials have been recovered in ancient China dating back to about 2300 B.C. and a set of ivory dice dating back to 1500 B.C. was found in Egypt (Schwartz, 2006). Furthermore, a number of historical records and archeological evidence associated with the practice of gambling and writings mentioning gambling have been discovered in Egypt, India, Greece, and Rome (Schwartz, 2006). According to archeologists, gambling was so popular in the Middle Ages that King Henry VIII banned gambling from his kingdom because soldiers spent more time gambling than working on drills and improving their battle skills (Schwartz, 2006).

In the United States, lotteries, card games (e.g., Poque, Craps), and horse racing that had been prevalent in England were imported and used as a popular form of fundraising from the 18th to 19th centuries. For example, more than 400 lotteries offered prizes across nation and the money raised was used for government activities such as building schools, churches, and libraries. The gold rush brought a huge expansion of gambling prevalence, specifically in California. Gambling was especially widespread throughout the mining frontier and hosting a gambling house was the easiest way to find gold (Schwartz, 2006). For example, by 1850, there were more than 1000 gambling houses in San Francisco alone (Schwartz, 2006).
Today casinos have come a long way since their early beginnings. With the great depression during the early 1930’s, the state of Nevada lifted the banning of casino gambling to revitalize the state’s economy. In 1931, new legal gambling casinos were built in Las Vegas and the city became a mecca for the world’s gambling. In 1978, Atlantic City, New Jersey became the second city to legalize casino gambling to revitalize the city as a popular tourist destination. Since legalized casino gambling was established in Las Vegas and Atlantic City, many states have allowed commercial casinos and there are now 460 commercial casinos in 11 states, 36 tribal casinos in 11 states, and 372 racetrack casinos in 28 states (AGA, 2007).

**College Student Gambling**

Some research evidence indicates that college student populations seem especially susceptible to problem gambling (Lesieur et al., 1991; Neighbors et al., 2002a; Shaffer et al., 1999; Winters, Bengston, Door, & Stinchfield, 1998). College students are estimated to have more than two times the prevalence rates of pathological and disordered gambling compared to general adult population estimates (Shaffer et al., 1999). For instance, about 1.6 percent to 3.8 percent of adults have experienced a problem gambling episode, whereas 5 percent of college students reported pathological gambling behaviors, with an additional 9 percent reporting difficulties associated with gambling (Shaffer et al., 1999). More recently, a meta-analytic study found that the estimated percentage of disordered gambling among college students has continually increased to 7.9 percent, caused by the increased availability of gambling opportunities (Blinn-Pike, Worthy, & Jonkman, 2007).

Despite the significantly higher prevalence rates of disordered and pathological gambling among college students, little attention has been given to this population (Blinn-Pike et al., 2007; Lopez Viets, 2001; Neighbors et al., 2002a; Neighbors et al., 2007; Takushi et al., 2004). It is interesting to note that the literature on pathological gambling among adolescent and adults is
extensive, whereas college students’ problem gambling has been largely neglected by past gambling researchers. Blinn-Pike and her colleagues (2007) noted that the paucity of research on college students’ disordered gambling may be due to their intermediary status between adolescent and adulthood in both developmental and social stages. In terms of developmental psychology, college students between 18 and 25 years old can be differentiated from other population groups and are uniquely characterized as “emerging adulthood,” and as such may have a greater tendency to engage in several risky behaviors, such as alcohol, smoking, and drug use (Arnett, 2000, 2004).

This increased likelihood to engage in risky behaviors seems plausible given that emerging adulthood is a time for identity exploration (Arnett, 2000, 2004). That is, young adults are likely to try out a variety of different personas. According to Arnett (2000, 2004), although voluminous literature has suggested that identity exploration and risky behaviors are closely associated with adolescence (e.g., Erikson, 1950), most identity exploration and risky behaviors might be taken in the emerging adulthood period (ages 18 to 25) rather than adolescence (ages 10 to 18). During identity-related explorations, emerging adults such as college students seek a wide range of novel and intense experiences and experiment with several risky behaviors associated with being cool, intelligent, glamorous, exciting, and fun (Arnett, 2000; Marcia, 1983).

Specifically, according to Bandura’s social learning theory (1977, 1986), these young adults’ identity explorations make them vulnerable to social influence such as family, peers, media, and media celebrities. They learn by observing and modeling their role models’ behaviors and imitate what they observe (Bandura, 1977, 1986; Tickle et al., 2006). In addition to the influence of family and peers, a number of researchers have argued that mass media today plays a key role in the social learning mechanism, in which young adults might be encouraged to
engage in several risky behaviors by adopting the behaviors in mass media portrayals as well as advertising. For example, because of the increased rate of smoking portrayals in films, especially by celebrities, smoking intentions and initiation among adolescents and young adults has significantly increased as their exposure to smoking in movies increased (Stockwell & Glantz, 1997). Similarly, some experimental research has also found that viewing celebrities smoking in movies influenced young people to have more favorable attitudes toward smoking and smokers, resulting in smoking initiation at a younger age (Gibson & Maurer, 2000; Hines, Saris, & Throckmorton-Belzer, 2000). These findings seem plausible given that they attempt to figure out who they are (identity exploration) and experiment with the smoker persona portrayed in movies.

The extant literature has consistently shown that college students are more frequently involved in gambling activity than any other segment of the population and have higher undesirable gambling-related consequences (Blinn-Pike et al., 2007; Lesieur et al., 1991; Neighbors et al., 2002a; Neighbors et al., 2007; Shaffer et al., 1999; Takushi et al., 2004; Winters et al., 1998). In addition, the literature shows that (a) male students over 21 years of age were more likely to gamble and that the easy accessibility to gambling venues influenced their consumption of gambling (LaBrie, Shaffer, LaPlante, & Weschler, 2003), (b) most college students were motivated to gamble for money, fun, excitement, and social reasons as well as just for passing time (Neighbors et al., 2002a), and (c) social influences, such as prevalence of peer gambling activity, peer norms and peer approval, have been highly associated with students’ frequent gambling, greater spending or betting, and more gambling-related problems (Larimer & Neighbors, 2003; Neighbors et al., 2007).

Given the high rate of gambling activity and pathological gambling among college students, an understanding of why college students decide to gamble and the development of
successful prevention programs are important issues from the public health and social marketing perspectives with today’s increased gambling availability and media flooded with gambling programs and advertisements.

**Gender and Gambling**

Numerous studies have suggested that gender differences are one of the key factors that affect an individual’s attitudes toward gambling, related behaviors, preferences for specific types of gambling activities, and the prevalence of problem gambling (Chantel, Vallerand, & Vallieres, 1995; Hing & Breen, 2001; Kassinove, 1998). For instance, males were more likely than females to have favorable attitudes toward gambling, specifically casino gambling and wagering on horse racing (Chantel et al., 1995; Kassinove, 1998). Derevensky and Gupta (2000a) found that 8 to 11 percent of male adolescents have experienced a problem gambling episode, whereas 1 to 3.5 percent of female adolescents reported gambling problems. Other research has indicated that males tended to prefer games of skill(strategy or face-to-face forms of gambling (e.g., blackjack, poker, sports betting), whereas females preferred games of chance, non-strategic games, and less interpersonally interactive games such as slot machines (Delfabbro, 2000; Ladd & Petry, 2002; Potenza et al., 2001; Winters & Rich, 1998). On the contrary, LaPlante, Nelson, LaBrie, and Shaffer (2006) found that gender differences had a minimal contribution for distinguishing gambling preferences.

In examining gender differences among problem gamblers, recent studies have found that there were significant differences in the biological, phenomenological, behavioral, and clinical characteristics between females and males. For instance, females were more likely than males to have a more rapid progression into problem gambling, even if they started at a later age (Grant & Kim, 2002; Ibanez, Blanco, Moreryra, & Saiz-Ruis, 2003; Ladd & Petry, 2002; Nower & Blaszczynski, 2006; Potenza et al., 2001; Tavares et al., 2003). In addition, women had different
motivations for gambling than did men. For instance, females tended to gamble to escape personal pressures or problems, boredom, and depression, whereas males tended to gamble for the chance of winning and potential monetary gains (Boughton & Falenchuk, 2007; Grant & Kim, 2002; Ibanez et al., 2003; Legge, 1996; Lesieur, 1993).

Recent research on gender differences among adolescents found that both males and females have shown similar rates of depression, substance use, and gambling frequency (Ellenbogen et al., 2007), and female adolescents were more likely than male adolescents to be influenced by their parents and peers’ gambling behaviors (Chalmers & Willoughby, 2006).

Over time, gambling has been regarded as a male dominant activity due in part to different cultural acceptance of male and female gamblers (LaPlante et al., 2006; Potenza, Maciejewski, & Mazure, 2006; Shaffer et al., 1999). Historically, males have more actively gambled than females and are more likely to experience gambling problems (Shaffer et al., 1999; Potenza et al., 2006). However, with today’s increased opportunities for gambling and the popularity of gambling both in the real world and in media, the social and cultural climate of gambling activities has changed quite positively for both males and females (Breen & Zuckerman, 1999; Griffiths & Wood, 2001; LaPlante et al., 2006). Consequently, gambling is now a mainstream activity for females, and they account for a third of all pathological gambling cases (Boughton & Falenchuk, 2007).

**Accessibility**

Even if the accessibility and availability of gambling venues have been widely considered as an important factor that increases the prevalence of gambling activity and the probability of pathological or problem gambling, empirical studies relating gambling to the physical closeness of gambling opportunities are sparse (Jacques & Ladouceur, 2006; Welte et al., 2006; Welte, Wieczorek, Barnes, Tidwell, & Hoffman, 2004). Despite of the limited number of literature,
some researchers found that gambling is less prevalent in rural areas (Wallisch, 1993), whereas gambling and gambling-related problems are more prevalent where gambling activities are more available (National Council on Problem Gambling, 1993). In another example, Welte et al. (2004, 2006) found that the availability and accessibility of gambling opportunities increased gambling participation and problem gambling. Specifically, they found that living within 10 miles of a casino venue was positively related to pathological or problem gambling among respondents. Similarly, the National Opinion Research Center [NORC, 1999] indicated that residents living within 50 miles of a casino venue experienced twice as much problem gambling. In addition, some studies that investigated the rate of gambling pathology found increased gambling problems after the opening of a casino as opposed to before the opening (Jacques & Ladouceur, 2006; Room, 1999).
Figure 2-1. Hypothesized model for both direct and indirect measures of casino and online gambling
CHAPTER 3

METHOD

Elicitation Study for Indirect Measure of Attitude, Social Norm, and PBC.

According to the theory of reasoned action (TRA) and its extension, the theory of planned behavior (TPB) (Ajzen & Fishbein, 1980, 2000; Fishbein & Ajzen, 1975), even if it is possible to predict a person’s intention by directly measuring his attitude toward gambling, social norms, and perceived behavioral control (PBC), for a more complete understanding of intentions, however, conducting an elicitation study is necessary to explain why he/she holds a certain attitude, social norms, and perceived behavioral control (see Figure 3-1 & 3-2). Furthermore, the TRA and the TPB stressed the need for conducting an elicitation study to identify the set of salient beliefs in a given target population (Ajzen & Fishbein, 1980, 2000; Fishbein & Ajzen, 1975). Thus, the present study employed an elicitation study in which students who represent the sample population identified their salient beliefs with respect to both casino and online gambling activities.

The goals of this elicitation study were 1) to determine the most, commonly held behavioral (outcome) belief for the indirect measurement of attitude toward gambling (e.g., “What do you believe are the advantages of visiting a casino (on an online site) to gamble,” “What do you believe are the disadvantages of visiting a casino (or an online site) to gamble,” 2) to identify the most important people or groups of people who would approve or disapprove of gambling (e.g., “Are there any individuals or groups who would approve of your visiting a casino (or an online site) to gamble,” “Are there any individuals or groups who would disapprove of your visiting a casino (or an online site) to gamble,” and 3) to establish salient barriers or facilitators which could make it easier or more difficult to engage in gambling (e.g., “What factors or circumstances would make it difficult or impossible for you to visit a casino
(or an online site) to gamble.” “What factors or circumstances would make it difficult or impossible for you to visit a casino (or an online site) to gamble.” Table 3-1 shows the open-ended questions used in the elicitation study.

With open-ended questions, 28 undergraduate students (53.6% female, M age = 21.2) enrolled in a communication course were asked to list their salient beliefs about both casino and online gambling. All 28 eight questionnaires were first used to develop the coding categories for each question. Then, two doctoral graduate students content-analyzed the answers and Holsti’s method was executed to establish intercoder reliability, which was .93 and met the high level of reliability for the study (Lombard, Snyder-Duch & Bracken, 2002).

Tables 3-2 through 3-6 show the coding categories and the frequency (percentage) of subjects’ responses for each question. Among the elicited beliefs, those that were most frequently mentioned by at least 10 percent of the subjects were selected according to the guidelines set out in the TRA and the TPB (Ajzen & Fishbein, 1980; Ajzen, 1988, 1991; 2002; Fishbein & Ajzen, 1975). These modal salient beliefs for both casino and online gambling were used as the basis of the quantitative measures of beliefs in the main survey. Table 3-7 shows the selected modal beliefs for the indirect measure of attitude, subjective norms, and perceived behavioral control (e.g., winning/losing money for behavioral beliefs; parents, friends, and religion for normative beliefs; lack/enough money for control beliefs). Specifically, although the “convenience” of online gambling was the most frequently mentioned behavioral belief for “advantages” of visiting an online site to gamble (20%), it was included in the main survey as a measure of control belief because its implied meaning includes some facilitators for online gambling (e.g., easy access, anytime, from home, etc.).
Participants and Survey Procedure

Survey research was employed to investigate the relationships between individual differences, gambling media exposure, attitudes toward gambling, social norms, perceived behavioral control, and gambling intentions among college students. Data were collected from a convenience sample of 235 college students, who enrolled in various communication courses and received extra course credit for their participation. Due to missing data or incomplete questionnaires for eight participants, all analyses were conducted on 227 participants (59% female; $M$ age = 20.9 years; range = 17 to 43 years).

