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EXPOSURE TO GAMBLING-RELATED MEDIA AND ITS RELATION TO GAMBLING
EXPECTANCIES AND BEHAVIORS

by

LEANNE VALENTINE

Under the Direction of James Emshoff, Ph.D.

ABSTRACT

Today's youth have been exposed to more gambling-related media than previous generations, and they have grown up in an era in which states not only sanction but also run and promote gambling enterprises. Social Learning Theory proposes that one can develop new attitudes or expectancies about a specific behavior by watching others engage in that behavior, and that the media is one avenue through which one can develop new expectancies (Bandura, 2001). In addition, the Theory of Reasoned Action proposes that one's behaviors are influenced directly by both subjective norms and attitudes (Fishbein and Ajzen, 1975). A mixed methods explanatory design was used to test a modified version of the Theory of Reasoned Action in which subjective norms and gambling-related media were hypothesized to have an effect on gambling behaviors directly and indirectly through both positive and negative expectancies.

Structural Equation Modeling was used to test the hypotheses, and semi-standardized interviews were used to help explain the results of the quantitative analyses and provide a richer and more accurate interpretation of the data. The hypothesized model was partially supported: the model was a good fit with the female college student data, accounting for 27.8% of variance in female student gambling behaviors, and it fit the male college student data reasonably well,

accounting for 35.2% of variance in male student gambling behaviors. Results indicated that perceived subjective norms were more important for female college students. Results also indicated that exposure to gambling-related media has a direct positive association with both male and female college student gambling behaviors, and that exposure to gambling-related media has an indirect, positive association with male college student behaviors through positive expectancies. However, exposure to gambling-related media is not associated with positive expectancies about gambling for female college students. Data from the qualitative interviews supported the findings from the qualitative analyses and provided some clues about the progression from non-problematic to problematic behaviors, which may inform future research in this area.

INDEX WORDS: Gambling, Media, Expectancies, Subjective Norms, Social Learning Theory, Theory of Reasoned Action

EXPOSURE TO GAMBLING-RELATED MEDIA AND ITS RELATION TO GAMBLING
EXPECTANCIES AND BEHAVIORS

by

LEANNE VALENTINE

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

in the College of Arts and Sciences

Georgia State University

2008

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EXPECTANCIES AND BEHAVIORS

by

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August 2008

Acknowledgements

This dissertation could not have been accomplished without the support of a number of people and organizations. I would like to thank the Georgia Department of Human Resources for supporting this research. I would also like to thank both Gabe Kuperminc and Rod Watts for their assistance with statistical analyses; I don't think I could have completed this project without their support and I know that the examination of the data would not have been as thorough without their assistance. I would also like to thank the other committee members, Dominic Parrott and Cynthia Hoffner for their support and assistance with this project. Jim Emshoff introduced me to the world of gambling research and sparked my initial curiosity into the subject, as he has done with so many other students and topics during his career at Georgia State University. I have benefitted immensely from his mentorship and friendship. Finally, I must acknowledge my husband, Kevin, who has provided unwavering support throughout this long journey and without whom this would not have been possible.

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CHAPTER 1: INTRODUCTION AND REVIEW OF THE LITERATURE

Brief History of Gambling and State Lotteries

Legal and illegal forms of gambling have existed in the United States from its inception. Historically lotteries have been used to fund the American Revolution and the Civil War, a variety of public projects, including church and road construction, and to help establish several Ivy League Institutions (Clotfelter & Cook, 1989). Lotteries are still used today by states and other institutions to fund specific projects and as an ongoing source of revenue.

Poker appears to have first been played in French Louisiana around 1800 (Lukacs, 1963). Both legal and illegal forms of poker have been played since that time in locations ranging from people's homes to illegal backroom clubs as well as casinos and other established businesses. There are myriad forms of gambling, but most gambling is grouped into two categories: games that rely purely on chance (e.g. picking the correct numbers in a lottery draw) vs. games in which some skill can be used to increase the odds of winning (e.g. poker).

According to Clotfelter and Cook (1989) there have been three gambling waves in the history of the US: the first occurred from colonial times to the early nineteenth century, the second occurred in the three decades after the Civil War, and the third (current) wave began in the early twentieth century and continues today. The first two waves of gambling were dominated by the use of lotteries as both fundraising mechanisms and a popular form of gambling. The third and current wave began with the legalization of horse racing and has expanded to all forms of gambling, including the use of lotteries as a form of ongoing revenue generation for states (Clotfelter & Cook, 1989). To illustrate the significant change that occurred in the twentieth century:

In 1976...only 13 states had lotteries, 2 states (Nevada and New York) had approved off-track wagering, and there were no casinos outside of Nevada....Today [1999] a person can make a legal wager of some sort in every state except Utah, Tennessee, and Hawaii; 37 states have lotteries, 21 states have casinos, and slightly more have off-track betting. Furthermore, between 1976 and 1997, revenues from legal wagering in the United States grew by nearly 1600 percent....and gambling expenditures more than doubled as a percentage of personal income, from 0.30 percent in 1974 to 0.74 in 1997 (National Opinion Research Center, Volberg, Harwood, & Tucker, 1999).

In 1999 the Gambling Impact and Behavior Study (National Opinion Research Center et al., 1999) found that in the U.S. approximately 86% of adults and 67% of adolescents aged 16 - 17 had gambled at least once in their lifetime and approximately 63% of adults had gambled in the past year. Platz, Knapp and Crossman (2005) found that among college students attending the University of Nevada, Las Vegas, 59.8% of 18-year olds, 72.8% of 19-year-olds, 86.1% of 20-year olds and 92.5% of 21-years olds had gambled at a casino at least once, with the legal age for gambling in Nevada being twenty-one. Las Vegas has significantly more gambling available than most other states, so this study may not generalize to other geographic areas, but it does demonstrate that adolescents and young adults do participate in gambling, some of which is illegal based on their age. Similarly, in a study of 8- to 13-year-old children in Quebec, Canada, Ladouceur, Dube and Bujold (1994) found that 86% had wagered money and 37% had wagered an item of value at least once in their lifetime.

In 1992 Georgia's state legislature voted to create a lottery to fund public education. The Georgia Lottery's first ticket was sold in 1993. The Georgia Lottery has been successful from the start; its first-year per capita sales of \$164.81 set a new national record, surpassing the previous mark of \$128 set by Florida in 1988, effectively making the Georgia Lottery the most successful start-up state lottery ever. In fact, the Georgia Lottery was able to pay back its start-

up line of credit within two weeks of start-up. In its first twelve years of operation, the Georgia Lottery had sales of \$24 billion and transferred more than \$8.2 billion to the State Treasury's Lottery for Education Account. On average the Georgia Lottery offers 40-45 instant ticket games at any given time and has six on-line, or computerized, games - CASH 3, CASH 4, Win for Life, Fantasy 5, Mega Millions and KENO. Lottery tickets are now being sold at more than 7,500 authorized retailer locations in Georgia (Georgia Lottery, 2006), effectively making the Georgia Lottery the most accessible form of gambling in the state.

Gambling and Gambling Problems

The increase in gambling in the United States has coincided with an increase in problems associated with this activity. Research has demonstrated that increased access to legalized gambling can be linked to gambling problems, especially among low-income groups and minorities (Ladouceur, Jacques, Ferland, & Giroux, 1999; Lester, 1994; Politzer, Yesalis, & Hudak, 1992; Shaffer, Labrie, & LaPlante, 2004; Vogel, 2003; Welte, Wieczorek, Barnes, Tidwell, & Hoffman, 2004). It is estimated that pathological gamblers in treatment have average rates of accumulated debt between \$75,000 and \$150,000 (Netemeyer et al., 1998) and the direct and indirect costs to American society as a result of pathological gambling (e.g. health care, bankruptcy, crime, etc.) are estimated at \$5 billion per year (National Opinion Research Center et al., 1999).

There has long been evidence of individuals who have had difficulty controlling gambling behavior. For example, the first gambling co-morbidity study was published in 1951, and Gamblers Anonymous was founded in 1957. In 1972 Maryland established the first state-funded treatment program, and in 1975 the first nationwide prevalence study was conducted (The

Wager, 2003). In 1980 the American Psychiatric Association recognized pathological gambling as an impulse-control disorder and included it in the Diagnostic and Statistical Manual, Version III. Research on pathological gambling has surged since then, with an increasing number of published studies examining etiology, correlates, and treatment.

Most research on prevalence rates has been collected on either adult or adolescent (primarily middle and high school) populations. Research has indicated that college student populations have prevalence rates of pathological gambling greater than other adult populations (Kerber, 2005; Platz et al., 2005; K. Winters, Dorr, & Stinchfield, 1998). It is possible that college students are at higher risk for gambling problems because they may have greater access to the internet and more free time to engage in the activity (Jacobs, 2000, 2004). In order to learn more about the gambling behaviors of college students, this study recruited a college student sample. Because college students are similar in some respects both to adolescents and adults, information about both populations is provided below.

According to Shaffer, Hall, and Vander Bilt (1999), the prevalence of problem gambling among adults increased between the years 1974 and 1997. This extensive and comprehensive study analyzed results from 134 pathological gambling prevalence studies. In the earlier (1977-1993) studies, 2.9% of the general population was classified as probable pathological gamblers and another 0.8% as pathological gamblers. The recent (1994-1997) studies indicated that probable pathological gambling and pathological gambling have increased to 4.9 % and 1.3 %, respectively. The NORC study (1999) estimated an adult prevalence rate of 2.5%, and a more recent study by Welte, Barnes, Wieczorek and Tidwell (2002) reported the prevalence of probable pathological gambling as 2.1%. Other estimates place the prevalence of problem and

pathological gambling at between 1% and 3% (Netemeyer et al., 1998). These prevalence rates are comparable to prevalence rates for other mental disorders (Shaffer & Kidman, 2004).

Prevalence rates for adolescents tend to be higher. In a review of 20 prevalence studies on adolescent gambling, Jacobs (2000) found that the median rate of Serious Gambling Related Problems (SGRP) among adolescents was 10%, with a range of 9 – 20%. He chose the term SGRP, in order to include adolescents with significant gambling problems (similar to meeting 3 - 4 DSM-IV criteria) as well as those who met criteria for pathological gambling (5 DSM-IV criteria). In a study of 995 college students, Platz, Knapp and Crossman (2005) found that 9% of the students under age 21 were classified as probable pathological gamblers by the South Oaks Gambling Screen (SOGS) and 15% of students over age 21 were classified as probable pathological gamblers. Kerber (2005) found that 15% of her sample of 636 student athletes from three colleges in the Midwest met criteria for problem or pathological gambling (i.e. scored a 3 or higher on the SOGS). All of these authors included both probable and pathological gamblers in their samples; therefore actual prevalence rates based on DSM-IV criteria will be lower than these reported rates. However, all of the authors agreed that in an adolescent sample it was important to count both participants with symptoms that meet criteria for diagnosis and participants who demonstrate potential risk for classification in order to indicate the need for both preventive and treatment services in this population.

In their review of prevalence studies, Shaffer, Hall and Vander Bilt (1999) found that 3.9% of adolescents qualified for a diagnosis of pathological gambling and an additional 9.4% of adolescents experienced significant gambling problems. In comparison, the national prevalence

rate for dependence or abuse of alcohol or illicit drugs among those aged 12 and older is estimated at approximately 9% (Office of Applied Studies, 2006).

Demographics

Within the population of problem and pathological gamblers, differences have been found based on gender, ethnicity, age and income. Overall, prevalence rates for pathological gambling tend to be higher for men than for women (Emshoff, Broomfield, & Arganza, 2000; Gerstein et al., 1999; Ladouceur et al., 1999; Netemeyer et al., 1998; Shaffer et al., 1999; Wassarman, 2001; Welte et al., 2002; K. C. Winters, 2002). In addition, men tend to prefer lottery and casino play, whereas women tend to prefer Bingo (Emshoff et al., 2000; Gerstein et al., 1999). In studies of the adult population, pathological gamblers tend to be under age 35 (Emshoff et al., 2000; Netemeyer et al., 1998) and have incomes under \$35,000 (Emshoff et al., 2000; Gerstein et al., 1999; Netemeyer et al., 1998). Differences have also been demonstrated by race/ethnicity, in that non-white participants appear to have higher rates of problem and pathological gambling than participants who identify as white (Emshoff et al., 2000; Gerstein et al., 1999; Kerber, 2005; Netemeyer et al., 1998), however these prevalence estimates are confounded by socioeconomic status (SES).

Defining Pathological Gambling

Gambling is defined by Merriam-Webster as: 1) to play a game for money or property or to bet on an uncertain outcome, 2) to stake something on a contingency: take a chance. Gamblers Anonymous (2000) defines gambling as any betting or wagering, for self or others, whether for money or not, no matter how slight or insignificant, where the outcome is uncertain or depends upon chance or skill.

Pathological gambling refers to “persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits” (American Psychiatric Association, 2000, p. 671). The American Psychiatric Association recognized pathological gambling in 1980 in the DSM-III as an impulse-control disorder. Persistent and recurrent maladaptive gambling is indicated by five (or more) of the following:

- Preoccupation with gambling
- Gambling with larger amounts of money to increase excitement
- Repeated efforts to reduce or stop gambling
- Restlessness or irritability when attempting to control gambling behavior
- Gambling to escape problems or to alleviate a negative mood
- Trying to win back money after incurring losses while gambling
- Lying about the extent of gambling behavior to significant other/s
- Committing crimes to finance gambling
- Lost relationships with significant other/s or lost career advancement because of gambling
- Dependence upon others to provide financial assistance to relieve debts caused by gambling.

It should be noted that the vast majority of people who participate in legal gambling do so responsibly for entertainment purposes and do not typically risk more than they can afford to lose. As with alcohol and drug use, involvement in gambling per se is not generally used as a criterion for diagnosing a psychiatric disorder.

Problem Gambling Versus Pathological Gambling

The American Psychiatric Association's definition of pathological gambling takes a categorical approach to defining the problem, whereas most researchers in this area define pathological gambling using a dimensional approach. In other words, the DSM-IV does not classify an individual as a pathological gambler unless s/he meets at least five out of the ten criteria listed above. However, most researchers take a dimensional approach similar to that used by the National Gambling Impact Study Commission (National Opinion Research Center et al., 1999) to describe the continuum of gambling problems present in the population. This study used the same classification system as that used by the National Gambling Impact Study Commission, which is presented in Table 1 below.

Table 1
Criteria for Classifying Respondents

Classification	Criteria
Low-risk gambler	Does not meet any DSM-IV criteria
At-risk gambler	Meets 1 or 2 DSM-IV criteria
Problem gambler	Meets 3 or 4 DSM-IV criteria
Pathological gambler	Meets 5 or more DSM-IV criteria

Although most researchers agree that a dimensional approach provides a better estimate of those with gambling problems and those at risk for more serious problems, Dube, Freeston and Ladouceur (1996) found that there are qualitative differences between individuals who meet 3 – 4 DSM-IV criteria and those who meet 5 or more criteria. They found that pathological

gamblers engage in more illegal behaviors, wager more frequently and with larger amounts of money, have a greater need for escape associated with gambling, and are more likely to gamble alone. They found that problem gamblers were more likely to gamble with friends and have parents who gamble frequently.