One hundred and sixty-three students (71.8%) were non-Hispanic Caucasian; 23 students were African American (12.8%); 22 students were Latin American (9.7%); and the remaining 6% were from other racial and ethnic groups, including Asian American and Native American. Overall, 72 participants identified themselves as Catholic (31.7%), 70 students (30.8%) as either Protestant or Christian, 26 (11.5%) as Jewish, 25 (11.1%) as “other.” Thirty-four students (15%) did not indicate any religion. Approximately 58 percent reported that they live with friends or share a house with other people; 16.7 percent live with both parents; 3.1 percent live with just one parent; 11.5 percent live alone; 5.3 percent live with partner, wife, or husband; and 5.3 percent reported “other.” Overall, 45 participants (19.8%) indicated that they live less than 10 miles from a casino, 76 (33.5%) between 10 and 50 miles, 40 (17.6%) between 50 and 100 miles, and 66 (29.1%) more than 100 miles from a casino.

The survey was conducted in classes during the summer of 2008. At the commencement of each survey, the researcher read a script explaining the purpose of the study and instructions for the participants. In specific, the second page of the questionnaire was used to provide detailed instructions about using the 7-point semantic scales because most of the items in the questionnaire were measured with a semantic different format (see Appendix B). Participants
were instructed to answer all items honestly and not to communicate with other participants. Completion times ranged from 15 to 20 minutes. After completing the questionnaire, participants were debriefed and thanked for their participation. All measures and procedures were approved by the University Institutional Review Board.

**Measures**

**Exogenous Variables**

**Prior gambling experience:** Participants’ prior casino and online gambling experiences were measured with a single item. The statements, “How often have you visited casinos to gamble?” and “How often have you visited online sites to gamble?” were rated on a 7-point scale with endpoints labeled *never* (1) and *very frequently* (7).

**Gambling addiction (SOGS-RA):** Participants’ level of problem gambling was assessed with the South Oaks Gambling Screen-Revised Adolescent (SOGS-RA) (Winters et al., 1993), a modified version of the South Oaks Gambling Screen (Lesieur & Blume, 1987). The SOGS-RA is comprised of 11 items, which are reworded from the original SOGS in order to more precisely measure problem gambling among adolescents 15 to 18 years of age. Specifically, the scale placed more emphasis on the frequency of gambling activities and put less emphasis on money spent for gambling (Winters et al., 1993). The scale has been found to have a satisfactory reliability (Cronbach’s alpha coefficient = .80) and validity (adequate construct validity and discriminating regular versus non regular gamblers) (Winters et al., 1993; Winters, Stinchfield, & Kim, 1995). Sample questions included “When you were betting, have you ever told others you were winning money when you weren’t?” “Have you ever gambled more than you had planned to?” “Have you had money arguments with family or friends that centered on gambling?” and “Have you ever skipped or been absent from school or work due to betting activities?” (see the section D in Appendix B). Participants were asked to rate each statement...
described them with either “yes” (scored 1) or “no” (scored 0). A summed rating of 4 or more on this scale indicates probable pathological gambling or disordered gambling, scores 2 or 3 indicating at-risk gambling, and scores 0 to 1 representing no problem gambling (Winters et al., 1993). In this study, rate responses to these 11 items, however, were summed into a single measure ranging from 0 (no gambling addiction) to 11 (high gambling addiction), with a Cronbach’s coefficient alpha of .75 (see Table 3-8).

**Sensation seeking:** To reduce participants’ response bias by causing fatigue and boredom, participants’ level of sensation seeking was measured with a brief sensation-seeking scale that consisted of 4 Likert-scale items (Hornik et al., 2001; Yanovitzky, 2006; Yanovitzky, Stewart, & Lederman, 2006). Participants were asked to rate their agreement on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree) with the following statements: “I would like to explore strange places,” “I like to do frightening things,” “I like new and exciting experiences, even if I have to break the rules,” “I prefer friends who are exciting and unpredictable.” Rate responses to these 4 items were then summed and averaged into a single measure ranging from 1 (low sensation seeking) to 7 (high sensation seeking). The reliability as measured by Cronbach’s alpha coefficient was .78 (see Table 3-8).

**Religiosity:** Participants’ religiosity was estimated with a modified scale based on the previous studies (Amoateng & Bahr, 1986; Diaz, 2000; Ellison & Nybroten, 1999; Lam, 2006) that consisted of 5 Likert-scale items (1= strongly disagree, 7= strongly agree). The items included, “I attend religious services every week,” “I believe that religion is very important in my life,” “I consider myself a religious person,” “I think that I am a devout religious follower,” and “I believe that the Bible is God’s Word and everything happened or will happen exactly as it says.” Rate responses to these 5 items were then summed and averaged into a single measure.
ranging from 1 (low level of religiosity) to 7 (high level of religiosity). These items have been often used in previous research that examined the effect of religiosity on addictive behaviors (Amoateng & Bahr, 1986; Diaz, 2000; Ellison & Nybroten, 1999; Lam, 2006). The mean of these items produced a composite scale with a Cronbach’s alpha coefficient of .93 (see Table 3-8).

**Endogenous Variables**

**Exposure to TV poker shows and Internet poker sites ads:** The participants’ exposure to gambling television shows, Internet poker site ads, and gambling-related advertisements (e.g., for the casino, gambling computer games) were measured with a seven-item scale. For each item, participants were asked to indicate their media exposure on a 7-point semantic differential scale (1 = never, 7 = very frequently). The questions included, “How often have you watched poker game shows on TV?” “How often have you watched Internet poker site advertisements on TV?” “How often have you watched Internet poker site advertisements on Internet?” “How often have you seen Internet poker sites ads in other media?” “How often have you watched gambling-related advertisements on TV?” “How often have you watched gambling-related advertisements on Internet?” and “How often have you watched gambling-related advertisements in other media?” Rate responses to these seven items were then summed and averaged into a single measure ranging from 1 (low gambling media exposure) to 7 (high gambling media exposure). The reliability as measured by Cronbach’s alpha coefficient was .89 (see Table 3-8).

**Attitudes toward gambling (direct measure):** The subjects rated their attitudes toward casino gambling and online gambling behaviors on five 7-point semantic differential scales. Each of the five scales was measured by the use of bipolar adjectives following recommended the theory of reasoned action and the theory of planned behavior (Ajzen & Fishbein, 1980; Ajzen, 1988, 1991; 2002; Fishbein & Ajzen, 1975). Two items captured the instrumental aspect
of attitude (harmful/beneficial, worthless/valuable), two items tapped the experiential (affective) aspect (pleasant/unpleasant, enjoyable/unenjoyable), and one item was included to capture overall evaluation (good/bad). The statement that preceded the adjectives was as follows: “For me to visit a casino to gamble is,” and “For me to visit an online site to gamble is.” With appropriate reversal, participants’ response rates were then summed and averaged into a single measure ranging from 1 to 7, with high scores representing either positive attitudes toward casino gambling or online gambling. The reliability as measured by Cronbach’s alpha coefficient was .87 for casino gambling and .88 for online gambling, respectively.

**Indirect measure of attitude- Measuring behavioral beliefs and outcome evaluation:**

As suggested by Ajzen and Fishbein (1980), indirect measures of attitude toward casino gambling and online gambling behaviors were also taken with a set of modal behavioral beliefs and outcome evaluations which were selected from the previous elicitation study. First, to assess the strength of behavioral beliefs associated with each of possible outcomes, five items for casino gambling and three items for online gambling were rated on a 7-point probability scale ranging from 1 (unlikely) to 7 (likely). Sample questions included “If I visit a casino to gamble, I could win money,” “If I visit a casino to gamble, I could have fun and excitement,” and “If I visit an online site to gamble, I become addicted to gambling.” Second, the evaluation of those outcomes were measured on bipolar (-3 to +3) scale with endpoints labeled *extremely undesirable* (-3) and *extremely desirable* (+3). These items have the forms of incomplete sentences that include the following sample items: “Winning money in a casino from gambling is . . .” “Having fun and excitement in a casino is . . .” and “Being addicted to online gambling is . . .”
For the measure of each behavioral belief, the behavioral belief score on *unlikely-likely* scale was multiplied by the corresponding evaluation score on *extremely undesirable-extremely desirable* scale. The summed rate responses across all the beliefs served as a belief-based measure of attitude toward either casino gambling or online gambling. In other words, a positive composite score reflected that the participants were in favor of visiting a casino (or online site) to gamble, whereas a negative composite score represented that they were against visiting a casino (or online site) to gamble.

According to Francis et al. (2004), assessing the reliability or indirect measures using an internal consistency standard such as Cronbach’s alpha coefficient is inappropriate because an individual might have both positive and negative beliefs about the same behavior at the same time. Thus, the present study did not measure the reliability of the indirect measure of attitude as well as the following indirect measures of social norm and perceived behavioral control.

**Social norms (direct measure):** Similarly, following the recommendation of Ajzen and Fishbein (1980), direct measures of social norms involved four 7-point scales for each of the different contexts, casino and online gambling. The measure consisted of two subsections designed to measure (a) perceived descriptive norms, and (b) subjective norms assessing the extent to which important others approve of gambling. These subsections were modified based on the work of Moore and Ohtsuka (1999) and Larimer and Neighbors (2003). First, the perceived descriptive norm was measured with two statements assessing perceptions that include the following statements: “Most people who are important to me visit a casino (or an online site) to gamble (1= strongly disagree, 7= strongly agree),” and “The people in my life whose opinions I value visit a casino (or an online site) to gamble (1= strongly disagree, 7= strongly agree).”
Second, subjective norms were measured with two 7-point items. Participants were asked to rate perceived approval or disapproval of gambling from important others. One item used an incomplete sentence (1= I should, 7= I should not), while the other item involved completed sentences (1= strongly disagree, 7= strongly agree). The item included “Most people who are important to me think that (I should/ I should not) visit a casino (or an online site) to gamble,” and “Most of people whose opinions I value would approve of my visiting a casino (or an online site) to gamble.”

With appropriate reversal, participants’ response rates were then summed and averaged into a single measure ranging from 1 to 7, and high scores reflected greater social pressure to visit a casino or an online site to gamble. The reliability as measured by Cronbach’s alpha coefficient was .83 for casino gambling and .81 for online gambling, respectively (see Table 3-8).

**Indirect measure of social norm- Measuring normative beliefs and motivation to comply:** Indirect measures of social norm about casino and online gambling behaviors were taken with a set of modal normative beliefs and motivation to comply which were selected from the elicitation study. To assess the extent to which subjects perceived social pressure (strength of normative beliefs) from three reference individuals or groups (parents, friends, and religion), three items for both casino and online gambling were measured on bipolar (-3 to +3) scale with endpoints labeled *disapprove/should not* (-3) and *approve/should* (+3). These items included following items: “My parents would (disapprove/approve) of my visiting a casino (or an online site) to gamble,” “My friends think I (should not/should) visit a casino (or an online site) to gamble,” and “My religion would (disapprove/approve) of my visiting a casino (or an online site) to gamble.”
Motivations to comply with each of these three referents were measured on a 7-point scale ranging from 1 (not at all) to 7 (very much) with items “What my parents think I should do matters to me,” “What my friends think I should do matters to me,” and “What my religion think I should do is important to me.” The value of each normative belief was computed by multiplying each referent norm score with the corresponding motivation to comply score. The summed rate responses served as a belief-based measure of social norm about either casino gambling or online gambling. In other words, a positive composite score reflected that the participants experienced social pressure to visit a casino (or online site) to gamble, whereas a negative composite score represented that they experienced social pressure not to visit a casino (or online site) to gamble.

**Perceived behavioral control (direct measure):** To measure subjects’ confidence that they were capable of gambling behavior either in a casino or on an online site, three 7-point scales were used. Two items assessed the subject’s self-efficacy with the following statements: “For me to visit a casino (or an online site) to gamble is” (1= easy, 7= difficult), and “I am confident that I could visit a casino (or an online site) to gamble if I wanted to,” (1= strongly disagree, 7= strongly agree). One item measured the subjects’ beliefs about the controllability of the gambling behavior on 7-point scales ranging from 1 (strongly disagree) to 7 (strongly agree). The items included “Whether or not I visit a casino (or an online site) to gamble is entirely up to me.”

After recoding a negative item that has negative endpoint (easy/difficult), participants’ response rates were then summed and averaged into a single measure ranging from 1 to 7, and high scores represented a greater level of control over either visiting a casino to gamble or
visiting an online site to gamble. The reliability as measured by Cronbach’s alpha coefficient was .75 for both casino gambling and for online gambling (see Table 3-8).

**Indirect measure of PBC- Measuring control beliefs and power of control factors:**

With most frequently listed control beliefs in the elicitation study, the indirect measure of perceived behavioral control was derived from the strength of control beliefs and the power of these control factors to influence the behavior. The strength of control beliefs was measured by assessing respondents’ perceptions of the likelihood of occurrence of factors that would either facilitate or inhibit their visiting a casino (or an online site) to gamble. Two items for both casino and online gambling were rated on a 7-point probability scale ranging from 1 (unlikely) to 7 (likely). The questions included “I don’t have enough money for visiting a casino (or an online site) to gamble,” “Visiting to an online site to gamble is convenient,” and “I visit a casino to gamble for family vacation or for social outing with friends.” These resulting products were multiplied by the power of these factors to facilitate or inhibit gambling behavior on bipolar (-3 to +3) scale with endpoints labeled *much more difficult* (-3) and *much easier* (+3). These items were incomplete sentences that include following items: “Not having enough money makes it *(much more difficult/much easier)* for me to visit a casino (or an online site) to gamble,” “Convenience of online gambling makes it *(much more difficult/much easier)* for me to visit an online site to gamble,” and “Family vacation or social outing with friends makes it *(much more difficult/much easier)* for me to visit a casino to gamble.”

The summed rate responses across all the beliefs served as a belief-based measure of perceived behavior control on either casino gambling or online gambling. In other words, a positive composite score reflected that the participants felt in control of visiting a casino (or
online site) to gamble, whereas a negative composite score represented that they did not feel in control of visiting a casino (or online site) to gamble.

**Gambling intentions:** Intentions were measured with four 7-point Likert scaled questions: “I will make an effort to visit a casino (or an online site) to gamble,” “I intent to visit a casino (or an online site) to gamble,” “I expect to visit a casino (or an online site) to gamble,” and “I want to visit a casino (or an online site) to gamble,” (1= strongly disagree, 7= strongly agree). The mean of these four items produced a composite scale ranging from 1 to 7, and high scores represented high intention to gamble. Cronbach’s alpha coefficient was .93 for gambling intention in a casino and .94 for online gambling intention, respectively (see Table 3-8).

**Analyses and Model Evaluation Criteria**

To examine the associations of intention to gamble, correlations among scales were examined and mediation effects were tested. These analyses were performed with structural equation models (SEM) using AMOS 7. Structural equation analysis, using the method of maximum likelihood, was used to test a model including all paths from cognition variables in the presence of the theory of planned behavior to gambling intention, all paths from gambling media exposure variable to cognitions, and all paths from exogenous variables including prior gambling experience, sensation seeking, religiosity, and gambling addiction to gambling media exposure.

Multiple fit criteria were used to evaluate the fit of models, including the chi-square test, the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). One criterion involved likelihood-ratio chi-square statistic. A satisfactory \( \chi^2 \) test indicates that the predicted associations among variables are significantly different from the observed associations. Given the dependence of the chi-square test on large sample size and the number of variables (Bentler, 1990; Bollen, 1989), other indices also were examined. In particular, Bentler’s (1990) comparative fit index (CFI) has been widely used as a good criterion for model
fit evaluation because it is less influenced by sample size. A good fit is obtained when the CFI is greater than 0.90. The root mean square error of approximation (RMSEA) is a fit index showing confidence intervals for rejecting the hypothesis that has poor model fit. If RMSEA is less than 0.08, it is deemed acceptable (Bentler & Bonett, 1980; Marsh, Balla, & Hau, 1996). Path coefficients and $R^2$ values also were examined to evaluate the predictive power of the model.
Table 3-1. Open-ended questions used in the elicitation study

<table>
<thead>
<tr>
<th>Casino Gambling</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What do you believe are the advantages of visiting a casino to gamble?</td>
<td></td>
</tr>
<tr>
<td>2. What do you believe are the disadvantages of visiting a casino to gamble?</td>
<td></td>
</tr>
<tr>
<td>3. Is there anything else you associate with your own views about visiting a casino to gamble?</td>
<td></td>
</tr>
<tr>
<td>4. Are there any individuals or groups who would approve of your visiting a casino to gamble?</td>
<td></td>
</tr>
<tr>
<td>5. Are there any individuals or groups who would disapprove of your visiting a casino to gamble?</td>
<td></td>
</tr>
<tr>
<td>6. Is there anything else you associate with other people’s views about your visiting a casino to gamble?</td>
<td></td>
</tr>
<tr>
<td>7. What factors or circumstances would enable you to visit a casino to gamble?</td>
<td></td>
</tr>
<tr>
<td>8. What factors or circumstances would make it difficult or impossible for you to visit a casino to gamble?</td>
<td></td>
</tr>
<tr>
<td>9. Are there any other issues that come to mind when you think about visiting a casino to gamble?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Online Gambling</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10. What do you believe are the advantages of visiting an online site to gamble?</td>
<td></td>
</tr>
<tr>
<td>11. What do you believe are the disadvantages of visiting an online site to gamble?</td>
<td></td>
</tr>
<tr>
<td>12. Is there anything else you associate with your own views about visiting an online site to gamble?</td>
<td></td>
</tr>
<tr>
<td>13. Are there any individuals or groups who would approve of your visiting an online site to gamble?</td>
<td></td>
</tr>
<tr>
<td>14. Are there any individuals or groups who would disapprove of your visiting an online site to gamble?</td>
<td></td>
</tr>
<tr>
<td>15. Is there anything else you associate with other people’s views about your visiting an online site to gamble?</td>
<td></td>
</tr>
<tr>
<td>16. What factors or circumstances would enable you to visit an online site to gamble?</td>
<td></td>
</tr>
<tr>
<td>17. What factors or circumstances would make it difficult or impossible for you to visit an online site gamble?</td>
<td></td>
</tr>
<tr>
<td>18. Are there any other issues that come to mind when you think about visiting an online site to gamble?</td>
<td></td>
</tr>
</tbody>
</table>
Table 3-2. Coding categories and frequency (percentage) for the “advantages,” “disadvantages,” and “other associations” questions about casino gambling

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Winning money</td>
<td>14</td>
<td>11.6</td>
</tr>
<tr>
<td>2. Fun and excitement</td>
<td>16</td>
<td>13.3</td>
</tr>
<tr>
<td>3. Entertaining atmosphere</td>
<td>15</td>
<td>12.5</td>
</tr>
<tr>
<td>4. Social Activity</td>
<td>4</td>
<td>3.3</td>
</tr>
<tr>
<td>5. Place for vacation</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>6. Luck (doesn’t need skills)</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>7. Alcohol &amp; Food</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>8. Chance to meet a partner</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Losing money</td>
<td>21</td>
<td>17.5</td>
</tr>
<tr>
<td>2. Addiction</td>
<td>14</td>
<td>11.6</td>
</tr>
<tr>
<td>3. Losing control</td>
<td>5</td>
<td>4.2</td>
</tr>
<tr>
<td>4. Lack of skills</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>5. Less chance for winning</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>6. Expensive</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>7. Competition</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>8. Waste of time</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Smoking</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>2. New experience</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>3. Old people</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>4. Noise</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>5. Undesirable</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>6. Peer pressure</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>Category</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Convenience</td>
<td>21</td>
<td>20.0</td>
</tr>
<tr>
<td>2. Winning money</td>
<td>16</td>
<td>15.2</td>
</tr>
<tr>
<td>3. Fun and excitement</td>
<td>5</td>
<td>4.7</td>
</tr>
<tr>
<td>4. Accessibility</td>
<td>5</td>
<td>4.7</td>
</tr>
<tr>
<td>5. Anonymity</td>
<td>6</td>
<td>5.7</td>
</tr>
<tr>
<td>6. Ease of use</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>7. Past time</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>8. Change mood</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Losing money</td>
<td>13</td>
<td>12.3</td>
</tr>
<tr>
<td>2. Addiction</td>
<td>13</td>
<td>12.3</td>
</tr>
<tr>
<td>3. No social activity</td>
<td>6</td>
<td>5.7</td>
</tr>
<tr>
<td>4. Unreliable</td>
<td>7</td>
<td>6.6</td>
</tr>
<tr>
<td>5. Not real money</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>6. Waste of time</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Loser</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>2. New experience</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>3. Depression</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>4. Too many kinds</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>5. Privacy</td>
<td>1</td>
<td>0.9</td>
</tr>
</tbody>
</table>
### Table 3-4. Coding categories and frequency (percentage) for the “approve,” “disapprove,” and “other people’s views” questions about both casino and online gambling

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Casino Gambling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Friends</td>
<td>9</td>
<td>16.1</td>
</tr>
<tr>
<td>2. Parents/Family</td>
<td>3</td>
<td>5.3</td>
</tr>
<tr>
<td>3. Casino owners</td>
<td>3</td>
<td>5.3</td>
</tr>
<tr>
<td>4. Other gamblers</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>5. Everyone</td>
<td>2</td>
<td>3.5</td>
</tr>
<tr>
<td>6. Local business</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Disapprove</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Parents</td>
<td>16</td>
<td>28.5</td>
</tr>
<tr>
<td>2. Friends</td>
<td>7</td>
<td>12.5</td>
</tr>
<tr>
<td>3. Religion</td>
<td>12</td>
<td>21.4</td>
</tr>
<tr>
<td>4. Boy/Girl friend</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>5. Community</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Online Gambling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Friends</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>2. Parents/Family</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>3. Site owners</td>
<td>3</td>
<td>6.0</td>
</tr>
<tr>
<td>4. Other gamblers</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>5. Everyone</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>6. Advertisers</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td>Disapprove</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Parents</td>
<td>18</td>
<td>36.0</td>
</tr>
<tr>
<td>2. Friends</td>
<td>9</td>
<td>18.0</td>
</tr>
<tr>
<td>3. Religion</td>
<td>9</td>
<td>18.0</td>
</tr>
<tr>
<td>Category</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Easy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Enough money</td>
<td>8</td>
<td>10.5%</td>
</tr>
<tr>
<td>2. Family vacation/Social outing with friends</td>
<td>16</td>
<td>19.0%</td>
</tr>
<tr>
<td>3. Cruise trip</td>
<td>7</td>
<td>8.3%</td>
</tr>
<tr>
<td>4. Easy access</td>
<td>2</td>
<td>2.3%</td>
</tr>
<tr>
<td>5. Special occasion</td>
<td>8</td>
<td>9.5%</td>
</tr>
<tr>
<td>6. Legal age for gambling</td>
<td>1</td>
<td>1.1%</td>
</tr>
<tr>
<td><strong>Difficult</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Lack of money</td>
<td>17</td>
<td>20.2%</td>
</tr>
<tr>
<td>2. Accessibility</td>
<td>8</td>
<td>9.3%</td>
</tr>
<tr>
<td>3. Lack of skills</td>
<td>1</td>
<td>1.1%</td>
</tr>
<tr>
<td>4. Lack of time</td>
<td>2</td>
<td>2.3%</td>
</tr>
<tr>
<td>5. Underage for gambling</td>
<td>5</td>
<td>5.9%</td>
</tr>
<tr>
<td>6. Religion</td>
<td>3</td>
<td>3.5%</td>
</tr>
<tr>
<td>7. High gas price</td>
<td>1</td>
<td>1.1%</td>
</tr>
<tr>
<td><strong>Other Issues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Alcohol</td>
<td>1</td>
<td>1.1%</td>
</tr>
<tr>
<td>2. Work</td>
<td>1</td>
<td>1.1%</td>
</tr>
<tr>
<td>3. Feeling lucky</td>
<td>1</td>
<td>1.1%</td>
</tr>
<tr>
<td>4. New experience</td>
<td>2</td>
<td>2.3%</td>
</tr>
</tbody>
</table>
Table 3-6. Coding categories and frequency (percentage) for the “easy,” “difficult,” and “other issues” questions about online gambling

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Easy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Enough money</td>
<td>6</td>
<td>9.1</td>
</tr>
<tr>
<td>2. Easy betting</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>3. Easy access</td>
<td>5</td>
<td>7.5</td>
</tr>
<tr>
<td>4. Legal age for gambling</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>5. Enough free time</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>6. High speed Internet</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>7. Special promotion</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Difficult</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Lack of money</td>
<td>15</td>
<td>22.7</td>
</tr>
<tr>
<td>2. Internet access</td>
<td>5</td>
<td>7.5</td>
</tr>
<tr>
<td>3. Unreliable</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>4. Lack of time</td>
<td>4</td>
<td>6.0</td>
</tr>
<tr>
<td>5. Religion</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>6. Underage for gambling</td>
<td>2</td>
<td>3.0</td>
</tr>
<tr>
<td>7. No credit card</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Other Issues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. No social activity</td>
<td>5</td>
<td>7.5</td>
</tr>
<tr>
<td>2. Not real money</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>3. Feeling lucky</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>4. Change mood</td>
<td>4</td>
<td>6.0</td>
</tr>
<tr>
<td>5. No interest</td>
<td>4</td>
<td>6.0</td>
</tr>
</tbody>
</table>
Table 3-7. Modal salient beliefs for the indirect measure of attitude, social norms, and perceived behavioral control about both casino and online gambling

<table>
<thead>
<tr>
<th></th>
<th>Attitude</th>
<th>Subjective Norm</th>
<th>Perceived Behavioral Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Casino Gambling</strong></td>
<td>(behavioral beliefs)</td>
<td>(normative beliefs)</td>
<td>(control beliefs)</td>
</tr>
<tr>
<td>1. Winning money</td>
<td></td>
<td>1. Parents</td>
<td>1. Enough/lack of money</td>
</tr>
<tr>
<td>2. Losing money</td>
<td></td>
<td>2. Friends</td>
<td>2. Family vacation/</td>
</tr>
<tr>
<td>4. Fun and Excitement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Entertaining atmosphere</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Online Gambling</strong></td>
<td>1. Winning money</td>
<td>1. Parents</td>
<td>1. Convenience</td>
</tr>
<tr>
<td>2. Losing money</td>
<td>2. Friends</td>
<td>2. Enough/lack of money</td>
<td></td>
</tr>
<tr>
<td>Constructs, indicators, and key statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Table 3-8</strong>. Constructs, indicators, and key statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Constructs</strong></td>
<td><strong>Items</strong></td>
<td><strong>Confirmatory Factor Loadings</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Prior Gambling Experience</strong></td>
<td>How often have you visited casinos (online sites) to gamble? **</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gambling Addiction: SOGS-RA</strong></td>
<td>1) When you were betting, have you ever told others you were winning money when you weren’t?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2) Has your betting money ever caused any problems for you such as arguments with family and friends, or problems at school or work?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3) Have you ever gambled more than you had planned to?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4) Has anyone criticized your betting, or told you that you had a gambling problem whether you thought it true or not?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5) Have you ever felt bad about the amount of money you bet, or about what happens when you bet money?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6) Have you ever felt like you would like to stop betting, but didn’t think you could?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7) Have you ever hidden from family or friends any betting slips, IOUs, lottery tickets, money that you won, or any signs of gambling?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8) Have you had money arguments with family or friends that centered on gambling?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9) Have you borrowed money to bet and not paid it back?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10) Have you ever skipped or been absent from school or work due to betting activities?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11) How often have you gone back another day to try and win back money you lost gamble?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sensation Seeking</strong></td>
<td>I would like to explore strange place. *</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(α = .78)</strong></td>
<td>I like to do frightening things. *</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I like new and exciting experience, even if I have to break the rules. *</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer friends who are exciting and unpredictable. *</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3-8. Continued