Gambling and Addictions

The official description of pathological gambling provided by the DSM-IV shares features with other addictions, such as a loss of control, continuation of the behavior despite attempts to quit the behavior, long-term negative effects of the behavior and a high risk of relapse (Burton, Netemeyer, & Andrews, 2000). Research on the etiology of problem and pathological gambling has found similarities between the etiology of substance abuse and the etiology of problem and pathological gambling. For example, there is evidence that adolescents who gamble excessively tend to be males, have low self-esteem and poor coping skills, tend to be impulsive and/or sensation-seeking and may experience anxiety and/or depression (Messerlian, Derevensky, & Gupta, 2005), factors similar to those considered in substance abuse research. In addition, there is evidence that pathological gamblers are more likely to come from families in which there was a parent with a gambling problem (Messerlian et al., 2005). Adolescent pathological gamblers experience substance abuse, delinquency and school problems at higher rates than other adolescents (K. C. Winters, 2002) and pathological gambling is often comorbid with substance abuse and other impulse control disorders (Burton et al., 2000; Dell'Osso, Allen, & Hollander, 2005; Lesieur & Rosenthal, 1991; Netemeyer et al., 1998; Petry, 2006; Potenza, 2006; Proimos, DuRant, Pierce, & Goodman, 1998). In fact, there is currently a

discussion about including pathological gambling with other addictive behaviors in the fifth edition of the DSM (Petry, 2006; Potenza, 2006).

More research is needed on the effect of ecological factors on the etiology of pathological gambling. Very little or no research has been conducted on factors such as social norms, promotion of gambling by civil/local organizations, socioeconomic variables and their effect on gambling behavior, or the media and its effect on individual values, beliefs, and behaviors related to gambling (Messerlian et al., 2005).

Gambling and the Media

With the new resurgence in gambling there has been an unprecedented use of the media to advertise gambling activities (Clotfelter & Cook, 1989). For example, the Georgia Lottery advertises on TV, billboards, and in print ads, and places point-of-sale advertising at retail locations. In fact, the Georgia Lottery was the first recipient of Georgia Trend magazine's annual Donald R. Keough Award for Marketing Excellence (Georgia Lottery, 2006).

Gambling is also depicted frequently in movies. Some of the more well-known examples include *Viva Las Vegas* (1964), *The Sting*, (1973), *The Gambler*, (1974), and *Ocean's 11* (1960 and 2001). More recently, some television networks have begun televising poker tournaments. The first televised poker tournament was shown on the Travel Channel in 2003 (Business Wire, 2002, 2003). Casino and Gaming TV (CGTV), which televises shows that teach viewers techniques for playing games of chance as well as poker tournaments and other gambling-related shows started in 2004 (Phillips Business Information, 2003). Since then, the Travel Channel continues to show regularly scheduled poker tournaments. These tournaments can also be seen on other channels, including ESPN, Bravo, and Fox Sports. TV programming for these

channels, excluding CGTV, during the week of October 9 – 15, 2006 included 79 hours of televised poker tournaments; 62 hours when tournaments that are shown at the same time are removed from calculations (TV Guide, 2006). CGTV programs gambling instruction, poker tournaments, and other gambling-related shows 24-hours per day (Casino & Gaming Television, 2006).

Media Content

Clotfelter and Cook (1989) found the following themes in their analysis of state lottery advertisements:

- Informational (e.g. advertisements of new games, free samples or coupons for play, how to play, benefits of the lottery to the state)
- Traditional values
- Fantasy (e.g. winning can change your life, wealth and luxury, money)
- Fun and excitement.

They also found that most advertisements placed by state lotteries contained humor, and they found no statements about the odds of winning or actual payout rates for lottery games in 80% of the advertisements that they analyzed. In addition, over 70% of the advertisements that they analyzed portrayed at least one winner. In his analysis of lottery advertising, Griffiths (2005) found that advertising was either designed to make people think they have a greater chance of winning than the actual odds would indicate or played on the altruistic desires of those watching.

Movies with significant gambling content often portray gambling as glamorous and exciting; when they do portray gamblers experiencing negative consequences, they often end the

movie with the gambler winning back what he has lost. Dement (1999) reviewed 42 movies produced between 1931 and 1997. He discussed the degree to which the movies portrayed problem and pathological gambling in a “responsible” or “irresponsible” manner. Movies that he deemed “irresponsible” were movies whose main character was depicted as a “smart” or “professional” gambler who won primarily because of his/her ability to play the game, and in which luck was downplayed. He also characterized movies as “irresponsible” that did not demonstrate realistic consequences for excessive gambling or that ended with the gambler winning enough to pay back all his debts. Overall, he found a mixed picture in these movies, with some portraying gambling in a “responsible” manner, but most portraying gambling in an “irresponsible” or mixed manner (i.e. some portions were realistic, but other portions were irresponsible). He characterized three movies as “anti-gambling,” but gambling was not the main theme of any of these movies.

The televised portion of most poker tournaments shows the players at the final table, all of whom win a significant amount of money. Televised poker tournaments rarely show players who do not make it to the last table and there is no explicit connection made between the number of people who entered the contest and the amount they paid to enter (up to five figures for many tournaments). Announcers rarely talk about the players who leave the tournament empty-handed. However, the narrators of the tournaments frequently discuss the amount won by those who make it to the final table, and cash in the amount available to the final winner is often poured onto the poker table during the final hands of play.

News coverage of gambling is mixed. There has been news coverage (TV and print) about people who have experienced financial and legal trouble as a result of their gambling.

However, the news more often covers the stories of people who have won large sums of money gambling. Overall, media portrayals of gambling tend to focus on the fun, excitement, and glamour of gambling and rarely demonstrate any of the negative consequences of gambling, such as losing large sums of money.

The Effects of Media on Smoking and Alcohol Use

Watt and van den Berg (1981) conducted a study in which they compared the direction of influence of media communications on public attitudes and behaviors. They tested the following models: 1) a direct influence of media on individuals; 2) the influence of media on opinion leaders who then influence others; 3) no effect of the media; 4) a public agenda-setting role for media; 5) and media as simply a reflection of public attitudes and behavior. The first model (a direct effect of the media on attitudes and behaviors) received the most empirical support, particularly when the behavior in question was highly publicized and could bring benefits with few risks. It could be argued that gambling would fit this first model in that it is publicized in all media forms and it is possible (at least initially) to engage in the behavior with little risk.

There has been very little empirical research on the effect of media on gambling behavior or attitudes, and the research that is available has significant flaws (Griffiths, 2005). For example, in a study on the prevalence of gaming in New Zealand, Amey (2001) found that most New Zealanders could remember seeing gaming advertised. In particular, they remembered advertising for the state-sponsored lottery and younger participants were more likely to remember gaming advertising than older participants. He also found that Maori and people with incomes less than \$30,000 were more likely to remember seeing any gaming advertising. However, there was no significant association between gambling behavior and exposure to

advertising, and Amey did not examine the relation between exposure to advertising and gaming attitudes.

Since there is little research on the effects of media on gambling behavior, it is informative to examine the literature on the effects of media on smoking and alcohol use. Previous research has demonstrated a link between images of and messages about smoking in the media and youth smoking (Sargent et al., 2005; Wakefield, Flay, Nichter, & Giovino, 2003). Gutschoven and Bulck (2005) found that children who watch more television start smoking at a younger age; by their calculations, each additional hour of television viewing corresponded to a two month decrease in smoking initiation age. Song et al. (2007) found that increased exposure to smoking in the movies by young adults (ages 18 – 25) was directly related to having smoked at least once in the past 30 days and indirectly related to being an “established smoker” (smoking every day); the effect of exposure on being an “established smoker” was mediated by positive expectancies for smoking and being exposed to friends and relatives who smoked.

Similar associations have been found for images and messages about alcohol and youth beliefs about drinking (Kean & Albada, 2003; Pasch, Komro, Perry, Hearst, & Farbakhsh, 2007) and drinking behavior (Connolly, Casswell, Zhang, & Silva, 1994). Pasch et al. (2007) found that outdoor alcohol advertisements in sixth grade were associated with alcohol intentions and outcome expectancies in the eighth grade, and that these effects were stronger for non-users than users, indicating that advertising affects children who use alcohol and children who do not use alcohol.

Research on the effect of advertising on smoking and drinking behaviors is mixed; some research indicates that advertising is more likely to influence an individual’s brand choice than

their decision to smoke or drink in the first place. In his review of alcohol advertising and its effect on use, Fisher (1993) found that advertising had little effect on overall use; his meta-analysis indicated that while advertising may increase sales for a particular brand, it does not increase overall rates of drinking in the marketplace. Other research supports these findings (Coulson, Moran, & Nelson, 2001; Dorsett & Dickerson, 2004; Nelson, 2001). However, Dorsett and Dickerson (2004) found a correlation between point-of-sale advertising and alcohol use among young adults in the UK between the ages of 18 and 24. Connolly (1994) found that males who were able to recall more alcohol advertisements at age 13 and 15 drank more at age 18 and more recently, Snyder et al. (2006) found a correlation between the number of advertisements seen, alcohol advertisement expenditures and increased drinking.

Portrayals of smoking and drinking on television (other than advertising) appear to have a stronger effect on behaviors. Fisher (1993) found that dramatic portrayals of drinking on television had a significant effect on behavior. Kean and Albada (2003) found that viewing more television was related to positive schemas about alcohol use: participants who spent more time watching television, particularly dramatic portrayals of drinking, created stories with more alcohol use and less severe consequences for use. Sargent et al. (2005) found that children who viewed more movies with smoking content were more likely to initiate smoking, and Gutschoven and Bulck (2005) found that teens who spent more time watching television initiated smoking at younger ages. Tickle et al. (2006) found that exposure to various media portrayals of smoking was associated with smoking behaviors and that this association was mediated by positive expectancies about smoking.

In their literature review of empirical studies examining the effects of cigarette advertising, anti-smoking advertising, dramatic portrayals and news coverage of smoking, Wakefield et al (2003) concluded that the media “both shape and reflect social values about smoking....act as a source of observational learning by providing models which teenagers may seek to emulate....provide direct reinforcement for smoking or not smoking....” (p. 95). The researchers also found that media promotes discussion about smoking among family and friends, and thus may act as an indirect influence on behavior through social norms.

Gunther and Paek (2005) found that anti-smoking media messages have both a direct and indirect influence on adolescent smoking attitudes and behavioral intentions. They found that anti-smoking messages have a direct effect on adolescent pro-smoking attitudes and intentions to smoke. They also found an indirect effect such that adolescents who perceived that their close friends were influenced not to smoke by the anti-smoking campaigns had more anti-smoking attitudes and fewer intentions to smoke. In another similar study Gunther et al (2006) found that both cigarette and anti-smoking advertisements influenced smoking behavior indirectly through perceived social norms, but they found that cigarette advertisements had a stronger indirect effect on smoking behavior than did anti-smoking messages. In their national study of youth exposure to anti-smoking advertisements, Johnston et al. (2005) found that youth who recalled being exposed to such advertising reported that they were less likely to smoke as a result of seeing the advertisements; these youth also reported that they believed the advertisements exaggerated the harmful effects of smoking.

Based on this research, it appears that media may have an effect on alcohol and smoking behaviors, although dramatic portrayals may have a greater effect on these behaviors than

advertising. In most of these studies, the effects of media on behavior were small. Determining the effect of media on behavior is difficult, because there are many additional factors that affect these behaviors. For example, parental and peer attitudes towards drinking as well as parental and peer drinking behaviors have demonstrated stronger effects on drinking behaviors than exposure to various media (Ouellette, Gerard, Gibbons, & Reis-Bergan, 1999) and the effect of media on behavior is often indirect.

DiClemente, Delahanty, and Schlundt (2004) proposed that media exposure may affect individual behavior and decisions by making individuals aware of gambling and its accessibility. “Contemplation is the stage wherein attitudes and expectancies are developed as the individual considers the pros and cons of gambling. Consideration of change allows for exploration...of the positive and negative expectations associated with the potential new behavior” (DiClemente et al., 2004). In other words, initial exposure may lead to awareness of gambling, and continued exposure may lead to attitude and expectancy change, which may then lead to behavior change through experimentation. Many theories have been proposed to explain the steps from media exposure to behavior. The theories that will be examined more closely here are cultivation, social learning and expectancy theories as well as the theory of reasoned action.

Cultivation Theory

Cultivation Theory was developed by George Gerbner through a research project he termed “Cultural Indicators” (Gerbner, Gross, Morgan, & Signorielli, 1994). According to cultivation theory, television is a significant vehicle through which individuals learn about the world. However, the world portrayed on television is not necessarily consistent with reality. For example, violent acts tend to be portrayed more frequently on television than their actual

occurrence in real life would warrant. One of the first hypotheses of cultivation theory supported through research is that individuals who are heavy viewers of television are more likely to believe that the world is a violent place than light viewers of television, and they tend to predict a greater likelihood of experiencing violence than lighter viewers.

The theory rests on the assumption that cultivation occurs through repeated viewing of similar settings, actions, roles, and related outcomes: one does not experience cultivation as a result of viewing one TV show or one advertisement. Instead, repeated viewing of shows with similar themes (e.g. gambling is glamorous, one can win a lot of money gambling) tends to “cultivate” a perspective on a specific activity that more closely matches TV reality than real life (Atkin, 1989; Gerbner et al., 1994). Cultivation results in two orders of effects, usually referred to as first order and second order effects. First order effects are usually called “demographic” and refer to participants’ beliefs about the prevalence of specific behaviors or attitudes in society. For example, a first order effect related to violence would occur if heavy viewers believe the prevalence of violence is significantly greater than actual prevalence numbers would support. Second order effects refer to deeper beliefs or attitudes that are held by an individual, such as the belief that we live in a violent society. It is these second order effects that were tested in this research.

Assumptions made by Gerbner et al (1994) are that messages on TV are consistent across genres and that viewing is nonselective. Therefore, according to Gerbner, the specific content of TV viewing is not important, because viewers will receive consistent messages across viewing times and genres. Hawkins and Pingree (1981) and Potter (1993) have argued that the genre of TV viewing is important and can have different effects on the construction of social reality.

Similarly, Romer, Jamieson and Aday (2003) and Lett, DiPietro and Johnson (2004) found cultivation effects from the viewing of local television news only. Cohen and Weimann (2000) found stronger cultivation effects when they combined specific genres (e.g. soap operas, action/horror) with viewer characteristics (e.g. gender, religiosity, age).

Others have argued that TV is not the only media that has a cultivation effect (Cohen & Weimann, 2000; Potter, 2004; Reber & Chang, 2000). For example, Reber and Chang (2000) found similar effects for heavy viewing of TV and frequent reading of local newspapers. Cohen and Weimann (2000) found that adolescents who preferred certain TV genres (e.g. news, situation comedy, drama) responded differently to cultivation dependent measures. Potter (2004) argued that individuals have more media choices today and that all mass media (TV, radio, newspaper, internet, etc.) has as its goal to make habitual viewers of out of consumers; in other words, to be successful financially, mass media must entice consumers to read/listen to/watch their particular product on a regular basis.

Social Learning Theory

Cultivation theory proposes that the media influences behavior through an accumulation of messages across time and that this effect is in one direction. In other words, the more media one is exposed to, the more likely one is to demonstrate a cultivation effect. Social Learning Theory proposes that behavior can be learned through observation, but that exposure per se is not sufficient to produce a change in behavior. Individuals must attend to, remember, and be motivated by messages they receive from the media to engage in specific behaviors (Atkin, 1989; Bandura, 1986, 2001; Berg, 2004). Expectancies (the belief in positive or punishing outcomes as a result of engaging in a specific behavior) are considered a motivating factor in

social learning theory. Individuals are more likely to engage in a behavior if they perceive that positive consequences will result from the behavior, and they are less likely to engage in a behavior if they perceive that it will result in punishing consequences. Learning about positive and punishing consequences can occur through observation of behavior in the media (Atkin, 1989; Bandura, 1986, 2001). According to Bandura, individuals “can acquire lasting attitudes, emotional reactions, and behavioral proclivities toward persons, places, or things that have been associated with” positive emotional and instrumental consequences (Bandura, 2001, p. 281). In fact, one’s belief about the potential consequences of engaging in a behavior may be a better predictor of behavior than the actual consequences experienced as a result of engaging in that behavior (Bandura, 1986).

Mere exposure to media portrayals has produced a consistent link between exposure and behaviors, although that link is weak. Studies utilizing social learning theory have helped connect the link between exposure and behavior by examining intervening cognitive processes. Research has demonstrated that youth who identify with actors portrayed in advertising are more likely to have positive expectancies about drinking and that those positive expectancies lead to intentions to drink and drinking (Austin, Chen, & Grube, 2006; Austin & Knaus, 2000; Austin & Meili, 1994). Tickle et al (2006) had similar results when they tested a structural equation model of the social cognitive theory. In their sample they found a link between exposure to media portrayals of smoking, social norms, positive expectancies, and smoking behaviors. They also found a strong link between exposure to media portrayals of smoking, positive expectancies about smoking and intentions to smoke among adolescents who had never smoked.

In research that directly tested the social cognitive model on initiation of sexual behaviors in adolescents, Martino et al. (2005) found that viewing sexual encounters on television decreased negative expectancies about sexual intercourse, and in turn reduced the age of first sexual encounter for participants. Watching more sexual content on TV was also correlated with higher estimates of the prevalence of sexual activity among peers, which was in turn related to younger age of initiation among participants. Vaughan and Rogers (2000) found that inclusion of both negative and positive consequences in a family planning campaign in Tanzania increased behavioral change in relation to a campaign that provided information only.

Thus, it is also likely that viewing gambling behaviors in the media may affect gambling behavior, particularly if the gambling behaviors observed in the media are followed by positive consequences. One is much more likely to see or hear of “big wins” when viewing gambling-related media than to see or hear about those who lost when gambling (K. Abrams & Kushner, 2004). In addition to seeing and learning about specific consequences (e.g. winning) of gambling, viewers may also see and experience emotions associated with gambling and winning, such as excitement and happiness. These emotions also become associated with gambling and may create positive emotional arousal when thinking about engaging in gambling behavior (Bandura, 1986). In addition, if rewards occur occasionally, rather than every time an actor engages in a behavior, and if the rewards are large (e.g. lottery winnings) then the observer is likely to be more motivated to engage in the behavior and exhibit more perseverance in the face of loss (Bandura, 1986). Therefore, it is likely that those who view more portrayals of gambling behavior in the media are more likely to engage in more gambling behaviors themselves, because they perceive that gambling often results in positive consequences.

Theory of Reasoned Action

Researchers (Cummings & Corney, 1987; Nabi & Sullivan, 2001) have proposed that the Theory of Reasoned Action (Figure 1) may provide a framework for the effect of attitudes and beliefs on behavior. According to the Theory of Reasoned Action (TRA) the best predictors of behaviors are behavioral intentions, which are predicted by attitudes towards the behavior and subjective norms concerning the behavior (Fishbein & Ajzen, 1975).

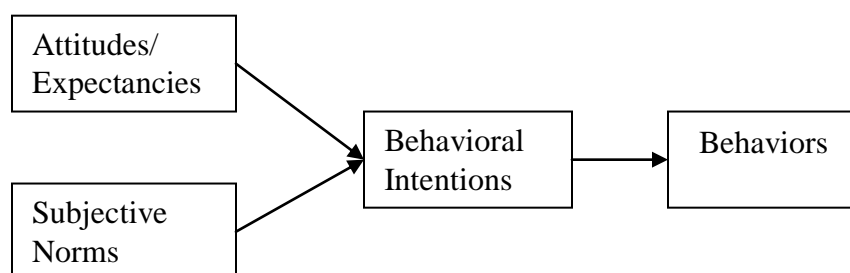


Figure 1
Theory of Reasoned Action (Fishbein & Ajzen, 1975)

Attitudes are determined by beliefs, which develop through direct observation or other direct or indirect sources of information (e.g. other people, news, experiences, etc.). A person's attitude toward a behavior will be either positive or negative, depending upon the valence of the beliefs held about that behavior. For example, if a student believes that she is likely to win when she plays Bingo, then she will have a more positive attitude towards playing (Fishbein & Ajzen, 1975).

According to the TRA, a person's intentions to behave in a certain way are also affected by subjective norms concerning the behavior. Fishbein and Ajzen (1975) define subjective norms as both the perception of others' attitudes towards engaging in a specific behavior and the desire to act in accordance with those attitudes. For example, if a college student's parents believe that

the student should not gamble, and the student is motivated to behave in ways consistent with his parents' attitudes towards that behavior, then the student probably will not gamble. Research has shown that the media can influence behavior indirectly through social norms by leading observers to believe that others are more likely to engage in a particular behavior (Atkin, 1989; A. Gunther & Paek, 2005; A. C. Gunther et al., 2006). It may also affect behavior by changing others' attitudes towards a behavior, thereby increasing their interpersonal encouragement to engage in the behavior or decrease expressions of disapproval for the behavior (Atkin, 1989; A. Gunther & Paek, 2005; A. C. Gunther et al., 2006).

Expectancy theory

According to Fishbein and Ajzen (1975) attitudes are formed by beliefs about the potential consequences of engaging in a specific behavior, which is similar to expectancy theory. In fact, previous research (Fishbein & Ajzen, 1975) has used behavioral consequences or expectancies about a behavior in order to estimate attitude toward that behavior. Therefore, expectancies were used in this research as an indicator of attitudes towards gambling.

Research on theories related to expectancy theory began with the publication of MacAndrew and Edgerton's (1969) book on alcohol use and disinhibition, in which they demonstrated that alcoholic behaviors differ by culture and may in fact be culturally learned. In this book, the authors demonstrated that behaviors engaged in while drunk (e.g. violence, promiscuity, etc.) may be primarily learned behaviors as a result of watching others behave similarly when drunk; in other words, people behave the way they believe they are expected to behave when drunk. Subsequent research has demonstrated that behavior that occurs as a result of drinking alcohol is influenced by individual beliefs about the effects of alcohol. Experiments

have demonstrated that participants who are given a placebo and are led to believe they have ingested alcohol behave in ways that participants who have ingested alcohol also behave (Leigh, 1989).

According to social learning theory expectancies are developed prior to direct experiences with a specific behavior (e.g. drinking or gambling) and may be acquired from family, friends, the media and other social interactions (D. B. Abrams & Niaura, 1987; Atkin, 1989). Expectancies refer to a relationship between an event and a consequence, and can often be expressed as “if-then” statements, for example, “If I drink at the party then I will feel more comfortable talking to strangers” (Goldman, Brown, & Christiansen, 1987).

Expectancy theory has been explored extensively in the alcohol literature and studies have consistently found a relationship between positive outcome expectancies and alcohol use (Jones, Corbin, & Fromme, 2001). In other words, when participants reported positive expected consequences such as tension reduction, social facilitation, or mood enhancement they were more likely to drink (Leigh, 1989). Expectancies have been shown to predict the initiation and maintenance of drinking behavior as well as the onset of drinking problems (Jones et al., 2001; Leigh, 1989) and positive expectancies have been found to be related to engagement in other risky behaviors such as illicit drug use, risky sexual behavior, and aggression (Fromme, Katz, & Rivet, 1997).

Expectancies have been examined in relation to gambling behaviors in a prison population (Walters & Contri, 1998) and with college students (Wassarman, 2001). Walters and Contri (1998) found that problem gamblers expected more positive, negative, and arousing outcomes from gambling than did the non-problem gamblers and non-gamblers. Wassarman

(2001) found that expectancies accounted for 29% of variance in South Oaks Gambling Screen (SOGS) scores, and that expectancies about risk-taking, arousal and negative effects of gambling were most strongly correlated with SOGS scores. Overall, this preliminary research indicates that those who gamble less frequently tend to have more positive expectancies about gambling, and those who qualify for a diagnosis of pathological gambling hold both negative and positive expectancies about gambling (Tiell, 2004; Walters & Contri, 1998; Wassarman, 2001), perhaps as a result of negative experiences associated with pathological gambling (e.g. financial and personal problems). In his review of the literature on adolescent gambling, Jacobs (2004) found that adolescents with gambling problems tended to have more positive expectancies about gambling. Examples of statements with which adolescents tended to agree were: “winning a big lottery jackpot is not very rare...there are tricks to gambling...betting for money is not harmful...I can make a lot of money playing games of chance” (Jacobs, 2004).

Theoretical Summary and Hypotheses

Today’s youth have been exposed to more gambling portrayals and advertising than previous generations, and they have grown up in an era in which states not only sanction but also run and promote gambling enterprises. Overall, adult attitudes toward gambling in general have become more permissive (Amey, 2001; Clotfelter & Cook, 1989), so it may be safe to assume that youth attitudes towards gambling are at least as permissive as adults, if not more so.

Research has shown that the media have a direct effect on behavior (Fisher, 1993; Gerbner et al., 1994; Wakefield et al., 2003), and although small, these effects are consistent (Fisher, 1993; Gerbner et al., 1994; Hawkins & Pingree, 1982). Cultivation theory demonstrates that the media has a cultivation effect on attitudes (Gerbner et al., 1994), and research has shown

that attitudes and social norms lead to behavior change (Fishbein & Ajzen, 1975). Research has also demonstrated that the media have an indirect effect on behavior through learned expectations about the consequences of a specific behavior, such as gambling (Austin et al., 2006; Austin & Knaus, 2000; Austin & Meili, 1994; Bandura, 2001; Connolly et al., 1994; Gerbner et al., 1994; A. C. Gunther et al., 2006; Potter, 2004; Tickle et al., 2006; Wakefield et al., 2003) and expectancies have been associated with engagement in a number of risky behaviors (Fromme et al., 1997; Goldman et al., 1987; Jones et al., 2001; Leigh, 1989; Leigh & Stacy, 2002).

Therefore, I hypothesized and tested a modified version of the theory of reasoned action. I hypothesized that 1) subjective norms has a direct effect on gambling activities, such that the perception of pro-gambling subjective norms is associated with increases in gambling activities; subjective norms has an indirect effect on gambling activities through negative and positive expectancies, such that 2) the perception of anti-gambling subjective norms is associated with increases in negative expectancies, which are in turn associated with participation in fewer gambling activities; and 3) the perception of pro-gambling subjective norms is associated with increases in positive expectancies, which in turn are associated with participation in more gambling activities. I also hypothesized that exposure to gambling-related media has a 4) direct effect on gambling behavior, such that greater exposure to gambling-related media is associated with participation in more gambling activities; as well as an indirect effect on gambling behavior through positive expectancies, such that 5) greater exposure to gambling-related media is associated with increases in positive expectancies, and 6) increases in positive expectancies are associated with participation in more gambling activities (see Figure 2, p. 46).

A mixed method explanatory design was used to test these hypotheses. In a mixed method explanatory design the quantitative data collection and analyses are completed first and are used to answer the study hypotheses. The qualitative data are collected in the second phase of the research in order to help explain and further refine the findings from the quantitative analyses. Advantages of this approach include the opportunity to explore the results of the quantitative analyses in more detail, and the addition of qualitative data may help explain unexpected results, should they arise (Ivankova, Creswell, & Stick, 2006).

I chose an explanatory mixed method design for two reasons. First, although the quantitative analyses and cross-sectional data collected for this study can indicate a correlation between exposure to media portrayals of gambling, gambling expectancies, and gambling behavior, they cannot show causation: an alternative model implying reversed pathways may be just as plausible (e.g. that students who like to gamble are more likely to seek out and therefore be exposed to media portrayals of gambling). Utilizing multiple methodologies can help counteract threats to validity inherent in each methodology and can provide a richer and more accurate interpretation of the data (Berg, 2004). Second, the addition of qualitative data to this study allowed me to share in the understandings and perceptions of problem gamblers themselves and learn more about how they make sense of their gambling behaviors and the effect of media on these behaviors (Berg, 2004). The interviews provided a richer picture of college students' experiences with gambling, the potential consequences of problematic gambling, and the role that media portrayals of gambling have on their attitudes than could be provided by quantitative analyses alone (Miles & Huberman, 1994). Their experiences and perceptions supported the hypothesized direction of effects, and they also provided some clues about the

progression from non-problematic to problematic behaviors, which may inform future research in this area.

CHAPTER 2: QUANTITATIVE DATA COLLECTION AND ANALYSES

College students were asked to complete a series of paper and pencil questionnaires that measure involvement in specific gambling activities, expectancies about gambling, exposure to media portrayals of gambling, symptoms of pathological gambling, and perceived subjective norms about gambling. The data were analyzed using structural equation modeling.

Participants

A sample size of 338 undergraduate students was recruited using two methods. The majority of students ($n = 238$) were recruited using the Georgia State University (GSU) Department of Psychology research participant pool, which is used by students in Psychology 1100 and 1101. Students chose to participate in this research from a list of several possible research studies and met the researcher at a designated time in the research lab to complete the paper and pencil survey.

Four students responded to flyers posted on the university campus and e-mailed the researcher to arrange a time to complete the survey in the research lab. An additional 96 students were recruited through direct solicitation on the university “quad.” The researcher and an assistant sat at a table on the “quad” (a gathering place for undergraduate students). The table displayed a sign requesting participation, and students approached the researchers to participate. They completed the survey at the researcher’s table. After collecting 50 surveys, the researchers limited participation to male undergraduate students in order to increase male participation (the majority of students recruited through the research participant pool were female).

Students recruited through the research participant pool received one course credit for participation. Students recruited through flyers and direct solicitation were paid \$10 for their time.

Students' reported ages ranged from 18 to 27, with a mean age of 20 (SD = 2.01). Fifty-nine percent of the sample was female. The sample reflected the racial/ethnic composition of the GSU campus with 40.2% of students identifying as Black/Non-Hispanic, 34.5% White/Non-Hispanic, 12.5% Asian/Pacific Islander, 6.40% Hispanic/Latino/a, 6.1% Multiracial, and 0.3% American Indian/Alaska Native. Eighty-nine percent of students reported personal income under \$25,000. Seventy-four percent of students reported parental income between \$26,000 and \$100,000; 8.5% reported parental income as \$0 to \$25,000 and 15.8% reported parental income as greater than \$100,000. Most students (90.30%) have access to the internet at 2 to 3 different locations (e.g. school, home, work).