<table>
<thead>
<tr>
<th>Religiosity</th>
<th>I attend religious services every week.</th>
<th>.80&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I believe that religion is very important in my life.</td>
<td>.93&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>(α = .93)</td>
<td>I consider myself a religious person.</td>
<td>.92&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>I think that I am a devout religious follower.</td>
<td>.92&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>I believe that the Bible is God’s Word and everything happened or will happen exactly as it says.</td>
<td>.76&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gambling Media Exposure</th>
<th>How often have you watched poker game shows on TV? (e.g., World Series of Poker on ESPN, World Poker Tour on Travel Channel, Celebrity Poker Showdown on Bravo, etc.).</th>
<th>.60&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How often have watched Internet poker site advertisements on TV?</td>
<td>.73&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>How often have you watched Internet poker site advertisements on Internet?</td>
<td>.75&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>How often have you seen Internet poker site advertisements in other media? (e.g., magazine, outdoor ads, etc.).</td>
<td>.73&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>How often have you watched gambling-related advertisements on TV? (e.g. for the casino, gambling computer games, etc.)</td>
<td>.86&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>How often have you watched gambling-related advertisements on Internet? (e.g. for the casino, gambling computer games, etc.)</td>
<td>.71&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>How often have you watched gambling-related advertisements (for the casino, gambling computer games, etc.) in other media? (e.g., magazine, outdoor ads, etc.).</td>
<td>.82&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attitude toward Gambling: Direct Measure</th>
<th>For me to visit a casino (an online site) to gamble is</th>
<th>.84&lt;sup&gt;a&lt;/sup&gt; (.82&lt;sup&gt;a&lt;/sup&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = good, 7 = bad (reverse recode)</td>
<td>1 = harmful, 7 = beneficial</td>
<td>.58&lt;sup&gt;b&lt;/sup&gt; (60&lt;sup&gt;b&lt;/sup&gt;)</td>
</tr>
<tr>
<td>1 = worthless, 7 = valuable</td>
<td>1 = pleasant, 7 = unpleasant (reverse recode)</td>
<td>.67&lt;sup&gt;a&lt;/sup&gt; (.71&lt;sup&gt;a&lt;/sup&gt;)</td>
</tr>
<tr>
<td>1 = enjoyable, 7 = unenjoyable (reverse recode)</td>
<td></td>
<td>.87&lt;sup&gt;a&lt;/sup&gt; (.90&lt;sup&gt;a&lt;/sup&gt;)</td>
</tr>
<tr>
<td>α = .87: Casino</td>
<td></td>
<td>.84&lt;sup&gt;a&lt;/sup&gt; (.86&lt;sup&gt;a&lt;/sup&gt;)</td>
</tr>
<tr>
<td>(α = .88: Online)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Attitude toward Gambling: Indirect Measure for Casino | If I visit a casino to gamble, I could win money. ***
| Winning money in a casino from gambling is ****
| If I visit a casino to gamble, I could lose money. ***
| Losing money in a casino from gambling is ****
| If I visit a casino to gamble, I become addicted to gambling. ***
| Being addicted to casino gambling is ****
| If I visit a casino to gamble, I could have fun and excitement. ***
| Having fun and excitement in a casino is ****
| If I visit a casino to gamble, I could enjoy other things (e.g., fun atmosphere, entertainment) than gambling itself. ***
| In a casino, enjoying other things (e.g., fun atmosphere, entertainment) than gambling itself is ****
| Attitude toward Gambling: Indirect Measure for Online | If I visit an online site to gamble, I could win money. ***
| Winning money in an online site from gambling is ****
| If I visit an online site to gamble, I could lose money. ***
| Losing money in an online site from gambling is ****
| If I visit an online site to gamble, I become addicted to gambling. ***
| Being addicted to online-gambling is ****

Table 3-8. Continued
Table 3-8. Continued

<table>
<thead>
<tr>
<th>Social Norms</th>
<th>Most people who are important to me think that (1 = I should / 7 =I should not) visit a casino (an online site) to gamble. (reverse recode)</th>
<th>( \alpha = .83: \text{Casino} ) ( \alpha = .81: \text{Online} )</th>
<th>Most of people whose opinions I value would approve of my visiting a casino (an online site) to gamble.</th>
<th>( \alpha = .83: \text{Casino} ) ( \alpha = .81: \text{Online} )</th>
<th>Most of people who are important to me visit a casino (an online site) to gamble.</th>
<th>( \alpha = .83: \text{Casino} ) ( \alpha = .81: \text{Online} )</th>
<th>The people in my life whose opinions I value visit a casino (an online site) to gamble.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBC Direct Measure</td>
<td>For me to visit a casino (an online site) to gamble is ( \alpha = .75: \text{Casino} ) ( \alpha = .75: \text{Online} ) (reverse recode)</td>
<td>( \alpha = .75: \text{Casino} ) ( \alpha = .75: \text{Online} )</td>
<td>Whether or not I visit a casino (an online site) to gamble is entirely up to me.</td>
<td>( \alpha = .75: \text{Casino} ) ( \alpha = .75: \text{Online} )</td>
<td>I am confident that I could visit a casino (an online site) to gamble if wanted to.</td>
<td>( \alpha = .75: \text{Casino} ) ( \alpha = .75: \text{Online} )</td>
<td>( \alpha = .75: \text{Casino} ) ( \alpha = .75: \text{Online} )</td>
</tr>
</tbody>
</table>

| My parents would (-3 = disapprove / +3 = approve) of my visiting a casino (an online site) to gamble. | \( \alpha = .75: \text{Casino} \) \( \alpha = .75: \text{Online} \) What my parents think I should do matters to me. | \( \alpha = .75: \text{Casino} \) \( \alpha = .75: \text{Online} \) My friends think I (1 = I should / 7 =I should not) visit a casino (an online site) to gamble. | \( \alpha = .75: \text{Casino} \) \( \alpha = .75: \text{Online} \) What my friends think I should do matters to me. | \( \alpha = .75: \text{Casino} \) \( \alpha = .75: \text{Online} \) My religion would (-3 = disapprove / +3 = approve) of my visiting a casino (an online site) to gamble. | \( \alpha = .75: \text{Casino} \) \( \alpha = .75: \text{Online} \) What my religion think I should do is important to me. | \( \alpha = .75: \text{Casino} \) \( \alpha = .75: \text{Online} \) For me to visit a casino (an online site) to gamble is (reverse recode) \( \alpha = .75: \text{Casino} \) \( \alpha = .75: \text{Online} \) Whether or not I visit a casino (an online site) to gamble is entirely up to me. | \( \alpha = .75: \text{Casino} \) \( \alpha = .75: \text{Online} \) I am confident that I could visit a casino (an online site) to gamble if wanted to. | \( \alpha = .75: \text{Casino} \) \( \alpha = .75: \text{Online} \) |

82
<table>
<thead>
<tr>
<th>PBC: Indirect Measure for Casino</th>
<th>I don’t have enough money for visiting a casino to gamble. ***</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not having enough money makes it (-3 = much more difficult / +3 = much easier) for me to visit a casino to gamble.</td>
</tr>
<tr>
<td></td>
<td>I visit a casino to gamble for family vacation or for social outing with friends. ***</td>
</tr>
<tr>
<td></td>
<td>Family vacation or social outing with friends makes it (-3 = much more difficult / +3 = much easier) for me to visit a casino to gamble.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PBC: Indirect Measure for Online</th>
<th>Visiting to an online site to gamble is convenient. ***</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Convenience of online gambling makes it (-3 = much more difficult / +3 = much easier) for me to visit an online site to gamble.</td>
</tr>
<tr>
<td></td>
<td>I don’t have enough money for visiting an online site to gamble. ***</td>
</tr>
<tr>
<td></td>
<td>Not having enough money makes it (-3 = much more difficult / +3 = much easier) for me to visit an online site to gamble.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gambling Intentions</th>
<th>I will make an effort to visit a casino (an online site) to gamble. *</th>
</tr>
</thead>
<tbody>
<tr>
<td>α =.93: Casino (α =.94: Online)</td>
<td>I intent to visit a casino (an online site) to gamble. * .92a (.96a)</td>
</tr>
<tr>
<td></td>
<td>I expect to visit a casino (an online site) to gamble. * .87a (.92a)</td>
</tr>
<tr>
<td></td>
<td>I want to visit a casino (an online site) to gamble. * .86a (.90a)</td>
</tr>
</tbody>
</table>

* Seven-point Scale (1: strongly disagree, 7: strongly agree)
** Seven-point Scale (1: never, 7: very frequently)
*** Seven-point Scale (1: unlikely, 7: likely)
**** Seven-point Scale (-3: extremely undesirable, +3: extremely desirable)
***** Seven-point Scale (1: not at all, 7: very much)
****** Seven-point Scale (1: easy, 7: difficult)

a Factor significance: p < .01
b loading was set to 1.0 to fix construct variance.
Figure 3-1. Direct measure of theory of reasoned action and theory of planned behavior. (Note: Upper shaded section shows the theory of reasoned action; the entire figure shows the theory of planned behavior.)
Figure 3-2. Indirect measure of theory of reasoned action and theory of planned behavior. (Note: Upper shaded section shows the theory of reasoned action; the entire figure shows the theory of planned behavior.)
CHAPTER 4
RESULTS

Direct Measurement of Casino Gambling

Descriptive correlation measures: Table 4-1 shows descriptive data for measurement normality and correlations between casino gambling measures. Overall, the measures of normality were not excessively skewed and had reasonable variation. In general, examination of the correlations indicated that the gambling-related cognition measures were statistically significant. Attitude and social norm were strongly correlated with strength of intention ($r = .59$, $r = .46$, respectively), whereas perceived behavioral control showed smaller but significant correlation ($r = .17$). The variable of gambling media exposure was significantly correlated with intention ($r = .49$), attitude ($r = .38$), and social norm ($r = .27$), but it was not correlated with perceived control behavior ($r = .01$), suggesting that its effect on intention might not be mediated by PBC variable. Of the exogenous variables, prior casino gambling experience, sensation seeking, and level of addiction were all positively and significantly correlated with intention ($rs = .32$ to $.51$), while religiosity variable showed small negative but significant correlation ($r = - .18$). Interestingly, prior casino gambling behavior was not strongly correlated with PBC ($r = .12$) and the variable of the level of gambling addiction was not strongly correlated with both social norm and PBC ($r = .10$, $.07$, respectively), suggesting that its effect on intentions was not mediated by these variables. In contrast, sensation seeking and religiosity variables showed somewhat strong relationships with other variables, including attitude ($r = .31$, -.16, respectively), social norm ($r = .25$, -.17, respectively), PBC ($r = .19$, -.18, respectively), and gambling media exposure ($r = .23$, -.16, respectively), suggesting that its effect on intentions might be mediated by other variables.
**Measurement model:** Prior to estimating the hypothesized structural model, a confirmatory factor analysis (CFA) was conducted to examine factor structures of the hypothesized structural model (Kline, 2005). This is a two-step approach suggested by Anderson and Gerbing (1988). More specifically, if the measurement model shows a good model adequacy, the second stage is to evaluate the structural relationships of the hypothesized variables (Anderson & Gerbing, 1988). Several underlying assumptions for CFA and SEM, including normality, sampling adequacy and multicollinearity (Hair, Anderson, Tatham, & Black, 1995), were validated and confirmed to be within acceptable boundaries.

As Table 4-2 indicates, the measurement model for casino gambling had an acceptable model fit. The chi-square statistic was significant ($\chi^2 = 1095.52, \ p < .001$). The normed chi-square ($\chi^2/df = 2.22$) was below the suggested threshold (i.e., < 3.0; Bollen, 1989). The RMSEA value indicated that the measurement model was an acceptable fit (RMSEA = .074, 90% CI = .068 - .079; Hu & Bentler, 1999). The CFI value of .88 was slightly below the suggested cut-off criterion (i.e., >.90; Hu & Bentler, 1995). Based on these measures, the measurement model was of acceptable in terms of model fit.

However, some interfactor correlations such as prior casino gambling experience, gambling addiction, and gambling media exposure indicated high correlation with the intention factor, suggesting that these factors might have unmediated effects on intentions. It may imply that those variables might have direct influence on intention as well as indirect influence through media exposure or cognition variables. Thus, the direct paths were added to the original model. The revised model with these added paths was found to fit the data significantly better than the original model ($\chi^2 = 927.22, \ p < .001, \chi^2/df = 1.84$, RMSEA = .061, 90% CI = .055 - .067; CFI = .92).
**Reliability:** Reliability was evaluated by Cronbach’s alpha coefficient. All values of Cronbach’s alpha showed a strong internal consistency among the items (α = .75 for SOGS-RA, α = .78 for Sensation Seeking, α = .93 for Religiosity, α = .89 for Gambling Media Exposure, α = .87 for Attitude, α = .83 for Social Norm, α = .75 for PBC, and α = .93 for Intention). Based on the reliability test, the measurement model showed high reliability.