Measures

Gambling Activities. Students were asked to respond to a list of 21 items about specific gambling activities (Appendix B). Items were scored on an 8-point Likert scale from "Never" to "Daily." There was an additional item asking students if they wagered on any other activity not covered in the previous 21 items and students were asked to indicate what that activity was. The scale demonstrated good reliability with $\alpha = 0.86$.

Items from the gambling activities scale were grouped into two scales for analysis, one reflecting gambling activities where the outcome may be affected if the participant has some skill in the activity (e.g. poker; betting on a game of skill, such as bowling; betting on the stock or commodities market) and gambling activities that are decided purely by chance (e.g. lottery,

gambling machines, raffles). Responses were summed across each scale to get an overall measure of participation in the two types of gambling activities.

National Opinion Research Center DSM Screen for Gambling Problems. The National Opinion Research Center DSM Screen for Gambling Problems (NODS) was developed for use by the Gambling Impact and Behavior Study conducted in 1998 by the National Opinion Research Center (NORC) for the National Gambling Impact Study Commission. The development of the NODS was guided by the Diagnostic Interview for Gambling Severity (K. Winters et al., 1998); all items are based on DSM-IV criteria. The NODS contains 17 lifetime items and 17 corresponding past-year items (see Appendix C); the past-year item is asked for each lifetime NODS item that receives a positive response. The maximum score on the NODS is 10.

Compared to other screens for pathological gambling (e.g. the South Oaks Gambling Screen, or SOGS), the NODS is more restrictive when classifying individuals as pathological gamblers. The NODS was field tested before it was used in the Gambling Impact and Behavior Study. It correctly classified 38 out of 40 participants who were in treatment for pathological gambling; the remaining two participants scored a 4 on the NODS (a 5 is required to be classified as a pathological gambler). Other researchers have argued that meeting 4 out of 10 DSM-IV criteria is an appropriate threshold for a diagnosis of pathological gambling (Lesieur & Rosenthal, 1991). Test-retest reliability over a period of 2 – 4 weeks was 0.99 for lifetime scores and 0.98 for past-year scores. Hodgins (2004) found that the NODS was strongly correlated with the SOGS ($r = 0.86$), it had good internal consistency ($\alpha = 0.79$) and moderate

correlations with gambling behavior over the previous six months ($r = 0.50$). The NODS demonstrated adequate reliability in this sample, with $\alpha = 0.76$.

Gambling Expectancies. Students were asked to respond to items from the Gambling Expectancy Questionnaire developed by Pratt, Derevensky, Gillespie & Gupta (2005) for use with adolescents. The questionnaire was developed by conducting focus groups with 198 high school students, ages 12 – 18. Focus group guides incorporated themes found in the gambling literature as well as themes incorporated in previously validated adolescent alcohol expectancy questionnaires (Pratt et al., 2005). Items selected for inclusion in the questionnaire reflected the following themes: money, mood enhancement/enjoyment, excitement/arousal, boredom, social interaction, escape/tension reduction, and independence/autonomy, financial cost, negative emotions, preoccupation, and relational disruptions (Gillespie, Derevensky, & Gupta, in press). The questionnaire uses a 7-point Likert scale from “No chance” to “Certain to happen.”

Thirty-five items were randomly selected and administered from the original 48 items (Appendix D). Selecting only 35 items may affect results negatively, because they may not capture all of the variance in positive and negative expectancies in this sample. However, the 35 items demonstrated excellent reliability ($\alpha = 0.93$). In addition, principal components analysis revealed two factors, both with excellent reliability (positive expectancies, $\alpha = 0.93$; negative expectancies, $\alpha = 0.92$).

Items on the two factors were then combined using domain representative parcels to form two latent variables for analysis: “Positive Expectancies” and “Negative Expectancies.” Items that loaded on either the Positive Expectancies or Negative Expectancies factors were randomly assigned to one of three parcels/indicators for each latent variable such that each latent variable

contained a representative sample of items representing three domains of positive and negative expectancies: social, emotional, and instrumental consequences of gambling. The domain representative method was chosen over an internally consistent method of parceling, in which three parcels/indicators are formed, one each representing the social, emotional, and instrumental consequences of gambling, as previous research has demonstrated that domain representative parceling may produce parameter estimates that are more stable (Kishton & Widaman, 1994; Little, Cunningham, Shahar, & Widaman, 2002) than the internally consistent method of parceling.

Media Exposure. In order to address concerns about previous measures of media exposure in cultivation research (Cohen & Weimann, 2000; Gerbner et al., 1994; Hawkins & Pingree, 1981, 1982; Potter, 1993, 2004) exposure to media portrayals of gambling was assessed by asking participants to report on their overall media viewing/listening hours as well as specific gambling-related media seen in the previous 12 months (Appendix E). Students were asked to report on the number of hours they typically watch television and “surf” the internet during the week and on the weekend. Television viewing times were grouped by viewing hours (7:00am to 3:00pm and 3:00pm to 7:00am), because almost all gambling programming, such as poker tournaments and weekly shows with gambling content, is scheduled between the hours of 3:00pm and 7:00am.

To assess exposure to specific media portrayals of gambling, participants were provided with a list of specific programs and advertising and asked to indicate how frequently they remember viewing these sources in the previous 12 months, using 5- and 6-point Likert scales from “Never” to “Daily” (see Appendix E for specific scale content). Students were also asked to

list additional gambling-related media that they recalled viewing. The advertising, television, and news scales demonstrated adequate reliability, with alphas ranging from 0.73 to 0.76.

To test the structural equation model, a “Media Exposure” latent variable was formed using composite scores from students’ self-reported viewing of specific media portrayals. Students’ responses to the items that asked about overall TV viewing and internet surfing time were not used in the final analyses, because they were not correlated with any of the other variables in the model. Three indicator variables were formed from responses to the questions concerning specific media portrayals: Positive TV, which consisted of students’ reported exposure to TV programming with gambling content (e.g. poker tournaments, weekly series containing gambling content, and news reports of lottery winners); NewsProb, which consisted of news programming about problems associated with excessive gambling; and Advertising, which consisted of all advertising, including in-store promotions for the Georgia Lottery.

Subjective Norms About Gambling. In order to assess the normative beliefs students perceive their family and social networks hold about gambling, students were asked to answer nine questions each concerning what specific members of their social group believe about gambling, and their desire to act in accordance with others’ beliefs (see Appendix F). This method was specifically recommended by Cummings & Corney (1987) for use in gambling research and is based on Fishbein’s conceptualization of the Theory of Reasoned Action. Scales were developed using Ajzen’s recommendations for measuring normative beliefs (Ajzen, 2002 (revised 2006)).

Both the normative beliefs ($\alpha = 0.93$) and motivation to comply ($\alpha = 0.96$) scales demonstrated excellent reliability. Each scale was reduced to three smaller scales and averaged

to provide a score reflecting participants' normative beliefs and motivation to comply with family, friends, and others, for a total of six composite variables. Each of these smaller scales had good reliability, with alphas ranging from 0.75 (normative beliefs about family) to 0.93 (motivation to comply, friends).

The normative beliefs scores were then multiplied by the motivation to comply scores to produce three final subjective norms scores for family, friends and others (Cummings & Corney, 1987). These three subjective norms scores were then used as indicator variables for the "Subjective Norms" latent variable in the structural equation model.

Other Variables. Additional questions were asked about ethnicity, personal income, and parental income. Participants were also asked to indicate if they have access to the internet 1) at home, 2) at work, 3) at school, as well as 4) at any other location, because having access to the internet increases the opportunity to gamble and to be exposed to media portrayals of gambling.

Results

Analysis Strategy

Prior to analysis, all variables were examined for accuracy of data entry, missing values, and fit between their distributions and the assumptions of multivariate analysis. Several of the variables in the dataset were positively skewed. Closer examination of students' scores indicated that several outliers were present. These outliers were rescored to 1 unit greater than the next most extreme value (Tabachnick & Fidell, 2001). Although this decreased skew for each of these variables, all of the variables remained skewed. One variable had a large kurtosis score, that, although not "extreme" according to Kline (2005), could affect the results of the analyses.

Conducting SEM with non-normal data increases the chance of model rejection, because estimated standard errors and test statistics tend to be inflated (Nevitt & Hancock, 2001; Zhu, 1997). However, each variable needed a different transformation to assume a normal distribution and transformation would make interpretation difficult. In addition, Tabachnik and Fidell (2001) state that “if all the variables are skewed to about the same moderate extent, improvements of analysis with transformation are often marginal.” Newer software packages, such as AMOS, have built-in procedures for handling non-normal data. These procedures use a bootstrapping technique, which creates a sampling distribution based on the original sample. The technique is used to estimate standard errors to help correct for bias created by the use of non-normal distributions (Nevitt & Hancock, 2001; Zhu, 1997). The software program estimates the standard error using the “standard deviation of the parameter estimates for that model parameter across the number of bootstrap samples drawn” (Nevitt & Hancock, 2001). I decided not to transform the variables and to use AMOS with and without the bootstrapping technique to test the hypothesized model. The two techniques resulted in standard error estimates that were exactly the same, indicating that the skew and kurtosis present in the data were not large enough to affect the standard error estimates. Therefore, the results reported are based on AMOS analyses without bootstrapping. Results must be interpreted with caution, as standard error estimates are not as reliable as those obtained using normally distributed data, and may have resulted in reduced power to reject a misspecified model (Nevitt & Hancock, 2001).

After the hypothesized model was fitted to the full data set, the model was tested separately for male and female students. Once models were confirmed for the two genders,

multigroup analysis was run in AMOS to test for any moderating effects of gender. Finally, an alternative model was tested using these same methods.

Preliminary Analyses

Sample. In order to achieve a representative sample of college students the sample was limited to students age 27 or younger, because the average age of undergraduate students at Georgia State University is 25 (Center for Teaching and Learning, 2005; Office of Strategic Research and Analysis, 2006). Seven students reported being over age 27 and were removed from the data set. By using Mahalanobis distance with $p < .001$, one case was identified as a multivariate outlier. The student had extremely low perceptions of subjective norms towards gambling, but gambled on a regular basis, and responses on a few additional items appeared inconsistent, so this case was also removed from the data set. The final sample contained 330 participants, 235 recruited through the GSU Psychology research participant pool and 95 through flyers and direct solicitation.

Students from the two recruiting groups (research participant pool and flyers/direct solicitation) were compared to determine if the groups differed by age, ethnicity, income, internet access, overall gambling behavior, and/or reported symptoms on the NODS. The groups differed on the following characteristics: race/ethnicity, sex, gambling behavior and NODS scores. A larger percentage of students recruited through flyers and direct solicitation identified as Black/Non Hispanic and a larger percentage of students recruited through the research participant pool identified as Asian/Pacific Islander ($X^2(5) = 12.62, p = 0.03$). However, students' reported gambling behaviors did not differ by race/ethnicity ($F(4, 236) = 1.59, p = 0.18$), so later analyses did not control for race/ethnicity.

The two groups' mean scores on the gambling behavior checklist and the NODS were different. However, the group recruited through flyers and direct solicitation had a higher percentage of men than the group recruited through the research participant pool ($X^2(1) = 46.32$, $p = 0.00$). Previous research has demonstrated that men tend to gamble more frequently than women and they tend to report more problems with gambling than women (Chicago, Volberg, Harwood, & Tucker, 1999; National Opinion Research Center et al., 1999), therefore the gambling behaviors reported by men and women were analyzed separately between the two recruiting groups. Men ($t(117.44) = -1.49$, $p = 0.14$) and women ($t(192) = -0.50$, $p = 0.62$) in the two recruiting groups reported similar levels of gambling activity. As well, men ($t(110.18) = -0.96$, $p = 0.34$) and women ($t(192) = 0.36$, $p = 0.72$) in both groups reported similar levels of problem gambling symptoms on the NODS. Therefore, later analyses did not control for students' recruitment group.

Gambling Expectancies. The 35 items selected to measure gambling expectancies were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA a missing values analysis was conducted. Each item was missing between 1 and 9 values. Distribution of the missing values appeared to be random, with the exception of one student who had not responded to any of the items. That student was removed from further analyses and the remaining missing values were replaced using expectation maximization in SPSS.

After replacing missing values, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of 0.30 and above. The Kaiser-Meyer-Olkin value was 0.92, exceeding the recommended value of 0.60 and

the Bartlett's Test of Sphericity reached statistical significance, supporting the factorability of the correlation matrix (Pallant, 2001).

Principal components analysis revealed the presence of six components with eigenvalues exceeding 1, explaining a total of 64.56% of the variance. Inspection of the scree plot revealed a clear break after the second component. Two components were retained for further investigation. To aid in the interpretation of these two components, Varimax rotation was performed. The rotated solution indicated that both components contained a large number of strong loadings, however, six items had similar loadings on both components (three and four factor solutions were also tested, but resulted in more items loading on multiple components).

Upon closer examination, four of the items loading on both components contained themes of escape (e.g. "I forget things that I want to forget," "I become distracted from my life"). When Gillespie, Derevensky, et al. (in press) reduced their measure to 23 items they also found that "escape" items did not load well on any one factor, so they removed those items from the final rotation. Two additional items, "I spend more money than I want to" and "I become anxious or tense" also loaded equally well on both components. All six items were removed from analysis and the Varimax rotation was repeated. The remaining items loaded strongly on only one component.

This final two factor solution explained a total of 51.19% of the variance, with Component 1 contributing 25.75% and Component 2 contributing 25.44%. Items loading on Component 1 reflected themes of negative consequences related to gambling (negative expectancies) and items loading on Component 2 reflected positive consequences related to

gambling (positive expectancies, see Table 2). The results of this analysis supported the use of the positive expectancy and the negative expectancy items as separate scales.

Gambling Behavior. Males reported gambling more frequently than females ($t(231.25) = -4.63, p = 0.00$). Mean scores on the summation of all gambling activity items indicated that on average both males and females reported gambling once a year or less. In order to provide a descriptive analysis of participation in gambling activities across genders, each item was dichotomized, with 0 representing “Never” and 1 representing any amount of wagering on a specific activity. Chi-square analyses (Table 3) revealed that males were more likely to play poker live ($X^2(1) = 15.59, p = 0.00$) or on the internet ($X^2(1) = 16.98, p = 0.00$), and they were more likely to participate in other forms of gambling on the internet ($X^2(1) = 7.37, p = 0.01$). Males were also more likely to bet on games of skill that they play, such as bowling or basketball ($X^2(1) = 10.58, p = 0.00$). Males and females were just as likely to gamble on other card games ($X^2(1) = 0.07, p = 0.79$), Lotto-type lottery games ($X^2(1) = 0.06, p = 0.81$), the daily lottery ($X^2(1) = 0.83, p = 0.36$), and scratch-offs ($X^2(1) = 0.00, p = 1.00$). Females were more likely to report playing bingo ($X^2(1) = 6.67, p = 0.01$).