**Convergent validity:** To determine convergent validity, the author of the current study evaluated indicator loadings. As a result of the convergent validity test, all indicator loadings were significant at $p < .001$. In addition, all indicator loadings were greater than the suggested criterion ($≥ .50$; Meyers, Gamst, & Guarino, 2006). As a result, the measurement model showed strong convergent validity.

**Discriminant validity:** All interfactor correlations were well below the suggested criterion ($> .85$; Kline, 2005), ranging from $r = .07$ (correlation between Gambling Addiction and PBC) to $r = .59$ (correlation between Attitude and Intentions), indicating good discriminant validity. Therefore, the measurement model showed strong discriminant validity on the sample data and it was appropriate to proceed to examine the structural relationships of the research variables.

**SEM model testing:** To investigate the extent to which the effects of gambling media exposure and four exogenous variables (e.g., prior casino gambling experience) on intention to visit a casino to gamble, the SEM analysis first tested mediated effects and then examined unmediated effects by allowing factors (e.g., prior casino gambling experience, gambling addiction, and gambling media exposure) to have direct relationship with intention factor. Both mediated and unmediated models were compared each other with chi-square difference tests, path coefficients, and $R^2$ values.
With respect to mediated model, the overall goodness-of-fit of this model was acceptable. The chi-square statistic was significant ($\chi^2 = 1202.53, p < .001$). The normed chi-square ($\chi^2/df = 2.34$) was below the suggested threshold (i.e., < 3.0; Bollen, 1989). While the CFI value of .86 was below the suggested threshold (i.e., > .90; Hu & Bentler, 1995), the RMSEA value indicated that the mediated model showed an acceptable fit (RMSEA = .077, 90% CI = .071 - .083; Hu & Bentler, 1999).

The SEM analysis indicated that attitude and social norm had significant direct effects on gambling intentions ($\beta = .52, p < .001; \beta = .29, p < .001$, respectively), while PBC was not statistically significant ($p = .89$). Gambling media exposure had statistically significant direct effects on attitude ($\beta = .42, p < .001$) and social norm ($\beta = .30, p < .001$), but the gambling media exposure was not shown to be significant on PBC ($p = .56$). Prior casino gambling experience and level of gambling addiction had statistically significant direct effects on gambling media exposure ($\beta = .31, p < .001; \beta = .32, p < .001$, respectively), but there were no statistically significant direct effects of sensation seeking and religiosity on media exposure ($p = .08; p = .85$, respectively). Consequently, RQ 4 and RQ 5, comparing the relative power of the unmediated and mediated effect from sensation seeking and religiosity to gambling intentions, were not able to be answered in the remaining analyses. This model accounted for 40.2% of the variance in intention ($R^2 = .402$).

With respect to unmediated effects, which had three additional direct paths in the model (i.e., between gambling media exposure and intention, prior casino gambling experience and intention, and gambling addiction and intention). Goodness-of-fit substantially improved compared with that of the mediated model ($\chi^2 = 927.22, p < .001, \chi^2/df = 1.84$, RMSEA = .061, 90% CI = .055 - .067; CFI = .92). Chi-square difference test also supported the superiority of
model adequacy for the unmediated model ($\chi^2_{\text{diff}} = 275.31, p < .001$). Gambling media exposure showed a direct effect on intention ($\beta = .17, p < .05$), and prior casino gambling experience also had a direct effect on intention ($\beta = .21, p < .01$). In contrast, the direct effect of gambling addiction on intention was not statistically significant ($p = .89$). This model accounted for 51.4% of the variance in intention ($R^2 = .514$).

A graphical representation that includes significant paths is presented in Figure 4-1. In this model, intention was directly influenced by attitude, social norm, media exposure, and prior gambling experience. The relative power of the unmediated and mediated paths was examined by comparing the beta weights (Kenny, Kashy, & Bolger, 1998). This comparison clearly showed that the total mediated effect of gambling media exposure on gambling intention via attitude and social norm was greater than the unmediated effect (RQ1: 21 vs. 17). That is, greater gambling media exposure was related to more positive attitudes toward casino gambling and more positive support for casino gambling by significant others, which were related to stronger intention to gamble in a casino. The model also showed that the major effect of prior casino gambling experience on intention was unmediated rather than mediated via gambling media exposure, attitudes, and social norms (RQ2a: 21 vs. 6.8), while the effect of gambling addiction on intention was only mediated through other variables (RQ3).

As a result of SEM analyses, the final model supported six out of ten hypotheses. Hypotheses 4a and 5a dealt with the direct effect of gambling media exposure on attitude toward casino gambling and perceived social norm. The results showed that the direct effect of gambling media exposure had a positive influence on attitude toward casino gambling and on the support for casino gambling by significant others ($\beta = .38, p < .001; \beta = .29, p < .001$, respectively), which in turn led to intention to visit a casino to gamble (H1a: $\beta = .38, p < .001$; H2a: $\beta = .22, p$
Specifically, attitude was the most strongly related to casino gambling intentions, suggesting that attitude is relatively more weighted than social norms in the context of casino gambling. Therefore, hypotheses 1a, 2a, 4a and 5a were confirmed. However, the direct effect of gambling media exposure was found not to be related to perceived behavioral control ($p = .54$) and PBC was found not to have a relationship with intention to gamble in a casino ($p = .99$). Hence, H3a and H6a were not supported.

In support of H7a, prior casino gambling experience was positively related to gambling media exposure ($\beta = .32, p < .001$). H8 was also supported. Level of gambling addiction positively influenced gambling media exposure ($\beta = .29, p < .001$). That is, the higher the level of gambling addiction, the more exposure to gambling media. In contrast, H9 and H10 were not confirmed. Neither sensation seeking nor religiosity was related to gambling media exposure ($p = .06$ and $p = .84$, respectively).

**Indirect Measurement of Casino Gambling**

**SEM model testing:** To examine the relationship between belief-based and direct measures of attitude, social norm, and PBC, an SEM analysis was conducted with a set of modal salient beliefs selected from the elicitation study. To investigate whether the two types of measures have an appreciable similarity, a second SEM test applied to the same final model used in the direct measure of casino gambling that included direct paths between gambling media exposure and gambling intention, prior gambling experience and gambling intention, and gambling addition and gambling intention.

Overall, model fit was good ($\chi^2 = 849.46, p < .001, \chi^2/df = 1.93, \text{RMSEA} = .064, 90\% \text{ CI} = .058 - .071; \text{CFI} = .90$). The results confirmed that the belief-based measures (indirect measure) had clearly similar results with the direct measures, except disappearance of a significant path between gambling media exposure and casino gambling intention. The SEM analysis indicated
that attitude and social norm had significant direct effects on casino gambling intentions ($\beta = .24, p < .01; \beta = .36, p < .001$, respectively), while PBC was not statistically significant ($p = .50$).

Gambling media exposure had statistically significant direct effects on attitude ($\beta = .28, p < .01$) and social norm ($\beta = .23, p < .01$), except on PBC ($p = .10$). Finally, prior casino gambling experience and level of gambling addiction had statistically significant direct effects on gambling media exposure ($\beta = .31, p < .001; \beta = .30, p < .001$, respectively), but there were no statistically significant direct effects of sensation seeking and religiosity on media exposure ($p = .06; p = .83$, respectively).

With respect to unmediated effects on casino gambling intention, unlike with direct measure, only prior casino gambling experience showed a direct effect on intention, but there were no statistically significant direct effects of gambling media exposure and gambling addiction on intentions ($p = .13; p = .06$, respectively). Overall, this model accounted for 39.3% of the variance in intention ($R^2 = .393$).

A graphical representation that includes significant paths is presented in Figure 4-2. In this model, intention was directly influenced by attitude, social norm, and prior gambling experience. The relative power of the unmediated and mediated paths was examined by comparing the beta weights. This comparison clearly showed that the effect of gambling media exposure on intention was only mediated through attitudes and social norms, and the unmediated effect was not statistically significant (RQ1). In specific, the model showed that the effect of gambling media exposure accounted for 15% of variance in intention by mediated paths via attitude and social norm. The model also showed that the major effect of prior casino gambling experience on intention was unmediated rather than mediated via gambling media exposure, attitudes, and
social norms (RQ2a: 22 vs.4.6). Finally, the effect of gambling addiction on intention was only mediated through other variables (RQ3).

Same as direct measurement model of casino gambling, this model supported six out of ten hypotheses. Hypotheses 4a and 5a dealt with the direct effect of gambling media exposure on attitude toward casino gambling and perceived social norm. The results showed that the direct effect of gambling media exposure had a positive influence on attitude toward casino gambling and on the support for casino gambling by significant others (β = .28, p < .01; β = .23, p < .01, respectively), which in turn led to intention to visit a casino to gamble (H1a: β = .24, p < .01; H2a: β = .36, p < .001). Therefore, hypotheses 1a, 2a, 4a and 5a were confirmed. However, the direct effect of gambling media exposure was found not to be related to perceived behavioral control (p = .10) and PBC was found not to have a relationship with intention to gamble in a casino (p = .50). Hence, H3a and H6a were not supported.

In support of H7a, prior casino gambling experience was positively related to gambling media exposure (β = .31, p < .001). H8 was also supported in that level of gambling addiction positively influenced gambling media exposure (β = .30, p < .001). In contrast, H9 and H10 were not supported; neither sensation seeking nor religiosity was related to gambling media exposure (p = .06 and p = .83, respectively).

**Direct Measurement of Online Gambling**

**Descriptive correlation measures:** Table 4-3 illustrates descriptive data for measurement normality and correlations between measures. In general, the measures of normality were not excessively skewed and had reasonable variation. The findings of descriptive correlations related to online gambling were generally similar to the findings of casino gambling. Attitude and social norm were strongly correlated with strength of intention (r = .46, r = .42, respectively), whereas perceived behavioral control showed very weak and not statistically significant correlation with
intention \((r = -.01)\). The variable of gambling media exposure was significantly correlated with intention \((r = .52)\), attitude \((r = .46)\), and social norm \((r = .39)\), but it was not correlated with perceived behavior \((r = .14)\), suggesting that its effect on intention might not be mediated by PBC variable. Of the exogenous variables, prior online gambling experience, sensation seeking, and level of addiction were all positively and significantly correlated with intention \((rs = .26 \text{ to } .70)\), whereas religiosity variable showed small negative but significant correlation \((r = -.18)\). Unlike with the casino gambling correlation, all exogenous variables were strongly correlated with gambling media exposure, attitude and social norm while they were not significantly correlated with PBC \((rs = .06 \text{ to } .15)\), suggesting that the effects of exogenous variables on intentions might be mediated by other variables, except for PBC.

**Measurement model:** The same analyses were conducted to estimate the measurement model as in casino gambling. Several underlying assumptions for CFA and SEM, including normality, sampling adequacy and multicollinearity (Hair et al., 1995), were validated and confirmed to be within acceptable boundaries. To examine whether the model fits the data well, a confirmatory factor analysis using maximum likelihood was first conducted.

As Table 4-2 shows, the measurement model for online gambling showed an acceptable model fit. The chi-square statistic was significant \((\chi^2 = 1081.93, \ p < .001)\). The normed chi-square \((\chi^2/df = 2.19)\) was below the suggested cut-off criterion (i.e., < 3.0; Bollen, 1989). The RMSEA value indicated that the measurement model showed a good fit \((\text{RMSEA} = .073, 90\% \ CI = .067 \text{ - } .079; \ Hu \ & \ Bentler, 1999)\). The CFI value of .88 was slightly below the suggested threshold (i.e., > .90; Hu & Bentler, 1995). Based on these measures, the measurement model showed an acceptable fit.
However, some interfactor correlations, including prior online gambling experience, gambling addiction, and gambling media exposure indicated high correlation with the intention factor, suggesting that these three factors might have unmediated effects on intention to visit an online site to gamble. It may imply that those variables might have direct influence on intention as well as indirect influence through media exposure or cognition variables. Thus, the direct paths were added to the original model. The revised model with three added paths was found to fit the data significantly better than the original model ($\chi^2 = 959.88$, $p < .001$, $\chi^2/df = 1.90$, RMSEA = .063, 90% CI = .057 - .069; CFI = .91).

**Reliability:** Reliability was evaluated by Cronbach’s alpha coefficient. All values of Cronbach’s alpha showed a strong internal consistency among the items ($\alpha = .75$ for SOGS-RA, $\alpha = .78$ for Sensation Seeking, $\alpha = .93$ for Religiosity, $\alpha = .89$ for Gambling Media Exposure, $\alpha = .88$ for Attitude, $\alpha = .81$ for Social Norm, $\alpha = .75$ for PBC, and $\alpha = .94$ for Intention). Based on the reliability test, the measurement model showed high reliability.

**Convergent validity:** All indicator loadings were statistically significant and were greater than the suggested threshold ($\geq .50$, $p < .001$; Meyers et al., 2006). As a result, the measurement model showed strong convergent validity.

**Discriminant validity:** All interfactor correlations were well below the suggested criterion ($> .85$; Kline, 2005), ranging from $r = -.01$ (correlation between PBC and Intention) to $r = .70$ (correlation between Prior Online Gambling Experience and Intention), indicating good discriminant validity. Therefore, it can be concluded that the modified structural equation model showed strong discriminant validity on the sample data and it was appropriate to proceed to examine the structural relationships of the research variables.
SEM model testing: To examine the extent to which the effects of gambling media exposure and four exogenous variables have mediated and unmediated effects on intention to visit an online site to gamble, the SEM analysis first tested mediated effects, followed by unmediated effects by allowing three factors (prior online gambling experience, gambling addiction, and gambling media exposure) to have direct relationship with intentions. Both mediated and unmediated models were compared each other with chi-square difference tests, path coefficients, and $R^2$ values.