Table 2
Varimax Rotation of Two Factor Solution for Expectancy Items

Item	Component 1 Negative Expectancies	Component 2 Positive Expectancies
I feel sad or depressed	0.82	
I feel ashamed of myself	0.81	
I lose the trust of family and friends	0.79	
I lose friends	0.79	
All I think about is gambling	0.78	
I shut the world out	0.74	
I get hooked	0.72	
I want to gamble more and more	0.71	
I feel like gambling all the time	0.70	
I lie	0.69	
I feel in over my head	0.67	
I only want to spend time with gamblers	0.60	
I feel guilty	0.59	
My parents do not approve	0.53	
I feel excited		0.81
I get a thrill out of gambling		0.80
I enjoy myself		0.80
I have fun		0.78
I stop being bored		0.71
I feel a rush		0.70
I spend time with people I like		0.66
I am surrounded by similar people		0.65
I win money		0.64
I feel independent		0.63
I make a profit		0.63
I become more relaxed		0.61
I spend time with my family and friends		0.61
My friends think I'm cool		0.58
I deal with boredom		0.55
Percent of variance explained	25.75%	25.44%

Note. Only loadings above 0.30 are displayed.

Table 3
Preferred Games by Gender

Preferred Games	Males	Females
Card Games (Other Than Poker)	83.6	82.0
Games of Skill That They Play (e.g. Basketball, Bowling)	75.4*	56.7
Scratch-offs	65.7	66.0
Live Poker	62.7*	40.2
Lotto-type Lottery Games	60.4	58.8
Internet Poker	38.1*	17.0
Daily Lottery	32.8	27.3
Bingo	29.9	44.3*
Internet Gambling (Other than Poker)	25.4*	12.9

Note. The percent of students who have played each game at least once in the previous 12 months. Asterisks indicate a statistically significant difference.

The last item on this scale asked students to identify other gambling activities that they participated in but were not covered by the scale. Although 20 students reported participating in other forms of gambling, only 9 indicated what those activities were. The majority (5) reported that they bet on random guessing games. The remaining four participants provided answers that were either captured by other items on the scale or that were not specific activities (e.g. “with family”).

Students reported wagering between \$0.00 and \$800.00 in a typical week ($M = \$17.44$, $SD = 74.63$); most students reported not wagering any money in a typical week (median = 0.00). When asked about the largest amount of money students have ever gambled with on any one day, 15.8% responded that they never gamble, 37.0% reported gambling up to \$10, 38.8% reported gambling between \$10 and \$100, 7.3% reported gambling between \$1,000 and \$10,000, and 1.2% reported gambling over \$10,000 on any one day.

Problem and Pathological Gambling. Students' lifetime and past year scores on the NODS questionnaire are presented in Table 4. The percentage of students reporting significant problems with gambling (3 or 4 DSM-IV criteria) and/or pathological gambling is similar to that found in adult surveys (1% to 3%), and lower than the estimates of 9% to 15% found in studies of problem and pathological gambling among adolescents (Gerstein et al., 1999; Jacobs, 2000).

Table 4
Lifetime and Past Year NODS Scores

Classification	DSM-IV Criteria	% Lifetime	% Past Year
Low or no risk	0	64.8	77.3
At-risk gambler	1 or 2	27.3	18.1
Problem gambler	3 or 4	5.4	3.0
Pathological gambler	5 or more	2.4	1.5

Gambling Expectancies. Responses to the gambling expectancy questions were summed across items on each factor. Mean scores indicated that on average, students tend to hold more positive expectancies ($M = 61.62$, $SD = 15.70$) than negative expectancies ($M = 36.34$, $SD = 15.80$) about gambling. Although male and female students have similar levels of positive expectancies about gambling ($t(249.84) = 0.82$, $p = 0.41$), female students tend to have more negative expectancies about gambling ($t(311.94) = 2.43$, $p = 0.02$).

Media exposure. Students reported watching television an average of 1.38 hours between 7:00am and 3:00pm and 2.44 hours between 3:00pm and 7:00am. Students reported spending about 2.16 hours on the internet each day.

There were six advertising questions; the question asking about exposure to in-store promotions for the Georgia Lottery was analyzed separately from the other advertising questions, as previous research (Dorsett & Dickerson, 2004; Fisher, 1993; Slater, Chaloupka, Wakefield,

Johnston, & O'Malley, 2007) has demonstrated that exposure to in-store promotions tends to have a stronger effect than other advertising. The five remaining items on the advertising scale had a mean total response of 11.01 (SD = 5.22), indicating that students see about 1 to 2 advertisements for gambling each month. The mean response for the point of sale item was 3.42 (SD = 1.52) indicating that students see in-store promotions for the Georgia Lottery about once a week.

The mean response to the three television items was 1.86 (SD = 2.33), indicating that students see television programming with gambling content (e.g. poker tournaments) less than one time per month. In fact, 43% of the students indicated that they have never seen this type of programming. The mean response to the three news items was 2.26 (SD = 2.21), indicating that students see news coverage of gambling less than one time per month. Examining the three news items separately, students' median response to seeing news coverage of lottery winners indicated that they see this type of coverage less than once per month and they do not recall seeing any news coverage of poker tournaments or gambling problems. Students' mean response to the question about movies with gambling content was 3.11 (SD = 2.81). Responses ranged from 0 to 13, with 49.20% of students reporting that they have seen less than 3 movies containing gambling content in the previous 12 months.

There was an additional item asking students if they had seen any gambling-related media that had not been covered by the scales discussed above. Forty-four (13%) students responded positively to this item. When asked to write in what additional gambling-related media they had seen, most students (57%) provided an example of media items that had been covered by the previous scales (e.g. specific radio or billboard advertisements, specific movies).

Items that were not covered by the previous scales included games on cell phones (n = 1), art (n = 1), plays (n = 1), books (n = 2), church raffles (n = 1), comic books (n = 1), coupons mailed by casinos (n = 2), sporting events (n = 3), TV game shows (n = 1), video games (n = 3), music videos (n = 1), and random television shows with occasional gambling content, such as celebrity talk shows (n = 2).

Subjective Norms. Students' mean responses to the normative belief scales indicated that they perceive their families', friends', and others' beliefs about gambling to be slightly negative, with families and others holding more negative beliefs about gambling than their friends. Students indicated that their motivation to comply with the beliefs of their family and friends was similar and stronger than their motivation to comply with others' beliefs about gambling. Overall, subjective norms for all three groups were negative towards gambling and strongest for family.

Table 5
Correlations, Means and Standard Deviations for Variables in Model

	PosTV	NewsProb	Adv	FamilySN	FriendsSN	OtherSN	PosExp	NegExp	SkillGames	ChGames
PosTV	1									
NewsProb	.53*	1								
Adv	.35*	.24*	1							
FamilySN	.07	-.09	-.07	1						
FriendsSN	.12*	.00	-.03	.70*	1					
OtherSN	.10	.06	-.15*	.54*	.54*	1				
PosExp	.19*	-.04	.23*	.10	.14*	.01	1			
NegExp	-.05	.04	-.03	-.20*	-.13*	-.03	.20*	1		
SkillGames	.34*	.16*	.28*	.10	.16*	.08	.30*	-.05	1	
ChanceGames	.30*	.18*	.23*	.17*	.12*	.08	.27*	-.03	.60*	1
Mean	.69 ¹	.65 ¹	2.40 ²	-1.3	-.55	-.27	4.12 ³	2.56 ³	.90 ⁴	.68 ⁴
St Deviation	.90	.84	2.17	3.58	3.00	2.64	2.31	2.50	1.79	1.32

Note: Asterisk indicates statistically significant correlation. PosTV = Positive TV; NewsProb = News Problems; Adv = Advertising; FamilySN = Family Subjective Norms; FriendsSN = Friends Subjective Norms; OtherSN = Other Subjective Norms; PosExp = Positive Expectancies; NegExp = Negative Expectancies; SkillGames = Games that involve skill; ChGames = Games that involve chance only.

¹Average item score on a scale of 0 to 4. ²Average item score on a scale of 0 to 5. ³Average item score on a scale of 1 to 7. ⁴Average item score on a scale of 0 to 7.

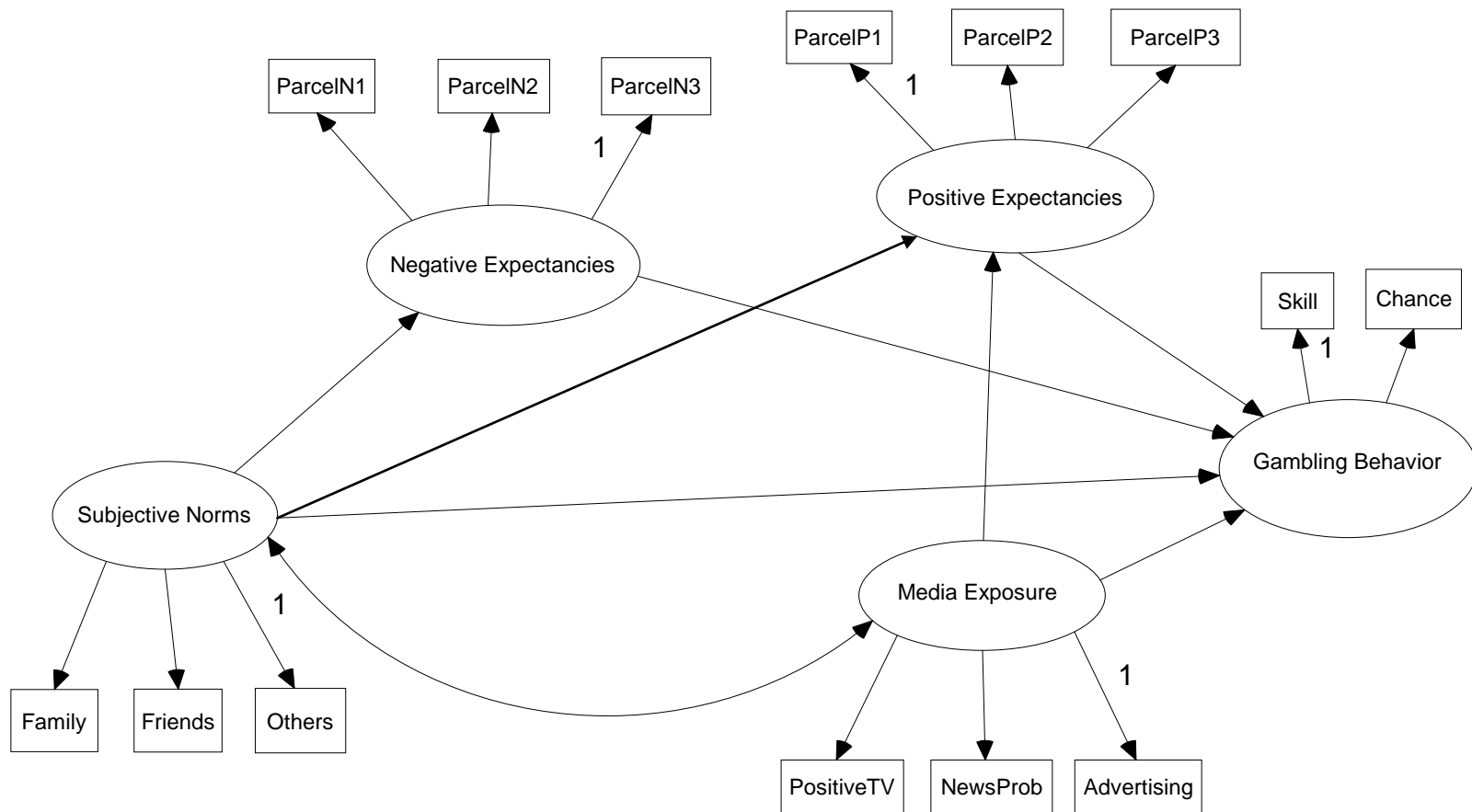


Figure 2
Proposed Structural Model

Structural Equation Model

All of the following analyses were run using both standard and bootstrapped estimates in AMOS (SPSS v. 7.0). For each analysis, estimates of the standard errors were exactly the same using both methods, indicating that the non-normal distribution of the data used did not create biased estimates of the standard errors. Final estimates are those obtained using standard estimating procedures in AMOS.

Structural equation modeling was used to test the model shown in Figure 2. Two fit indexes, the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA) were used to evaluate model fit. Hu and Bentler (1999) recommend CFI values close to .95 and RMSEA values close to .06 when deciding whether the hypothesized model fits the data. Kline goes further to suggest that values for $RMSEA \leq .05$ indicate “close approximate fit,” values between .05 and .08 indicate “reasonable error of approximation” and values over .10 suggest poor fit (Kline, 2005). Moderation effects for gender were also examined by testing equality constraints on each of the structural paths in the model. Before testing equality constraints, the model was first tested on male and female student data separately. The model did not fit the male student data well, but the fit was adequate [$X^2(68, N = 135) = 127.259, p = .000$; $CFI = .944, RMSEA = .081$ (90% CI = .059 - .102)]; only the upper limits of the confidence interval for RMSEA suggested poor fit with the data, and no theoretically defensible modifications were indicated by the modification indices produced by AMOS. The model fit the female student data with reasonable error of approximation [$X^2(67, N = 194) = 108.647, p = .001$; $CFI = .972, RMSEA = .057$ (90% CI = .036 - .076)].

The multigroup model was then tested using the model shown in Figure 3. The path from Subjective Norms to Positive Expectancies was assigned a weight of 0 for male students and allowed to vary for the female students. The model was tested first with no paths constrained equal [$\chi^2(135, N = 329) = 235.906, p = .000; CFI = .960, RMSEA = .048$ (90% CI = .038 - .058)] and then with all paths constrained equal [$\chi^2(151, N = 329) = 277.201, p = .000; CFI = .950, RMSEA = .051$ (90% CI = .041 - .060)], which produced a $\chi^2_d(16) = 41.295, p = .000$, indicating that not all paths were equal for both groups. A series of systematic analyses was then conducted to test equality constraints for each structural path within the model. This resulted in the identification of several paths that were not equal for the two groups. This final model was a close fit with the data [$\chi^2(147, N = 329) = 256.361, p = .000; CFI = .957, RMSEA = .048$ (90% CI = .038 - .057)]; it accounted for 35.2% of variance in male student gambling behaviors and 27.8% of variance in female student gambling behaviors. Standardized regression weights are shown in Figure 3; unstandardized regression weights and standard errors are presented in Table 6.

For both male and female students, the perception of negative Subjective Norms about gambling was associated with more Negative Expectancies about gambling. Females who reported positive attitudes from friends, family and others on the Subjective Norms measure also reported more Positive Expectancies about gambling, whereas Subjective Norms were not associated with male Positive Expectancies. Subjective Norms were not associated with Gambling Behaviors for either group.

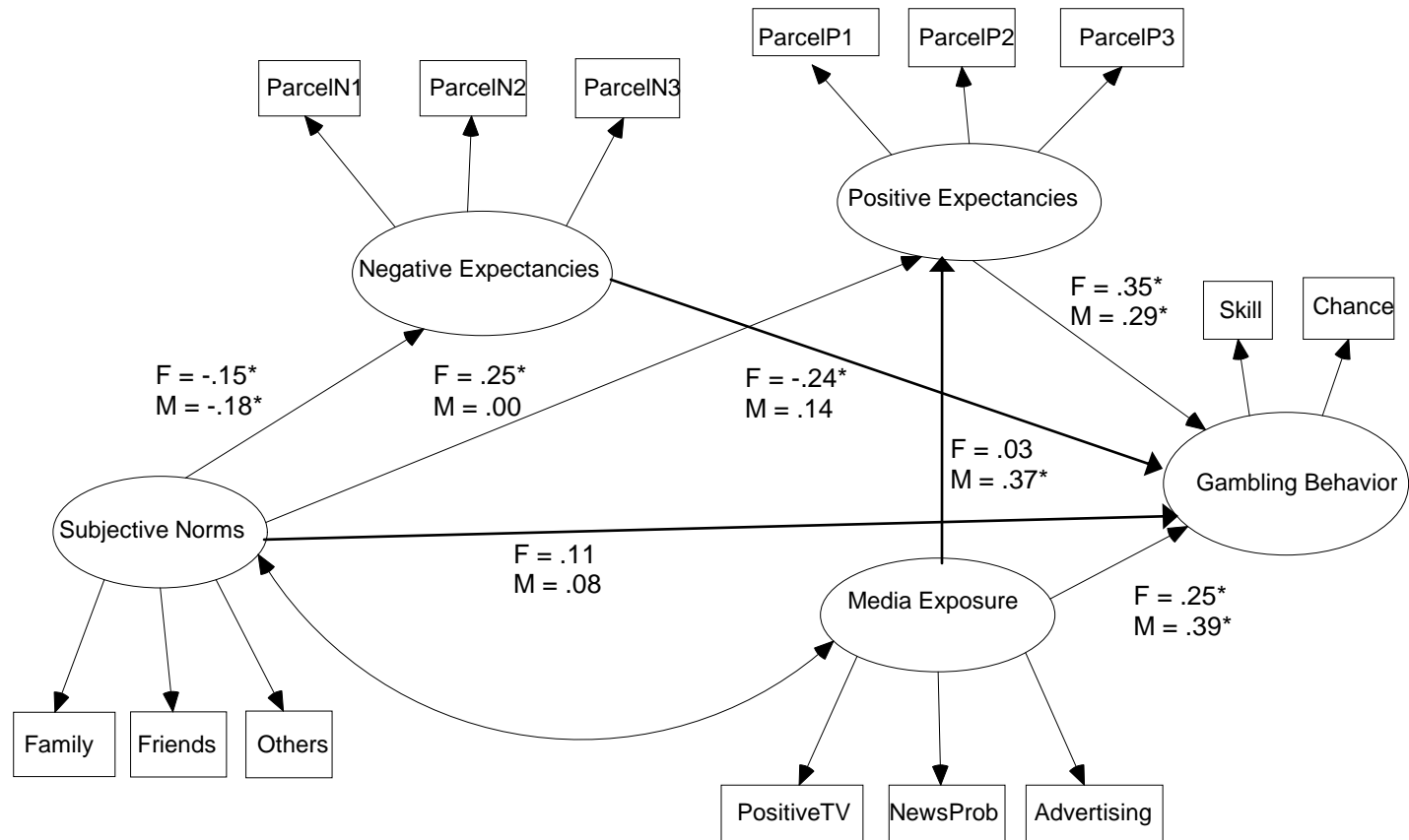


Figure 3
Final Multigroup Model

Note: Standardized regression weights

Table 6

Final Multigroup Model: Unstandardized Regression Weights and Standard Errors

Path	Male Students		Female Students	
	Regression Weight	SE	Regression Weight	SE
Subjective Norms → Gambling Behaviors	.30	.20	.30	.20
Subjective Norms → Negative Expectancies	-.41*	.16	-.41*	.16
Subjective Norms → Positive Expectancies	.00	N/A	.68*	.22
Negative Expectancies → Gambling Behaviors	.22	.15	-.23*	.08
Positive Expectancies → Gambling Behaviors	.34*	.07	.34*	.07
Media Exposure → Positive Expectancies	.78*	.23	.06	.16
Media Exposure → Gambling Behaviors	.97*	.30	.49*	.18

Positive Expectancies about gambling were positively associated with Gambling Behaviors for both male and female students. Negative Expectancies had a significant negative relation with gambling behaviors for female students, such that reported Gambling Behaviors decreased as Negative Expectancies increased. Negative Expectancies were not associated with male Gambling Behaviors. Interestingly, the direction of the non-significant association for males was positive, indicating that as Negative Expectancies increase, Gambling Behaviors may also increase.

Exposure to gambling-related media was positively associated with Gambling Behaviors for both male and female students, but the association was stronger for male than for female students. Media Exposure was not associated with female Positive Expectancies, but was associated with a greater number of Positive Expectancies about gambling for male students.

Overall, Subjective Norms have a stronger association with expectancies about gambling for female students, and Media Exposure has a stronger association with Positive Expectancies for male students. Media Exposure has a strong, direct and positive association with Gambling Behaviors for both male and female students, but the association is stronger for male students.

Indirect and total effects are presented in Tables 7 and 8; a summary of the original hypotheses is presented in Table 9.

Table 7
Standardized Indirect and Total Effects with Standard Errors

Path	<u>Indirect Effect</u>		<u>Total Effect</u>	
	Males	Females	Males	Females
SN → GB				
NE	-.02	.04	.06	.15
PE	N/A	.09	.08	.20
ME → GB				
PE	.11	.01	.50	.26

Note. SN = Subjective Norms. NE = Negative Expectancies. PE = Positive Expectancies. GB = Gambling Behaviors.

Table 8
Unstandardized Indirect and Total Effects with Standard Errors

Path	<u>Males</u>		<u>Females</u>	
	Indirect Effect	SE	Indirect Effect	SE
SN → GB				
NE	-.09	.071	.09*	.066
PE	N/A	N/A	.23*	.157
ME → GB				
PE	.26*	.183	.02	.026

Note. SN = Subjective Norms. NE = Negative Expectancies. PE = Positive Expectancies. GB = Gambling Behaviors.

Alternative Model

The alternative model in Figure 4 was tested. This model hypothesized that expectancies about gambling are influenced primarily by subjective norms – what students hear from friends, family, and others about gambling. These expectancies influence gambling behaviors, which in turn influence students' viewing of media portrayals of gambling.

Table 9
Summary of Findings Related to Original Hypotheses

Original Hypothesis	Male Students	Female Students
1. Pro-gambling Subjective Norms → More Gambling Behaviors	No	Yes ¹
2. Anti-gambling Subjective Norms → More Negative Expectancies about Gambling	Yes	Yes
3. Increases in Negative Expectancies about Gambling → Fewer Gambling Behaviors	No	Yes
4. Pro-gambling Subjective Norms → More Positive Expectancies about Gambling	No	Yes
5. Greater Exposure to Media Portrayals of Gambling → More Positive Expectancies about Gambling	Yes	No
6. Increases in Positive Expectancies about Gambling → More Gambling Behaviors	Yes	Yes

Note. “Yes” indicates a significant path; “No” indicates a non-significant path

¹Mediated by expectancies

When tested with the data for each gender separately, the alternative model did not fit the male student data well [$\chi^2(70, N = 135) = 130.744, p = .000; CFI = .943, RMSEA = .080$ (90% CI = .059 - .102)], but, similar to the original model, only the upper limits of the confidence interval suggested poor fit. In addition, no theoretically defensible modification indices were suggested by the AMOS software. The alternative model fit the female student data reasonably well [$\chi^2(70, N = 194) = 112.236, p = .001; CFI = .971, RMSEA = .056$ (90% CI = .036 - .075)].

The multigroup model was then tested with no structural paths constrained to be equal [$\chi^2(140) = 243.051, p = .000; CFI = .959, RMSEA = .047$ (90% CI = .037 - .057)] and with all paths constrained equal [$\chi^2(145) = 266.928, p = .000; CFI = .952, RMSEA = .051$ (90% CI = .041 - .060)], which produced a $\chi^2(5) = 23.877, p = .000$, indicating that not all paths were equal for both groups. Structural paths were then systematically constrained equal to determine which paths varied between groups, using the same methodology as that for the original model.

The final model fit the data reasonably well [$\chi^2(143) = 247.812, p = .000; CFI = .959, RMSEA = .047$ (90% CI = .037 - .057)], when the paths from Subjective Norms to Positive Expectancies and Negative Expectancies to Gambling Behaviors were allowed to vary.

Similar to the original model, Subjective Norms were not significantly associated with Positive Expectancies for male students, but they had a significant positive relation with Positive Expectancies for female students. However, in this model Negative Expectancies had a significant positive association with male student gambling behavior; in other words, as negative expectancies increased, male student gambling behavior also increased. Similar to the original model, Negative Expectancies had a significant negative association with female student gambling behavior. In this model the path from Gambling Behaviors to Media Exposure was equal and significant in both groups, but the strength of the association for male students was less than that seen in the original model.

This model explained 18.4% of variance in male student gambling behavior and 29.2% of female student gambling behaviors. It explained 14.1% of female students' media exposure and 27.0% of male students' media exposure. Although the fit of this model to the data is similar to that of the original model, it accounts for significantly less variance in male student gambling behaviors. Therefore, the data appear to provide greater support for the original model, which suggests that media exposure has a role to play in both male and female student gambling behaviors. However, the alternative explanation, that engagement in gambling activities leads to increased enjoyment and viewing of gambling-related media cannot be ruled out, and appears to be a valid explanation of female student gambling behaviors and media viewing.

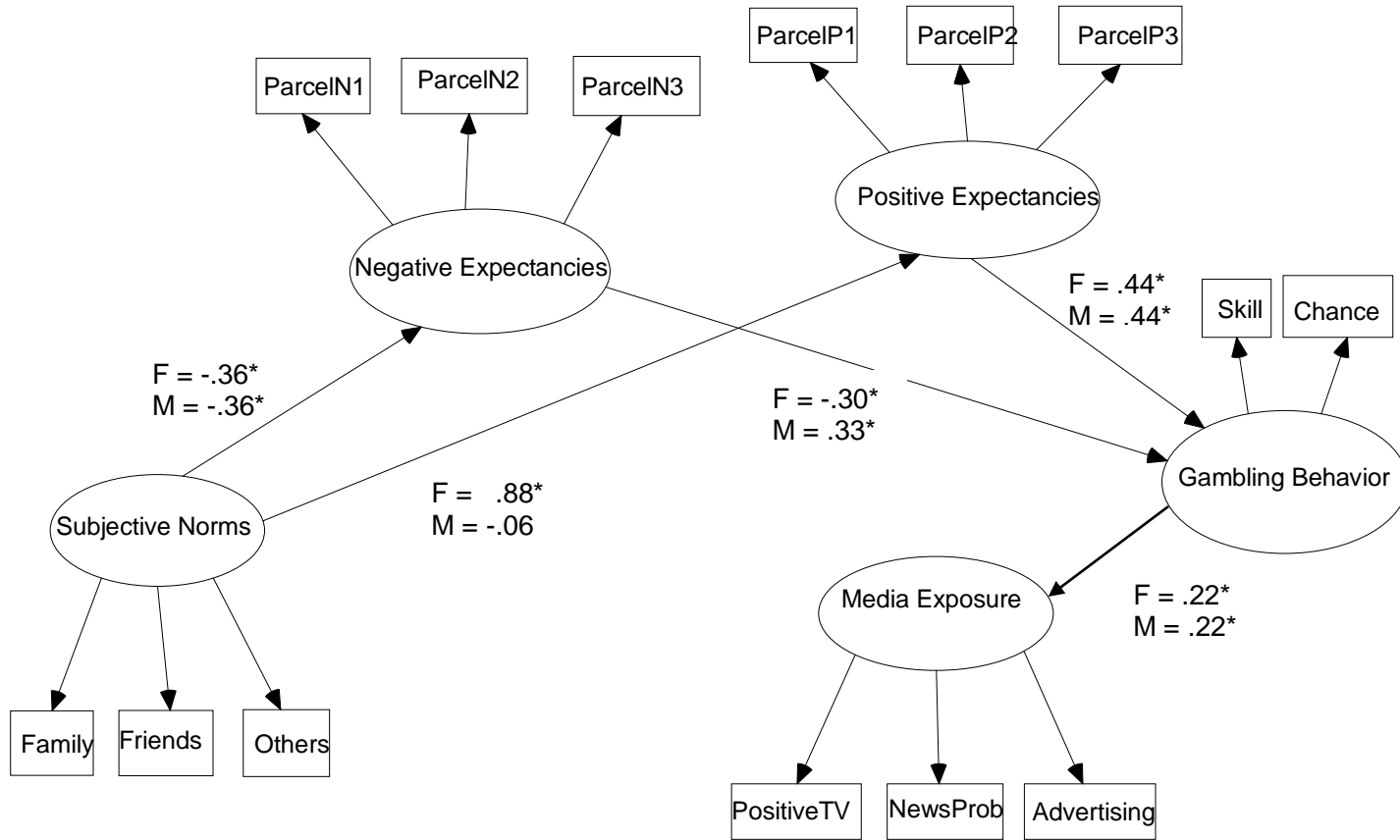


Figure 4
Alternative Model

CHAPTER 3: QUALITATIVE DATA COLLECTION AND ANALYSIS

Participants

During collection of the quantitative data, students who scored a 3 or 4 out of 10 on the NODS, which measures possible problems with gambling, were asked to participate in the second, qualitative phase of the research. Five students agreed to participate in this second phase, which utilized personal interviews to gather information about students' experiences with gambling and their perceptions of media portrayals of gambling. A score of 3 or 4 on the NODS was used to select potential participants for this phase of the research, because a score of 3 or 4 indicates that the student has problems with gambling, but s/he does not endorse enough problems to be classified as a pathological gambler. Thus, these students participated in gambling frequently enough to be able to offer unique perspectives on their gambling experiences, but they did not have problems with gambling so severe that they interfered with other aspects of their lives.

Before data collection started a target of three completed interviews was developed, because I believed that three personal interviews would be the minimum needed to help interpret the quantitative findings. Six students were solicited for this portion of the research and five students agreed to participate. The student who did not participate declined due to scheduling difficulties (he worked full time and was a full time student). The recording equipment failed during the first interview, so that interview was completed and recorded by hand. Because this interview could not be recorded verbatim, its use was limited to refining the interview protocol. During this interview the student only discussed in detail gambling sessions with positive outcomes, so I decided that in subsequent interviews I would specifically ask about gambling

sessions with negative outcomes in order to gather information about these types of experiences. After completing the third interview new themes emerged in the data, so a fourth interview was completed to determine if these themes could be replicated. They were replicated and no new themes emerged, so data collection was stopped. Students were paid \$25 for participating in the one-hour interview. A total of four interviews were audio-taped, transcribed verbatim and analyzed.