First, with respect to the mediated model, the overall goodness-of-fit of this model was acceptable. The chi-square statistic was significant ($\chi^2 = 1257.59, p < .001$). The normed chi-square ($\chi^2/df = 2.45$) was below the suggested threshold (i.e., < 3.0; Bollen, 1989). While the CFI value of .86 was below the suggested threshold (i.e., > .90; Hu & Bentler, 1995), the RMSEA value indicated that the hypothesized structural model was an acceptable fit (RMSEA = .080, 90% CI = .075 - .086; Hu & Bentler, 1999).

The SEM analysis indicated that attitude and social norm had significant direct effects on online gambling intentions ($\beta = .37, p < .001; \beta = .30, p < .001$, respectively), while PBC was not statistically significant ($p = .33$). Gambling media exposure had statistically significant direct effects on all cognition variables (attitude: $\beta = .51, p < .001$, SN: $\beta = .42, p < .001$, PBC: $\beta = .14, p < .05$). Finally, prior casino gambling experience ($\beta = .36, p < .001$), level of gambling addiction ($\beta = .30, p < .001$), and sensation seeking ($\beta = .14, p < .05$) had statistically significant direct effects on gambling media exposure, but there were no statistically significant direct effects of religiosity on media exposure ($p = .96$). This model accounted for 27.5% of the variance in intention ($R^2 = .275$). Similar with the casino gambling, the effect of media exposure
on intention was heavily mediated via attitude, social norm, and PBC and 31.4% of variance in intention was explained.

Second, unmediated effects were also tested. This was accomplished by introducing direct paths between gambling media exposure and intention, prior casino gambling experience and intention, and gambling addition and intention. Overall, model fit substantially improved compared with the mediated model ($\chi^2 = 959.88$, $p < .001$, $\chi^2/df = 1.90$, RMSEA = .063, 90% CI = .057 - .069; CFI =.91). Chi-square difference test also supported the superiority of model adequacy for the unmediated model ($\chi^2_{\text{diff}} = 297.71$, $p < .001$). Unlike with casino gambling, gambling media exposure did not have a statistically significant direct effect on online gambling intention ($p = .37$). However, both prior online gambling experience and gambling addiction had direct effects on intention ($\beta = .46$, $p < .001$; $\beta = .24$, $p < .001$, respectively). The addition of those paths explained an additional 32.5% of variance in intention ($R^2 = .60$).

Significant paths are summarized in Figure 4-3. In this model, intention was directly influenced by attitude, social norm, PBC, prior online gambling experience, and gambling addiction. The model also indicated that the majority of the effect of gambling media exposure on intention to visit an online site to gamble was mediated via all cognition variables in the context of the theory of planned behavior and explained 31.4% of variance in intention, while there was not statistically significant direct effect of gambling media exposure on intention (RQ1). In contrast, the effects of prior online gambling experience and gambling addiction on intention were greater than unmediated paths (RQ2b: 47 vs. 5 for prior online gambling experience; RQ3: 24 vs. 4.3 for gambling addiction).

As a result of SEM analyses, the final model supported nine out of ten hypotheses. In support of H7b and H8, prior online gambling experience and the level of gambling addiction
were positively related to gambling media exposure ($\beta = .36, p < .001; \beta = .31, p < .001$, respectively). H9 was also supported. Level of sensation seeking positively influenced gambling media exposure ($\beta = .15, p < .05$). That is, the higher the level of sensation seeking, the more exposure to gambling media. However, H10 was not supported. Religiosity was not related to gambling media exposure ($p = .96$). Hypotheses 4b, 5b, and 6b dealt with the direct effect of gambling media exposure on cognition variables in the context of the theory of planned behavior. The results showed that the direct effect of gambling media exposure had a positive influence on attitude, social norm, and PBC (H4b: $\beta = .49, p < .001$; H5b: $\beta = .41, p < .001$; H6b: $\beta = .15, p < .05$, respectively), which in turn led to intention to visit an online site to gamble (H1b: $\beta = .12, p < .05$; H2b: $\beta = .16, p < .01$; H3b: $\beta = -.09, p < .05$, respectively). In specific, H3b predicted that, as perceived behavioral control increases, online gambling intention increases. The path coefficient for the relationship between PBC and intention was significant, but its direction was the reversed of the predicted direction ($\beta = -.09, p < .05$). In spite of its statistical significance, H3b was not confirmed. Thus, hypotheses 1b through 6b were confirmed, except for H3b.

**Indirect Measurement of Online Gambling**

**SEM model testing:** A SEM analysis was also conducted to examine the relationship between belief-based and direct measures of attitude, social norm, and PBC in the context of online gambling. In this analysis, the same final model used in the direct measure of online gambling was applied to investigate whether the two types of measures have appreciable similarity.

Overall, model fit was good ($\chi^2 = 801.46, p < .001, \chi^2/df = 2.09, \text{RMSEA} = .070, 90\% \text{ CI} = .063 - .076; \text{CFI} = .90$). The model showed that the belief-based measures (indirect measure) had entirely different results compared with the direct measures, especially the paths between
cognition variables and online gambling intentions. The SEM analysis indicated that none of attitude, social norm, and PBC had significant direct effects on casino gambling intentions ($p = .14, p = .15, p = .40$, respectively). Gambling media exposure, however, had statistically significant direct effects on all of these cognition variables (attitude: $\beta = .63, p < .001$; SN: $\beta = .38, p < .001$; PBC: $\beta = .12, p < .05$). Prior online gambling experience and level of gambling addiction had statistically significant direct effects on gambling media exposure ($\beta = .31, p < .001; \beta = .31, p < .001$, respectively), but there were no statistically significant direct effects of sensation seeking and religiosity on media exposure ($p = .06; p = .95$, respectively). With respect to unmediated effects on online gambling intention, only gambling addiction showed a direct effect on intention ($\beta = .24, p < .001$), but there were no statistically significant direct effects of gambling media exposure and prior online gambling experience on intentions ($p = .72; p = .23$, respectively).

A graphical representation that includes significant paths is presented in Figure 4-4. This model supported five out of ten hypotheses. In support of H7b, prior online gambling experience was positively related to gambling media exposure ($\beta = .31, p < .001$). H8b was also supported in that level of gambling addiction positively influenced gambling media exposure ($\beta = .31, p < .001$). In contrast, H9 and H10 were not supported; neither sensation seeking nor religiosity was related to gambling media exposure ($p = .06$ and $p = .95$, respectively). Hypotheses 4b through 6b dealt with the direct effect of gambling media exposure on cognition variables, such as attitude toward online gambling, social norm, and PBC. The results showed that the direct effect of gambling media exposure had a positive influence on all of these variables, but none of them led to intention to visit an online site to gamble. Therefore, hypotheses 4b, 5b, and 6b were confirmed, while hypotheses 1b, 2b, and 3b were not supported.
Furthermore, for RQ1 and RQ2b, neither gambling media exposure nor prior online gambling experience had unmediated effect on online gambling intention. No mediated effect was found because attitude, social norms, and PBC were not related to online gambling intention. The variable of gambling addiction only had unmediated effect on intention (RQ3).
Table 4-1. Descriptive Data and Correlations among Measures for Casino Gambling

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Note. N = 227

*** Correlation significant at the .001 level
** Correlation significant at the .01 level
* Correlation significant at the .05 level
Table 4-2. Goodness-of-Fit Results for Measurement and Structural Models

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<th>df</th>
<th>χ²/df</th>
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<th>RMSEA 90% CI</th>
<th>CFI</th>
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CI = confidence interval
Table 4-3. Descriptive Data and Correlations among Measures for Online Gambling

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Note. N = 227

*** Correlation significant at the .001 level
** Correlation significant at the .01 level
* Correlation significant at the .05 level
Figure 4-1. Final model with direct measures of attitudes, social norms, and PBC of casino gambling

Model Fit

\[ \chi^2 = 927.22 \ (df = 502) \]
\[ \chi^2/df = 1.84 \]
CFI = .915
RMSEA = .061

*** Path significance: \( p < .001 \)
** Path significance: \( p < .01 \)
* Path significance: \( p < .05 \)
Figure 4-2. Final model with indirect measures of attitudes, social norms, and PBC of casino gambling
Figure 4.3. Final model with direct measures of attitudes, social norms, and PBC of online gambling

Model Fit

\[ \chi^2 = 959.88 \text{ (df} = 505) \]
\[ \chi^2/df = 1.90 \]
CFI = .915
RMSEA = .063

*** Path significance: \( p < .001 \)
** Path significance: \( p < .01 \)
* Path significance: \( p < .05 \)
Figure 4-4. Final model with indirect measures of attitudes, social norms, and PBC of online gambling

**Path significance:** p < .001
** Path significance:** p < .01
* Path significance:** p < .05
CHAPTER 5
DISCUSSION

The aim of this study was five-fold: (a) to test the applicability and efficacy of the TPB in the domain of gambling behavior, (b) to examine the usefulness of a theoretical model that extended the theory of planned behavior by adding several distal factors in the model, (c) to test whether these distal factors have unmediated or mediated effects on gambling intentions through more proximal determinants specified by the TPB, (d) to examine the relationship between belief-based indirect and direct measures of attitude, social norm, and PBC that is, to investigate whether the two types of measures have an appreciable similarity, and (e) to compare the findings above in two different gambling contexts, casino gambling versus online gambling.

First of all, the findings from this study are to a large extent in agreement with the theory of reasoned action, but not the theory of planned behavior. These findings show the applicability and efficacy of the theory in the context of gambling. Specifically, for the two tested models of casino gambling measured with direct and indirect (belief-based) measurements of gambling-related cognitions, both models provide strong support for the proposed theory of reasoned action rather than for the theory of planned behavior, demonstrating that attitudes and social norms were strong predictors of casino gambling intentions with high path coefficients (direct measure: $\beta = .38$ versus $\beta = .22$; indirect measure: $\beta = .24$ versus $\beta = .36$). That is, in contrast to the TPB and other studies that found direct effect of perceived behavioral control on intentions, perceived behavioral control was not related to casino gambling intention. This incongruent finding is not surprising when considering the weak correlation between PBC and intention ($r = .17$) and with other cognitive variables, such as attitude and social norm (attitude: $r = .27$; social norms: $r = .19$). These weak inter-factor correlations suggest that although attitudes and social norms increase, PBC might decrease independently. Furthermore, these weak correlations with
other factors imply that PBC might be considered as a moderator that interacts with other variables in predicting gambling intention (Cohen & Cohen, 1983). Thus, future research should investigate the moderating effect of PBC on casino gambling intention.

For the online gambling models, the findings are somewhat different from the results of casino gambling. For example, the model that used direct measures of attitudes, social norms, and PBC also supported the utility of the TRA rather than the TPB as a model of the cognitive determinants of online gambling intentions. There were small but significant positive direct effects of attitude and social norms on gambling intention but not for PBC. With regard to PBC, the finding drew particularly interesting attention. The PBC had a negative effect on online gambling intentions ($\beta = -.09, p < .05$), suggesting that a lower level of control over online gambling increased students’ intention to gamble on online sites. That is, the more students perceived themselves as having a high level of control, the less they are likely to gamble on online sites. However, this finding contradicts the notion of TPB that when a person feels that performing a behavior is easy or under control, he is more likely to intend to perform the behavior. Given the convenience and easy access to online gambling sites, this incongruent finding might be explained in two ways. First, the items that were used to assess the subjects’ self-efficacy in the present study (e.g., “For me to visit an online site to gamble is (difficult/easy)”) might not be an accurate measure for assessing the relationship between PBC and intention, despite the measurement recommended by the TPB. Second, in light of the prevalence of online gambling sites, students could hardly perceive that they have high control of online gambling, which in turn would lead to high online gambling intention. This aspect supports Oh and Hsu’s (2001) finding that those who had high self-control were less likely to intend to gamble.
Finally, contrary to expectations, none of the gambling-related cognitions used in the model of indirect measure was a statistically significant predictor of online gambling intentions. In sum, three out of the four models tested in this study provide strong support for the applicability and efficacy of the TRA in the domain of gambling behavior.

Given the immense amount of gambling media to which college students are exposed, it is imperative to understand the relationships with their gambling intentions. Accordingly, motivated by Ajzen’s (1988, 1991) recommendation, the present study included several additional variables in the TPB model to examine whether these additional variables contribute a significant proportion of the variance as predictors of gambling intentions after the TPB constructs have been taken into account. The tested models in the study are the first attempt to specifically examine the mediated influence of media exposure on gambling intention through the cognitive variables, such as attitudes, social norms, and PBC. Further, in the study models, gambling media exposure was examined as a mediator of the effects of prior gambling experience, level of gambling addiction, level of sensation seeking, and religiosity on gambling-related cognitions and intentions.

Consequently, the second goal of this study was to test whether several distal factors, such as prior gambling experience, level of gambling addiction, level of sensation seeking, religiosity, and gambling media exposure, contribute additional variance to the prediction of gambling intentions. That is, the present study examined whether the TRA and TPB could be extended with media exposure and individual difference factors as important distal factors in predicting college students’ gambling intentions.

First of all, as discussed above, the results were aligned with the theory of reasoned action (TRA) rather than the theory of planned behavior (TPB). The extended models of the TRA
clearly indicated that the constructs of gambling media exposure, prior gambling experience, and level of gambling addiction as distal factors contribute to the prediction of gambling intentions. The extended models by and large focused on mediated effects on intentions, implying that as expected, those distal variables affect gambling-related cognitions which in turn affect gambling intentions. Overall, the extended models provided good fit to gambling intentions.