Measures

A semistructured open-ended interview format (Appendix G) with pre-determined questions based on the research hypotheses was used to insure that the information gathered during the qualitative portion of the research could help clarify the quantitative findings and either support or refute those findings. The interview was organized into two a priori domains: gambling behaviors and media exposure. The questions included in each domain were designed to 1) elicit information to answer specific research hypotheses and 2) encourage students to talk freely about their experiences with their preferred forms of gambling and the meanings that they derived from the various media they reported viewing. I also used additional, unstructured probes during the interview as needed for clarification or to follow an interesting or novel thread.

The interviews began by asking students what forms of gambling they have ever participated in and which game they consider to be their game of choice. The interview then proceeded to gather information about the frequency of play, with whom the students normally played and other relevant details of their preferred game. Students were next asked to describe a recent gambling session; they were encouraged to pick a session that stood out in their mind, possibly because they played longer than expected or won or lost more than usual. A session

was defined as one continuous period of play; for example, a student who plays poker may play several hands over one session until a mutual decision is made to end the game or one player wins the entire “pot.” Depending upon the session that the student chose to describe first, I next asked the student to describe a session that fit another description (e.g. played longer than expected, lost more than expected). This continued until each student described at least one session with a positive outcome and one session with a negative outcome. If the student endorsed participating in internet gambling at any time in the past, I gathered more detailed information about his/her experiences with internet gambling.

Questions were then asked about the students’ exposure to and interpretation of media portrayals of gambling. Students were asked to describe specific advertisements that they remembered seeing recently, and then were asked what meaning they derived from each advertisement. If the student endorsed watching televised poker tournaments at any time in the past, s/he was asked a series of questions about his/her perception of those tournaments. Finally, the interview contained questions that directly asked students if they believed their desire to gamble affected the amount of gambling they saw in the media and/or if their exposure to media portrayals of gambling increased their desire to gamble.

Interview Procedures

At the beginning of the interview the student read and signed a consent form that described the nature of the study, the use of recording equipment, and measures taken to protect the students’ confidentiality. Confidentiality was discussed verbally with each student, and each student was also asked verbally if s/he would consent to the recording of the interview before

recording began. All students were informed that they could stop the interview or take a break at any time. They were also informed that they could refuse to answer any questions.

I conducted all of the interviews. Each interview took place in a private office in the Psychology Clinic at Georgia State University and lasted one hour. During the interviews, I took brief notes on themes and impressions that arose (Miles & Huberman, 1994). These notes allowed me to refer back to my thoughts as they were occurring, instead of trying to recreate the situation later. During the interview, each student was periodically provided with a summary of the information gathered up to that point in the interview to determine if the information was accurate and what, if any, changes should be made to the summary. This was done to improve the credibility of the interview data.

Data Analysis

Each interview was transcribed verbatim and text passages were coded manually with word processing software. The four interviews produced a total of 64 pages (22,831 words) of text.

The purpose of the interviews was to 1) capture and better understand students' gambling experiences based on especially salient incidents and 2) provide additional data that could help explain findings from the quantitative analyses. Thus, various techniques associated with content analysis were used to code the data, including clustering, counting, comparing and contrasting. Descriptive matrix displays were used to aid in understanding and organizing the data (Miles & Huberman, 1994). The process started with open coding. During this phase a combination of inductive and deductive approaches was used to code the data. Codes are labels used to assign meaning to passages of text with relevance to the research questions (Miles & Huberman, 1994).

A priori organizational domains based on the research hypotheses deductively guided the collection and analysis of the data and served as categories for data analysis. A provisional codebook was developed drawing on the original hypotheses and organized into two domains: gambling behaviors and media exposure. I then read each interview to inductively identify additional themes developed by the participants' responses (Pope, Ziebland, & Mays, 2000). The codebook was modified as new codes emerged and other codes were identified as redundant or unnecessary. Thus, the final codebook was developed from a priori hypotheses but also grounded in the participants' experiences through the data (Appendix H).

The initial codebook was then presented to two graduate research assistants who were instructed on how to apply the codes. After receiving instruction on how to code the interviews, each research assistant was given one interview to code independent of the researcher. I then reviewed the coding with each research assistant; disagreements in coding were discussed, consensus was reached on most codes, and minor adjustments made to the codebook. Each research assistant was then given another interview to code; two interviews were coded by all researchers and two interviews were coded by the researcher and one research assistant.

I examined each coded version of the interviews for disagreements. In most cases raters disagreed on which subcategory best applied to a passage or two raters disagreed on whether or not there was enough information in a particular passage to apply a code (i.e. too much inference is needed to apply a code). In all of these cases, the group reached consensus on the appropriate code to apply. A very few passages were in disagreement over whether or not the passage fit the definition of a particular code. In these cases, consensus could not be reached. Out of 754 passages coded, researchers could not reach consensus on only 14 (2%) passages. After some

discussion, two additional codes were suggested by the research assistants, and all interviews were recoded by two researchers independently to apply the new codes. The researchers came together after coding was completed to discuss any disagreements and come to consensus about the appropriate codes to apply to each passage. After this process was complete there were no passages left on which the researchers disagreed.

In the next phase of analysis, relationships among subcategories and categories within the two domains of Gambling Behaviors and Media Exposure were examined, using the data to either support or refute these relationships. In addition, categories were developed further as needed when the data indicated that events or thoughts took place under more than one condition or context (Corbin & Strauss, 1990). For example, the category “Perspectives” was further divided into the following subcategories: “Perspectives on Length of Play,” “Perspectives on Odds,” “Perspectives on Losing,” and “Perspectives on Play.” These processes continued until saturation was reached; saturation is the point at which information from the data no longer adds to the understanding of the domains and categories and when it appears that the categories and subcategories capture and describe the constructs of interest (Creswell, 1998) .

Once this initial examination of the categories and subcategories under the two domains (Gambling Behaviors and Media Exposure) was complete, a third matrix combining categories and subcategories from the two domains was developed to determine if passages from either domain could be assigned to cells from both domains. This allowed me to develop data based propositions about the influence of media exposure on gambling attitudes. For example, when discussing the meaning they took from specific advertisements for the lottery, students often

discussed their odds of winning the lottery, thus those passages were entered in the cell for “Perspectives on Odds” and “Lottery Advertisement Meaning.”

Intercoder Agreement

The reliability of the codebook was tested with all of the transcripts. The interviews were not pre-structured into codable sections prior to the open coding and thus were treated as continuous data by the coders. In addition, passages were coded into multiple categories or no categories at all. As a result, there were no pre-determined, discreet coding units or denominator from which to calculate a percentage agreement and chance agreement was low. Agreement was calculated by dividing the number of agreements by the number of instances the categories were used by either or both judges (e.g. used by coder 1 but not 2 + used by coder 2 but not 1 + used by both). Agreement was calculated for all codes separately. Agreement between each individual coder and the researcher and between the two additional coders was calculated, and then the average agreement for all coders was calculated.

According to Miles and Huberman (1994) coders should reach 80 – 90% agreement after training, which we were able to achieve for most codes (Table 10). Agreement improved on Strategies that Increase Addiction with the addition of the two new categories (“Perspectives on Money” and “Perspectives on the Future”).

Table 10
Intercoder Agreement

Code	% Agreement Coder # 1	% Agreement Coder # 2	% Agreement Coders 1 and 2	Average Agreement
Perspectives Pro Gambling	85%	76%	84%	82%
Perspectives Con Gambling	80%	94%	93%	89%
Process Feelings	80%	80%	62%	74%
Outcome Feelings	90%	85%	85%	87%
Strategies to Increase the Odds of Winning	73%	86%	73%	77%
Strategies to Decrease Losses	92%	88%	97%	92%
Media Perspectives	96%	72%	70%	79%
Gambling Influences Media Exposure	86%	86%	100%	91%
Media Exposure Influences Gambling	75%	93%	72%	80%
Perspectives on Money	94%	94%	100%	96%
Perspectives on the Future	100%	100%	100%	100%

Results

The purpose of the interviews was to 1) capture and better understand students' experiences with gambling and 2) provide additional data that could help explain findings from the quantitative analyses. This was achieved by structuring the interviews such that specific questions were asked related to the research hypotheses and also by allowing the research hypotheses to guide the data analysis. When conducting the interviews, I found that participants were not as comfortable talking about specific gambling sessions in detail as they were discussing their overall perspectives on their gambling behaviors. Also, when asked to discuss a specific gambling session and given the choice about what to discuss, all participants chose a session in which they won more money than expected; I had to probe for information about sessions in which the participants either lost a lot of money or played longer than expected

(although all participants had a session like that to discuss). Therefore, probes were used in each interview to gather information about gambling sessions with negative consequences.

Demographic and Other Descriptive Information

Four students participated in the interviews that were analyzed. Three of the students interviewed were male. Of the male participants, one identified as Asian/Pacific Islander, one as White/Non-Hispanic, and the third as Black/Non-Hispanic; the female student identified her ethnicity as Black/Non-Hispanic. The students' ages ranged from 21 to 25, all were enrolled full-time at GSU, and all were recruited through the Psychology Department's research participant pool. Each student had a "game of choice" (GOC), meaning a game they preferred to play and that they played most often. Table 8 lists basic information about each student's gambling behaviors.

All four students produced scores on the NODS indicating that they were "problem gamblers" and three out of the four endorsed "chasing" (attempting to win back money lost in a previous game), which is an activity specifically captured by the NODS; however, descriptively the students were quite different. For example, D and J participated in low-stakes gambling only, whereas S and M participated in high stakes gambling at least some of the time. D and J only played with friends and perceived gambling to be a fun or competitive activity in which to participate with friends. Both S and M played with friends and strangers and they both reported gambling to make money. In fact, M reported that he participated in internet gambling in lieu of getting a job: "I'm decent at it, so it's a good way to make money for me. And so I don't have to get a job". D and J both had specific strategies for deciding when to end a session of gambling; D reported that she stopped playing once she lost about half the money that she brought to the

game and J reported stopping once he lost \$60. Neither S nor M had a specific strategy for deciding when to end a session. In fact, S stated that "...when I decide to play one night I'm not leaving until everybody leaves," which means that he often played up to twelve hours per session. M reported that he ends a session when "I'm losing" but was unable to identify a specific dollar amount that indicates to him it is time to stop playing.

Finally, D and J both stated that losing money was a potential drawback to gambling, whereas S and M indicated that they do not worry about losing money: "It's good to be 18. I don't really worry about it [losing money]" and "If I lose I lose I've learned how to live with that." Also, both S and M reported that they do not think of the chips (S) or the number on the computer screen (M) as money:

Like when you play cards like I don't see the chips as money – I'm just betting chips. So like I don't have a thought of worrying about money when I play.

Cause like on things like internet poker you just see a number on the screen. And if you got that money in your hand you would not do what you're doing now, but it's just a number basically. And so when you get that money in your hand you're like "...dang I was bluffing with half of this money!" And if you just had that money while you were playing you would never do some of the things you do. That's the cool thing about it, cause it's not like it's real money but it is real money. It's just a number on the screen, like when you're playing you don't think of it as 10 \$100 bills at all. You just don't think of it that way. I don't know why, you just don't.

However, this lack of perspective on the value of money does concern them:

But I mean like poker's got me thinking of money too easily. You know when I was young I used to think "\$100, that's a lot." But these days I'm like you know "Oh that's \$100." You know the way I think of money has changed me.....I: Okay. So now to you \$100 is nothing? P: Yeah, it's like 10 bucks to me.

Neither D nor J reported any concerns about their gambling behaviors, but S and M both discussed their fears of becoming addicted to gambling:

I hate it but then I can't get away from it... you know it's like cigarettes when people are trying to quit...it's the same thing... I can't get away from it.

I know there's gonna be a period when I start losing a lot of money, I hope I'll be able to stop it. Stay up, but we'll see.

M also recognized that he has built a tolerance to higher wagers:

Right now I can play no load \$200 and it'll be exciting. But I'm sure once I win more money I'll keep on going up and no load \$200 will be like a live game, it won't be fun. And so, which is terrible, but I guess it's just how the brain works, and so... And so I'm sure I'll get to the point where I have to play no load \$1000, which will probably be my downfall.

Table 11
Students' Reported Gambling Behaviors

	D	J	S	M
Stakes	Low (50cents - \$1)	Low (\$1)	Low to high (\$2 – 5 up to \$500)	High (\$200 and up)
Games Played <i>GOC</i>	<i>Dominoes</i> , scratch offs, lottery, sporting events	<i>Poker</i> , scratch-offs, lottery, "anything"	<i>Poker</i> , gambling machines, lottery	<i>Internet poker</i> , lottery
Age 1 st Played	16	16	18	14 (16 for money)
Introduced by	Uncle, friends	Aunts, friends	Friends	Friends
Plays with	Friends	Friends	Friends and strangers	Friends and strangers
Frequency/ Intensity	5 - 6x/week; 4hrs/session	1+x/week until loses \$60	1x/week; 12hrs/session	Every day; 3 - 10hrs/session

Table 12
Students' Reported Media Exposure

	D	J	S	M
Location	Convenience stores, TV, internet, movies	TV, news, gas stations, billboards, movies, internet, fliers (GSU and restaurants),	Billboards, gas stations, convenience stores, internet, TV, movies, fliers (GSU and bars)	Billboards, magazines, convenience stores, grocery stores, TV, books, fliers (bars)
Content	Winning tickets, GA Lottery ads, gambling website ads, poker tournaments	Winning tickets, GA lottery ads, gambling website ads, fliers/poker, poker tournaments	Winning tickets, GA lottery ads, gambling website ads, fliers/poker, casino ads, poker tournaments, movies	Winning tickets, GA lottery ads, gambling website ads, fliers/poker, casino ads, poker tournaments, how to books
Frequency	Lottery = daily Poker = 4x/month	Lottery = "all the time" Poker = 1x/month Movies = 3/year News coverage = "occasional" Website ads = 1x/month	Lottery = daily Poker = daily Movies = 10/year Billboards = "a lot" In-store = 1x/wk	Poker = 4x/wk Magazines = "more than ever before" Casino ads = 3x/wk Website ads = "all the time"

Table 13
Meanings Derived from Gambling-Related Media

	D	J	S	M
Poker Tournaments	Doesn't relate to me; don't understand	Fun	Learning; rush; easy life; \$ on table = let's play	Entertainment; learning; if I was a millionaire I'd play a lot too; they must have \$ to throw around
Lottery Ads	How much they actually won; somebody got lucky; I never win	Huge number, might as well try; lots of options; try to win big \$; don't see me winning	I don't care; why can't I hit it; that's the devil; large \$\$ = I'll try it	Chances of winning are low
Meaning Movies		Gambling is common in some areas, gambling is a way of life	Realistic, but not for me ; gambling like that can get you in trouble	
Gambling Influences Decision to Watch Media	Watch poker to learn	I like poker and I like celebrities, so I watch; never looked for media b/c I wanted to gamble; I can learn	Played cards before tournaments started; did not look for media b/c wanted to gamble	Watch b/c I want to get better; playing poker has increased my desire to watch poker
Media Influences Decision to Gamble	Watching poker has increased my interest in learning how to play; wants to play after seeing Baby Boys and winning tickets	I want to play and try new things out; the large \$ made me gamble (lottery)	Billboard has to make me want to play; watching tournament = want to play	Let's see if I can win (scratch offs); when I see poker, something clicks in my head and I want to play

The Experience of Gambling

When talking about specific gambling sessions, students described the experience as “excitement,” “you feel alive;” “the best feeling in the world;” similar to riding “roller coasters” and “a challenge.” D stated that the competition is what she enjoys most about gambling:

There’s the competition and then the money’s great. But it’s more so....winning and beating them like “Yeah I did it.” Like “Naa, naa, naa, naa.”