Exposure to gambling media influenced college students to gamble by increasing their positive attitudes toward gambling and social norms, which in turn led to greater intentions to gamble in either a casino or on an online site. Specifically, in terms of gambling intentions, no previous studies have looked at gambling media exposure, but the correlations with intention were considerably stronger ($r = .49$ for casino gambling; $r = .52$ for online gambling). Therefore, gambling media exposure is strongly related to gambling intention which is particularly suited to assessment by the TRA. For example, in the model, attitudes and social norms were the main predictors of intention to visit a casino or an online site to gamble across the three tested models, except for the indirect measurement model of online gambling. When gambling media exposure was added to the models, this predictor explained significantly more of the variance in intention, suggesting that gambling media exposure may be a useful addition to the TRA. Evidence supporting the additional measure of gambling media exposure was considerably stronger and more consistent.

The evidence across tests in relation to individual differences was also consistent. Of the individual differences, prior gambling experience and level of gambling addiction were found to be consistently related to gambling intentions. This supports previous research and suggests that prior experience may be a particularly important determinant in relation to health behaviors (Conner & Abraham, 2001; Conner & Armitage, 1998; Cordano & Frieze, 2000; Godin et al.,
Throughout the tested models, gambling media exposure, prior gambling experience, and the level of gambling addiction were reflected in the intention to gamble. The theory of reasoned action appears to be a useful constraint for modeling gambling behavior. The theory has the ability to integrate the diverse factors that contribute to the understanding of gambling intentions as illustrated in the models (Figure 4-1 through 4-4).

According to the TRA and the TPB, other additional variables, such as prior gambling experience, level of gambling addiction, and media exposure, are viewed as only indirectly affecting gambling intentions. Their effect on the intention to gamble is reflected in their influence on the attitudes, social norms, and PBC. Thus, by examining the extent to which the proximal gambling-related cognitions mediated the effect of distal factors on gambling intentions, the present study represents an important test of the sufficiency of the model (Ajzen, 1991). Consequently, the third goal of the current study was to test whether the added distal factors have unmediated or mediated effects on gambling intentions through proximal determinants specified by the TPB.

Overall, the results of mediation analysis showed that the model on casino gambling with both direct and belief-based measures of gambling-related cognitions indicated that gambling media exposure, prior gambling experience, and level of gambling addiction as distal factors indirectly affect college students’ gambling intention through proximal gambling-related cognitions (attitudes and social norms).

Both attitude and social norm largely mediated the effect of gambling media exposure on gambling intentions and its majority of the effect on intentions was mediated rather than direct.
This finding indicates that an extended model of TRA serves as a more sufficient model for mediating gambling media exposure. Furthermore, the present study examined whether the gambling media exposure and cognition variables mediated the effect of prior gambling experience and gambling addiction on gambling intentions. Prior gambling experience and gambling addiction were positively associated with strength of casino gambling intentions and added significantly to the proportion of variance explained by media exposure and cognition measures. As a test of the sufficiency of the TRA and the TPB, the findings indicated that both media exposure and cognition variables partially or totally mediated the effect of prior gambling experience and gambling addiction on gambling intention, except for the case with indirect measures of online gambling. In fact, the most original and important findings of the present study were that gambling media exposure also mediated the relationships between prior gambling experience and gambling intention and between level of gambling addiction and gambling intention. These results suggest that an extended TRA, including media exposure, is better able to mediate prior gambling experience and gambling addiction and is a more sufficient model than the original TRA.

With respect to unmediated effects on gambling intentions, for the model on casino gambling with direct measures, a direct path between gambling media exposure and gambling intentions was identified. Thus, contrary to the TRA and the TPB, gambling media exposure had an unmediated effect on intention. This finding suggested the inclusion of a measure of media exposure as a distal factor in the framework of the theories. However, in the model using indirect measures of cognitions, this effect was totally mediated through attitudes and social norms, and no unmediated effect was found on gambling intention. In the case of online gambling with direct measures of cognitive variables, the effect of gambling media exposure on gambling
intention was entirely mediated by attitudes and social norms and there was no unmediated effect on gambling intention. For the results of the model with indirect measures of cognitions on casino gambling, this direct effect of gambling media was not observed.

Contrary to the prediction that the TRA and the TPB variables would fully mediate the effect of prior gambling experience, prior gambling experience was also directly related to intentions to gamble. Prior gambling experience has a large unmediated effect on gambling intentions across the tested models, with a single exception of indirect measures of online gambling. The comparison of the beta weight on the direct path with the products of the beta weights on the mediated path clearly shows that the major effect of prior casino gambling experience on casino gambling intention was direct rather than mediated via gambling media exposure, attitude, and social norm (21.1 vs. 6.8%). This finding implies that prior gambling experience is directly related to college students’ gambling intentions in a positive way. In contrast to prior gambling experience, level of gambling addiction had an unmediated effect on gambling intention in the models of online gambling measures, while this effect disappeared in the models of casino gambling measures. There is limited knowledge on how the level of gambling addiction is related to college students’ gambling intention in different types of gambling. Thus, more studies are needed to for understanding how the effect of level of gambling addiction on gambling intentions varies in different gambling contexts. Neither sensation seeking nor religiosity had an unmediated effect on gambling intention across the tested models, with a single exception of the direct measures of online gambling showing sensation seeking also had a weak mediated effect on intention.

In the case of casino gambling, although the strength of the paths in the models slightly varied, the findings indicated that the two different types of measures, direct versus indirect
(belief-based) measures of attitude, social norm, and PBC, had an applicable similarity. The only difference between direct versus belief-based measures was the disappearance of unmediated effects of gambling media exposure on gambling intention in indirect measures of gambling-related cognitions.

On the contrary, the present study found largely different results between direct and indirect measures on online gambling models. For example, the model with direct measures of gambling-related cognitions clearly showed the applicability of the TRA to an extended model that included several distal factors. That is, these distal factors had either significantly unmediated or mediated effects on gambling intentions via proximal determinants specified by the TPB. However, in the model with indirect measures of the cognition variables, all paths between the proximal cognitive variables and gambling intention were not significant. This unexpected finding might be caused by the incompatibility of the two measurement items, as there is limited knowledge on how these different measurements should be appropriately established to test their similarities or differences. Thus, future studies are encouraged to understand and explain the results of this study, especially online gambling intentions.

The final goal of this study was to compare the findings of casino gambling models to those of online gambling. Overall, the findings from online gambling are generally consistent with casino gambling, with the single exception of the indirect measures of online gambling discussed above. In sum, the results of this study supported the utility of the TRA as a theoretical framework for predicting college students’ gambling intention in casinos, as well as on online sites. All hypothesized models tested in the present study showed good model fits and substantially improved predicting powers of the TRA or the TPB by introducing direct paths.
between gambling media exposure and intention, prior casino gambling experience and intention, and gambling addiction and intention.

**Implications**

The implications of this study are considerable. The first implication is that the successful application of a social cognition model, such as the TRA, provides researchers who are interested in individuals’ gambling behavior with a theoretical foundation. This study’s findings imply that gambling behaviors could best be studied within the framework of the TRA rather than the TPB.

The second major implication of this study derives from its exploration into an extended model of TPB (or TRA) by including several distal factors (e.g., prior gambling experience and gambling media exposure) in predicting college students’ gambling intentions. The findings clearly identified the utility of the extended model, in that it contributed a significant proportion of the variance as predictors of gambling intentions after the TRA constructs have been taken into account. Thus, the current study suggests that research on gambling media effects might usefully use the TRA structure for understanding how gambling TV shows and advertising can lead to college students’ gambling intentions in terms of cognitive behavioral domains.

Another theoretical implication of this study is that although both direct and indirect (belief-based) measures generated similar findings in the context of casino gambling, entirely different results were also created in the context of online gambling. This finding suggests that researchers, who are interested in different contexts of gambling, such as lottery, sports betting, and horse racing, should first consider which type of measure is more applicable to a certain context of gambling.

From a practical point of view, the present study provides implications for health practitioners, policy makers, and advertisers. In terms of media exposure to gambling activities, the findings of the current study clearly showed the effect of gambling media exposure that
changed students’ attitudes in a positive way and increased their perceived support from important others, which in turn led to increased gambling intention. Thus, those who are interested in reducing the number of college students’ problem gambling should first explore ways to reduce exposure to gambling. One way of doing this would be to place restrictions, similar to those imposed on smoking and alcohol, on when and how gambling is depicted and advertised in the media. Likewise, they incorporate mass media in their anti-gambling or gambling help campaigns, and approach mass media producers about more responsible and realistic depictions of gambling behavior. In addition, messages which denormalize gambling could be implemented to counter the effects of gambling television shows and advertisements. Furthermore, the framework for investigating the media effect on gambling behavior established in this study provides a theoretical foundation for those who are interested in developing potentially effective intervention strategies to minimize the consequences of high-risk gambling behaviors.

The final implication is that this study provides an exceptional framework for identifying and understanding college students’ gambling intentions. For example, the present study found that prior gambling experience, gambling media exposure, attitudes, and social norms were dominant predictors of gambling intentions. Given the mediated and unmediated effects of those factors on gambling intention, the present study suggests that similar counter-advertising or campaigns might be used to prevent problem gambling behaviors among college students.

**Limitations and Future Research**

The findings of this study must be interpreted in light of the study’s limitations. A major limitation is that the sample was not randomly selected. Consequently, it is hard to appreciate to what extent it is representative of the population of college students in the U. S. The sample size in the present study was also modest. Thus, future research is needed to replicate the findings in
a larger and more representative sample. A second limitation is that the measures used in the study relied on self-reports, the validity of which can be questioned. For example, when students were asked to report their own gambling intentions, the possibility of underreporting or overreporting exists due to the effect of social desirability (Babbie, 2001; Phillips & Clancy, 1972; Schwarz, 1999). Third, some constructs in the model (e.g., prior gambling experience) were measured with single items. The relationship between these variables and other model constructs were significant and in the predicted direction, suggesting that the items had adequate reliability. Nonetheless, it is desirable to have multiple items tapping each construct when testing the SEM model. Fourth, methodological limitations of the study might limit the generalizability of the study’s findings. The present study only examined the relationships between distal predictors, proximal predictors, and gambling intention in a cross-sectional survey method. Although a number of studies have found that behavioral intentions serve as the most accurate, powerful single predictor of actual behavior, there is a possibility that the findings of this study might be distorted when assessing relationships between other variables and actual behaviors. Thus, future research is encouraged to employ a longitudinal study design to decide whether the extended model of the TRA and TPB can predict those students who actually engaged in gambling behavior in the future. Last but not least, theoretically possible competing models should be tested because different causal structures can also cause the same underlying pattern of correlations among factors (MacCallum, Wegener, Uchino, & Fabrigar, 1993). For example, although the current study assumed a causal effect of media exposure to attitude, the reverse might be true. Thus, future studies are needed to test the latter equivalent model, as well as to test interaction effects between those constructs.
In summary, this study has demonstrated that college students’ gambling intentions can be well explained within a social cognition framework with an extended model that measures attitudes, social norms, PBC, individual differences (e.g., prior gambling experience), and gambling media exposure. This study also indicated that the extended model was a more sufficient model than the original TRA in predicting students’ gambling intentions. This research is the first attempt to outline possible mechanisms by which the effect of gambling media exposure on intention can be specified and clarified with cognitive determinants of gambling, not specified by the TRA and the TPB.
Gambling Media: Opinion Survey

This research is interested in your personal opinion regarding gambling and your media usage. Please read each question carefully and answer it to the best of your ability. There are no correct or incorrect responses: the researcher is merely interested in your personal point of view.

Please enter your name and student ID number, and the course title in the designed spaces above. All responses to this survey are completely confidential. The instructor of this course has nothing to do with this study and will not see your responses. All identifying information will be removed from this questionnaire and destroyed as soon as all data has been collected. Please be assured that the information you provide in this study will have no effect on your grade.

* Gambling can be characterized as “staking money on uncertain events driven by chance,” or taking voluntary risks in exchange for greater value.

Ex) Poker, Blackjack, Roulette, Slot machines, keno, horse/greyhound racing, lottery, sports betting, Internet gaming, and others.

Thanks you for your participation in this study.
Please take a few minutes to list your thoughts about the following questions:

1. What do you believe are the advantages of visiting a casino to gamble?

2. What do you believe are the disadvantages of visiting a casino to gamble?

3. Is there anything else you associate with your own views about visiting a casino to gamble?

4. What do you believe are the advantages of visiting an online site to gamble?

5. What do you believe are the disadvantages of visiting an online site to gamble?

6. Is there anything else you associate with your own views about visiting an online site to gamble?
7. Are there any individuals or groups who would **approve** of your visiting a **casino** to gamble?

8. Are there any individuals or groups who would **disapprove** of your visiting a **casino** to gamble?

9. Is there anything else you associate with other people’s views about your visiting a **casino** to gamble?

10. Are there any individuals or groups who would **approve** of your visiting an **online site** to gamble?

11. Are there any individuals or groups who would **disapprove** of your visiting an **online site** to gamble?

12. Is there anything else you associate with other people’s views about your visiting an **online site** to gamble?
13. What factors or circumstances would enable you to visit a casino to gamble?

14. What factors or circumstances would make it difficult or impossible for you to visit a casino to gamble?

15. Are there any other issues that come to mind when you think about visiting a casino to gamble?

16. What factors or circumstances would enable you to visit an online site to gamble?

17. What factors or circumstances would make it difficult or impossible for you to visit an online site to gamble?

18. Are there any other issues that come to mind when you think about visiting an online site to gamble?
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Ex) Poker, Blackjack, Roulette, Slot machines, keno, horse/greyhound racing, lottery, sports betting, Internet gaming, and others.

Thanks you for your participation in this study.
Instructions

Many questions in this survey make use of rating scales with 7 places; you are to circle the number that best describe your opinion. For example, if you were asked to rate “The Weather in Gainesville” on such a scale, the 7 places should be interpreted as follows:

<table>
<thead>
<tr>
<th>good</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>bad</th>
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<td>slightly</td>
<td>quite</td>
<td>extremely</td>
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If you think the weather in Gainesville is extremely good, then you would circle the number 1, as follows:

| The Weather in Gainesville is: |
| good | 1 | 2 | 3 | 4 | 5 | 6 | 7 | bad |
|      |   |   |   |   |   |   |   |     |

If you think the weather in Gainesville is quite bad, then you would circle the number 6, as follows.

| The Weather in Gainesville is: |
| good | 1 | 2 | 3 | 4 | 5 | 6 | 7 | bad |
|      |   |   |   |   |   |   |   |     |

If you think the weather in Gainesville is slightly good, then you would circle the number 3.

| The Weather in Gainesville is: |
| good | 1 | 2 | 3 | 4 | 5 | 6 | 7 | bad |
|      |   |   |   |   |   |   |   |     |

If you think the weather in Gainesville is neither good nor bad, then you would circle the number 4.

| The Weather in Gainesville is: |
| good | 1 | 2 | 3 | 4 | 5 | 6 | 7 | bad |
|      |   |   |   |   |   |   |   |     |

In making your ratings, please remember the following points:
* Be sure to answer all items – do not omit any.
* Never circle more than one number on a single scale.
Section A: TPB Measure

1. For me to visit a casino to gamble is
   good 1 2 3 4 5 6 7  bad
   harmful 1 2 3 4 5 6 7  beneficial
   pleasant 1 2 3 4 5 6 7  unpleasant
   worthless 1 2 3 4 5 6 7  valuable
   enjoyable 1 2 3 4 5 6 7  unenjoyable

2. For me to visit an online site to gamble is
   good 1 2 3 4 5 6 7  bad
   harmful 1 2 3 4 5 6 7  beneficial
   pleasant 1 2 3 4 5 6 7  unpleasant
   worthless 1 2 3 4 5 6 7  valuable
   enjoyable 1 2 3 4 5 6 7  unenjoyable

3. Most people who are important to me think that
   I should 1 2 3 4 5 6 7  I should not visit a casino to gamble.

4. Most of people whose opinions I value would approve of my visiting a casino to gamble.
   strongly disagree 1 2 3 4 5 6 7  strongly agree

5. Most of people who are important to me visit a casino to gamble.
   strongly disagree 1 2 3 4 5 6 7  strongly agree

6. The people in my life whose opinions I value visit a casino to gamble.
   strongly disagree 1 2 3 4 5 6 7  strongly agree

7. Most people who are important to me think that
   I should 1 2 3 4 5 6 7  I should not visit an online site to gamble.

8. Most of people whose opinions I value would approve of my visiting an online site to gamble.
   strongly disagree 1 2 3 4 5 6 7  strongly agree

9. Most of people who are important to me visit an online site to gamble.
   strongly disagree 1 2 3 4 5 6 7  strongly agree

10. The people in my life whose opinions I value visit an online site to gamble.
    strongly disagree 1 2 3 4 5 6 7  strongly agree

11. For me to visit a casino to gamble is
    easy 1 2 3 4 5 6 7  difficult
12. Whether or not I visit a casino to gamble is entirely up to me.
    strongly disagree  1  2  3  4  5  6  7  strongly agree

13. I am confident that I could visit a casino to gamble if wanted to.
    strongly disagree  1  2  3  4  5  6  7  strongly agree

14. For me to visit an online site to gamble is
    easy  1  2  3  4  5  6  7  difficult

15. Whether or not I visit an online site to gamble is entirely up to me.
    strongly disagree  1  2  3  4  5  6  7  strongly agree

16. I am confident that I could visit an online site to gamble if wanted to.
    strongly disagree  1  2  3  4  5  6  7  strongly agree

17. If I visit a casino to gamble, I could win money.
    unlikely  1  2  3  4  5  6  7  likely

18. Winning money in a casino from gambling is
    extremely undesirable  -3  -2  -1  0  +1  +2  +3  extremely desirable

19. If I visit a casino to gamble, I could lose money.
    unlikely  1  2  3  4  5  6  7  likely

20. Losing money in a casino from gambling is
    extremely undesirable  -3  -2  -1  0  +1  +2  +3  extremely desirable

21. If I visit a casino to gamble, I become addicted to gambling.
    unlikely  1  2  3  4  5  6  7  likely

22. Being addicted to casino gambling is
    extremely undesirable  -3  -2  -1  0  +1  +2  +3  extremely desirable

23. If I visit a casino to gamble, I could have fun and excitement.
    unlikely  1  2  3  4  5  6  7  likely

24. Having fun and excitement in a casino is
    extremely undesirable  -3  -2  -1  0  +1  +2  +3  extremely desirable

25. If I visit a casino to gamble, I could enjoy other things (e.g., fun atmosphere, entertainment)
    than gambling itself.
    unlikely  1  2  3  4  5  6  7  likely
26. In a casino, enjoying other things (e.g., fun atmosphere, entertainment) than gambling itself is extremely undesirable -3 -2 -1 0 +1 +2 +3 extremely desirable

27. If I visit an online site to gamble, I could win money. unlikely 1 2 3 4 5 6 7 likely

28. Winning money in an online site from gambling is extremely undesirable -3 -2 -1 0 +1 +2 +3 extremely desirable

29. If I visit an online site to gamble, I could lose money. unlikely 1 2 3 4 5 6 7 likely

30. Losing money in an online site from gambling is extremely undesirable -3 -2 -1 0 +1 +2 +3 extremely desirable

31. If I visit an online site to gamble, I become addicted to gambling. unlikely 1 2 3 4 5 6 7 likely

32. Being addicted to online-gambling is extremely undesirable -3 -2 -1 0 +1 +2 +3 extremely desirable

33. My parents would disapprove -3 -2 -1 0 +1 +2 +3 approve of my visiting a casino to gamble.

34. My friends think I should not -3 -2 -1 0 +1 +2 +3 should visit a casino to gamble.

35. My religion would disapprove -3 -2 -1 0 +1 +2 +3 approve of my visiting a casino to gamble.

36. My parents would disapprove -3 -2 -1 0 +1 +2 +3 approve of my visiting an online site to gamble.

37. My friends think I should not -3 -2 -1 0 +1 +2 +3 should visit an online site to gamble.

38. My religion would disapprove -3 -2 -1 0 +1 +2 +3 approve of my visiting an online site to gamble.
39. What my parents think I should do matters to me.
not at all 1 2 3 4 5 6 7 very much

40. What my religion think I should do is important to me.
not at all 1 2 3 4 5 6 7 very much

41. What my friends think I should do matters to me.
not at all 1 2 3 4 5 6 7 very much

42. I don’t have enough money for visiting a casino to gamble.
unlikely 1 2 3 4 5 6 7 likely

43. Not having enough money makes it
much more difficult -3 -2 -1 0 +1 +2 +3 much easier
for me to visit a casino to gamble.

44. Visiting to an online site to gamble is convenient.
unlikely 1 2 3 4 5 6 7 likely

45. Convenience of online gambling makes it
much more difficult -3 -2 -1 0 +1 +2 +3 much easier
for me to visit an online site to gamble.

46. I visit a casino to gamble for family vacation or for social outing with friends.
unlikely 1 2 3 4 5 6 7 likely

47. Family vacation or social outing with friends makes it
much more difficult -3 -2 -1 0 +1 +2 +3 much easier
for me to visit a casino to gamble.

48. I don’t have enough money for visiting an online site to gamble.
unlikely 1 2 3 4 5 6 7 likely

49. Not having enough money makes it
much more difficult -3 -2 -1 0 +1 +2 +3 much easier
for me to visit an online site to gamble.

50. I will make an effort to visit a casino to gamble.
strongly disagree 1 2 3 4 5 6 7 strongly agree

51. I intent to visit a casino to gamble.
strongly disagree 1 2 3 4 5 6 7 strongly agree
52. I expect to visit a casino to gamble.  
strongly disagree 1 2 3 4 5 6 7 strongly agree

53. I want to visit a casino to gamble. 
strongly disagree 1 2 3 4 5 6 7 strongly agree

54. I will make an effort to visit an online site to gamble. 
strongly disagree 1 2 3 4 5 6 7 strongly agree

55. I intend to visit an online site to gamble. 
strongly disagree 1 2 3 4 5 6 7 strongly agree

56. I expect to visit an online site to gamble. 
strongly disagree 1 2 3 4 5 6 7 strongly agree

57. I want to visit an online site to gamble. 
strongly disagree 1 2 3 4 5 6 7 strongly agree

SECTION B: Sensation Seeking & Religiosity

58. I would like to explore strange place.  
strongly disagree 1 2 3 4 5 6 7 strongly agree

59. I like to do frightening things.  
strongly disagree 1 2 3 4 5 6 7 strongly agree

60. I like new and exciting experiences, even if I have to break the rules.  
strongly disagree 1 2 3 4 5 6 7 strongly agree

61. I prefer friends who are exciting and unpredictable. 
strongly disagree 1 2 3 4 5 6 7 strongly agree

62. I attend religious services every week. 
strongly disagree 1 2 3 4 5 6 7 strongly agree

63. I believe that religion is very important in my life. 
strongly disagree 1 2 3 4 5 6 7 strongly agree

64. I consider myself a religious person. 
strongly disagree 1 2 3 4 5 6 7 strongly agree

65. I think that I am a devout religious follower. 
strongly disagree 1 2 3 4 5 6 7 strongly agree
66. I believe that the Bible is God’s Word and everything happened or will happen exactly as it says.

strongly disagree 1 2 3 4 5 6 7 strongly agree

SECTION C: Media Exposure

67. How often have you watched poker game shows on TV? (e.g., World Series of Poker on ESPN, World Poker Tour on Travel Channel, Celebrity Poker Showdown on Bravo, etc.).

never 1 2 3 4 5 6 7 very frequently

68. How often have you watched Internet poker site advertisements on TV?

never 1 2 3 4 5 6 7 very frequently

69. How often have you watched Internet poker site advertisements on Internet?

never 1 2 3 4 5 6 7 very frequently

70. How often have you seen Internet poker site advertisements in other media? (e.g., magazine, outdoor ads, etc.).

never 1 2 3 4 5 6 7 very frequently

71. How often have you watched gambling-related advertisements on TV? (e.g. for the casino, gambling computer games, etc.)

never 1 2 3 4 5 6 7 very frequently

72. How often have you watched gambling-related advertisements on Internet? (e.g. for the casino, gambling computer games, etc.)

never 1 2 3 4 5 6 7 very frequently

73. How often have you watched gambling-related advertisements (for the casino, gambling computer games, etc.) in other media? (e.g., magazine, outdoor ads, etc.).

never 1 2 3 4 5 6 7 very frequently

SECTION D: Experience/ SOGS-RA

74. How often have you visited casinos to gamble?

never 1 2 3 4 5 6 7 very frequently

75. How often have you visited online sites to gamble?

never 1 2 3 4 5 6 7 very frequently
76. For each item, please check “YES” or “NO” that best reflects the extent to which each item applies to you.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>When you were betting, have you ever told others you were winning money when you weren’t?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has your betting money ever caused any problems for you such as arguments with family and friends, or problems at school or work?</td>
<td></td>
<td></td>
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<tr>
<td>Have you ever gambled more than you had planned to?</td>
<td></td>
<td></td>
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<tr>
<td>Has anyone criticized your betting, or told you that you had a gambling problem whether you thought it true or not?</td>
<td></td>
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<tr>
<td>Have you ever felt bad about the amount of money you bet, or about what happens when you bet money?</td>
<td></td>
<td></td>
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<tr>
<td>Have you ever felt like you would like to stop betting, but didn’t think you could?</td>
<td></td>
<td></td>
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<tr>
<td>Have you ever hidden from family or friends any betting slips, IOUs, lottery tickets, money that you won, or any signs of gambling?</td>
<td></td>
<td></td>
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<tr>
<td>Have you had money arguments with family or friends that centered on gambling?</td>
<td></td>
<td></td>
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<tr>
<td>Have you borrowed money to bet and not paid it back?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you ever skipped or been absent from school or work due to betting activities?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often have you gone back another day to try and win back money you lost gamble?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most of the time</td>
<td></td>
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</tr>
<tr>
<td>Some of the time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

77. How far do you have to travel from home to get a nearest casino? (Please circle one only)

(a) Less than 10 miles
(b) Between 10 and 50 miles
(c) More than 50 miles but no more than 100 miles
(d) More than 100 miles

SECTION F: Demographics

The following questions are about your demographic information.

78. Please check your gender: Female ____ Male ____

79. How old are you? ________ years old

80. What is your ethnic background? (Please circle)

(a) Caucasian (b) African American (c) Latin American (d) Asian American

(e) Native American (f) Other (Please specify) ________________
81. What is your religious preference (Please circle)?

(a) Protestant  (b) Catholic  (c) Jewish  (d) Buddhist
(e) Islam  (f) Hindu  (g) Mormon  (h) No religion
(i) Others (Please specify) ________________________________

82. What best describes the household that you live in (Please circle)?

(a) I live at home with both of my parents
(b) I live at home with just one parent
(c) I live alone
(d) I live with my partner/wife/husband
(e) I live with friends or share a house with other people
(f) other (please specify) ________________________________

THANK YOU!
LIST OF REFERENCES


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BIOGRAPHICAL SKETCH

Hyung-Seok Lee was born in Daegu, South Korea. He attended Hanyang University in Korea and graduated with a B. A. in advertising and public relations. In August 2004, Hyung-Seok received his Master of Arts in Mass Communication with an emphasis in advertising from the California State University, Fullerton. In August 2004 he entered the advertising program to pursue a Ph.D. in mass communication. His research focuses on brand personality, sporting event sponsorship, intercultural communication, and health communication.