J described liking the “ups and downs” of gambling:

It’s just the not knowing, you know? That’s what makes the game fun, you know? I don’t know what’s going to happen next.

For both S and M gambling is fun and a way to make money:

So like... it’s pretty fun to gamble, cause I like gambling anyway. When we play basketball like we shoot for money, stupid stuff like that. It’s just fun....It’s like winning is getting money.

I’m decent at it, so it’s a good way to make money for me. And so I don’t have to get a job. And then for me it’s fun to play. Especially when you get big hands. It makes your heart rate go faster to make sure you’re not losing so much money and then when you win it you’re like...I just like it, cause it makes my adrenaline pump.

For M, gambling can also be scary: “Poker’s definitely a little scary, I’m not gonna lie. It scares me, but it’s still fun.

The Experience and Perceptions of Gambling Related Media

Students frequently see a variety of gambling related media (Table 12). All of the students have seen their game of choice presented in the media and all reported seeing their game of choice in the media at about the same time that they started playing that game. However, all of the students reported that they were introduced to various gambling activities by either friends or

relatives, not by gambling portrayed in the media. When viewing gambling advertisements, only

D and S indicated that they evaluate the messages critically:

...the odds aren't that high so when I see 'em I always look at like the amount that that person has won and how much they actually paid, so how much they really got. [lottery tickets]

That's the devil [lottery billboard] I mean what's the... I mean like one out of how many million or billion? So it's like... you put money up there of course you're going to buy into it. I don't like it.

Three of the students indicated that exposure to gambling-related media normalizes gambling such that they perceive "everybody does it:"

I don't want to say....it's a part of our culture cause everybody bets but I don't know I guess they're portrayed more like that and that's what I think black people... I would have to say yes....like I've never been to the casinos, I've never been to Vegas, but I know everybody plays poker.

I think it was more or less...it wasn't a positive or negative message, it's just you know in certain areas and places in America there's just gambling, you know? And it's not that you're expected to gamble, it's just that gambling is kind of like a common thing there.

Only S reported getting a message from gambling-related media that could warn against playing or betting large amounts of money, but he later stated that although he believes that large amounts of money can be lost gambling, he does not believe it can happen to him:

Like, of course, that movie [Rounders]... Gambling like that can get you in a lot of trouble. Like...let's see...he was down like \$20,000? When I watch that I always think that I don't want to be in his situation. I don't want to gamble that much.

All of the students have seen advertisements for the Georgia Lottery and all of the students have played the Georgia Lottery, even though they do not perceive that game as winnable and they recognize that the odds are against them when they see the advertising:

I'm just like "Man... if I played the lottery I'm so far off!" I don't see me winning at the lottery.

That's the devil [lottery billboard] I mean what's the... I mean like one out of how many million or billion?

That would be nice to win, but the chances of winning that are very very unlikely.

At the same time, all of the students reported seeing Georgia Lottery ads and immediately buying a ticket, primarily due to the influence of the large amounts of money to be won:

Every once in a while I get the urge. Yeah and like the cards where someone has won like thousands.... like one time I went in the convenience store and there was a card theresomeone won like \$3000....I thought "Wow maybe I should get one from here."

...and it's in those huge numbers and you're just like, "I've gotta go out and get one." [lottery ticket] Five hundred million? Come on!

Yeah, it has to. When I saw the money up there [lottery billboard] I was... "I'll just try it." The last time I played mega million was when it was up to like \$256 million... \$300 million... something like that.

...and I'll just see them and I'm like "I've got \$5 to spend, so why not?" See if I can get lucky. [scratch-offs/lottery]

Lottery advertising is not the only media that promotes large amounts of money to be won. Students discussed how the large pots available at the televised poker tournaments have affected them:

...so I think if I could play cards for that much money that would be nice [poker tournaments].... I guess to see how much they've won just playing cards it's like "wow!"

I: What do you think...what about that made you call your friend up and say "Hey let's go play some cards?" P: When I saw the money sitting in front of him... I mean, \$12 million? Is it \$12 million? Something like that in front of him and so that's a lot of money.

All of the students, with the exception of D, whose game of choice was dominoes, starting watching televised poker tournaments the year they first aired. The three male students

all indicated that watching poker tournaments is “exciting,” “fun,” and “entertaining.” J stated that he watched celebrity poker tournaments because he enjoys watching celebrities “just kind of show that they’re regular people too.” S and M both indicated that they watched poker tournaments as a way to learn how to play better poker:

Yeah, I mean it’s not like the way they play it but how they play it. What they do with their hand. Like if they’re gonna bluff how much they will bet to bluff and stuff like that like.... Just their odds. If you count the pot odds and stuff the way they do it you can learn a lot.

It helps me more of...like the amounts to bet when I’m bluffing and what cards to play and how to play them. But...I’ll tell you it helps more on live poker than it does on internet poker.

The Effect of Gambling-Related Media on Behaviors

When asked directly if they have ever sought out gambling related media because they had a desire to gamble, all of the students responded negatively (Table 13). However, during the course of discussion about televised poker tournaments, both S and M indicated that they watched the poker tournaments as a way to learn how to play better poker (above).

When asked directly if they remembered deciding to gamble immediately after seeing gambling related media, all of the students replied in the affirmative:

I remember watching the movie Baby Boys and they were playing dominoes and I was like “I want to play dominoes.”

...the number up there of how many millions you could win....“I’ve got to become a millionaire,” and that’s what made me gamble.

...cause you’re learning new strategies from the TV, remember? So, that would make me want to play more.....I want to go try this one out and see what happens.

When I saw the money up there I was... “I’ll just try it.”

The only thing is every time I watch I actually want to play poker...last year when this guy won....and then I was like “Man I want to go play some cards.”

Usually when I see poker I’ll usually... like something clicks in my head that makes me want to play, and so...

CHAPTER 4: DISCUSSION AND FUTURE DIRECTIONS

This study tested a model in which both subjective norms about gambling and exposure to gambling-related media influence college students' expectancies about gambling and gambling behaviors. The model was a good fit with the female college student data and it fit the male college student data reasonably well. The final multi-group model accounted for 35.2% of variance in male student gambling behaviors and 27.8% of variance in female student gambling behaviors.

Subjective Norms

The perception by both male and female students that family, friends, and others in their lives have negative attitudes towards gambling was associated with increased negative expectancies about gambling. Negative expectancies about gambling were associated with participation in fewer gambling activities by female students; however negative expectancies were not associated with male student gambling behaviors.

Surprisingly, there was a statistical trend indicating that as the number of negative expectancies held by male college students increased, their participation in gambling activities also tended to increase. On average, the male students in this study had fewer negative expectancies about gambling than the female students, so it appears that expectations of negative consequences for gambling were not as salient for the male students as they were for the female students. This finding is consistent with previous research (Tiell, 2004; Walters & Contri, 1998; Wassarman, 2001), which found that expectancies about risk-taking and the negative effects of gambling were strongly correlated with reported gambling. Further study using longitudinal data is needed to better understand this association.

The hypothesis that pro-gambling subjective norms would be directly and positively associated with gambling behaviors was not supported; however there was a positive association between subjective norms and positive expectancies for female students. Overall, it appears that subjective norms have a strong, indirect influence on female students' reported gambling activities through both positive and negative expectancies about gambling. Subjective norms do not appear to be associated with male college students' gambling behaviors: although they were positively associated with male students' negative expectancies, negative expectancies about gambling were not associated with male students' gambling behaviors, indicating that males students gamble in spite of their perception that others believe they should not gamble. Previous research (Andrews, Hampson, Barckley, Gerrard, & Gibbons, 2008; Taylor, Bagozzi, & Gaither, 2001) using the Theory of Reasoned Action has also found that female behaviors are more likely to be influenced by perceived subjective norms, possibly because female adolescents have greater concerns about rejection and a greater need to be popular. Future research may want to examine more closely how perceived subjective norms affect male and female expectancies about gambling and their participation in gambling activities.

Media Exposure

Greater exposure to gambling-related media was positively associated with gambling behaviors by both male and female college students. All of the students interviewed for the qualitative portion of this study indicated that gambling-related media have at some point had a direct influence on their desire to gamble: D reported that it happened while she was watching a movie; all students reported that they decided to buy a ticket or scratch-off when they saw billboards and/or in-store advertising for the Georgia Lottery; both S and M reported that they

have started poker games after watching a poker tournament (“usually when I see poker....something clicks in my head that makes me want to play”). These appear to be impulsive decisions that are made at the moment when gambling-related media are seen.

The alternative model suggested that the opposite may also be also true: students who gamble may be exposed to more gambling-related media. Some possible reasons why students who gamble may have greater exposure to this type of media may be that these students: 1) actively seek out gambling-related media, 2) are more likely than non-gamblers to notice gambling-related media, and/or 3) are more likely to be in a position to be exposed to certain kinds of gambling-related media.

The qualitative interviews supported this hypothesis as well, but only for televised poker tournaments. Both S and M, avid poker players, reported that they watched televised poker tournaments frequently, because they believed that they could learn new strategies for playing poker that would increase their odds of winning future games. D and J also reported watching televised poker tournaments because they enjoyed gambling and believed they could learn from watching others play the game. Selective or motivated viewing of specific media content has been shown to moderate the effects of media violence on aggressiveness in male viewers (Greene & Krcmar, 2005; Haridakis, 2006). In fact, the “uses and gratifications” theory of media exposure on behavior posits that individual characteristics, such as gender, motivation, previous experience with a particular behavior, perceived realism of media content and involvement with specific media may moderate the effect of media on behaviors (Greene & Krcmar, 2005; Haridakis, 2006). Students’ responses in the qualitative interviews indicated that future research may want to examine more closely the effects that motivation, perceived realism,

involvement, and previous experience with specific forms of gambling have on students' perceptions and use of gambling-related media. For example, all of the students in the qualitative interviews, including D, indicated that they remembered seeing their game of choice in the media. However, D's game of choice was dominoes, which is not portrayed as frequently as other forms of gambling, and may indicate that she is more likely to attend to portrayals of dominoes than students who do not play that game. These moderating factors were not measured in this research, but the results suggest that future research is needed to examine individual psychological factors and their potential moderating effects on exposure to and uses of gambling-related media.

However, the direct effect of gambling-related media on students' gambling behaviors most likely will remain significant, as all four students reported a greater number and variety of gambling-related media that had a direct influence on their decision to gamble; the only media they reported seeking out because of their desire to gamble was the televised poker tournaments. So, although information from the quantitative and qualitative analyses indicated that the direction of effect for gambling-related media and gambling behaviors may go both ways and/or that individual psychological factors may affect students' attention to and use of media, it did so primarily for televised poker tournaments.

As expected, exposure to gambling-related media was positively associated with positive expectancies about gambling for the male students. This is consistent with previous research, which has demonstrated that youth exposed to media portrayals of drinking or smoking are more likely to have positive expectancies about those behaviors (Austin et al., 2006; Austin & Knaus, 2000; Austin & Meili, 1994; Tickle et al., 2006). However, exposure to gambling-related media

was not associated with positive expectancies about gambling for female students. Research has demonstrated that youth who identify with actors portrayed in advertising are more likely to have positive expectancies about drinking (Austin et al., 2006; Austin & Knaus, 2000; Austin & Meili, 1994). Since most gamblers portrayed in the media are male (Dement, 1999), it is possible that female students were less likely to identify with them, and therefore less likely to develop positive expectancies about gambling as a result of seeing gambling portrayed in the media.

As predicted, positive expectancies about gambling were positively associated with participation in gambling activities for both male and female students. Similar findings have been found for expectancies about gambling behaviors in a prison population (Walters & Contri, 1998) and with college students (Wassarman, 2001), as well as for expectancies about alcohol and other risky behaviors (Fromme et al., 1997; Jones et al., 2001). Wassarman (2001) found that expectancies accounted for 29% of the variance in South Oaks Gambling Screen (SOGS) scores, and that expectancies about risk-taking, arousal and negative effects of gambling were most strongly correlated with SOGS scores.

Female students had a greater number of positive expectancies about gambling if they perceived that others hold positive attitudes towards gambling, whereas male students had more positive expectancies about gambling if they had more exposure to gambling-related media. Social learning theory posits that one is more likely to be motivated to participate in an observed behavior if that behavior results in positive outcomes, and one can learn about positive outcomes through personal experience, by watching others, or by seeing positive outcomes portrayed in the media (Bandura, 1986, 2001). Media portrayals of gambling rarely show negative consequences from gambling, and when they do show negative consequences they often later show the gambler

reclaiming any losses by continuing to gamble (Clotfelter & Cook, 1989; Dement, 1999). Any lessons that students might learn about possible negative consequences from gambling are lost when the gambler is later “saved” by gambling his way out of those earlier consequences (Dement, 1999).

Social learning theory also posits that emotions can become associated with a behavior through observation, which may increase positive expectancies (e.g. “I feel excited”). Students reported in their interviews that watching televised poker tournaments was “exciting” and “fun” and S stated “I get a rush” similar to the rush he reported getting when playing poker. In addition, if rewards are seen to occur intermittently, rather than every time an actor engages in a behavior, and if the rewards are large (e.g. lottery winnings, the winning “pots” in televised poker tournaments) then the observer is likely to be more motivated to engage in the behavior and exhibit more perseverance in the face of loss (Bandura, 1986). During the interviews, all students reported that seeing the large amounts of money others have won influenced their decision to play and all students reported understanding that winning is uncertain or likely to occur intermittently. All of the students also responded to the NODS in a manner indicating that they may have some problems with gambling, which may be driven in part by the expectations they have derived about gambling from watching others gamble in the media.

Results of this study indicate that future research is needed to better understand the effect of gambling-related media on students’ expectancies about gambling and their gambling behaviors. The increase in access to gambling and the increase in media portrayals of gambling have helped gambling become an accepted leisure activity in the US. This research indicated that students see gambling-related media frequently; in fact they reported seeing advertising for their

state-run lottery several times each week. This research also demonstrated that, similar to alcohol- and smoking-related media, gambling-related media have an effect on students' attitudes and behaviors. Future research is needed to confirm these findings and better understand the relationship between gambling-related media and student gambling problems. Future research should also evaluate ways to counteract the effects of positive and often unrealistic portrayals of gambling and its consequences so that students can make more informed decisions about whether or not to gamble.

Cultivation Theory

Cultivation theory, which posits that attitudes towards a particular behavior may be affected by total media exposure time, was not supported by this research. The measures of total TV viewing time and internet surfing time were not associated with any other variables in this data set. It is likely that, although the amount gambling-related content in the media has increased significantly in the past few years, the total amount of gambling-related content in the media is not great enough at this time to have a cultivation effect on those who spend a lot of time watching TV. In addition, the gambling-related media that is shown on the TV and the internet tends to be confined to specific channels and websites (although this is rapidly changing). Future research may want to examine this theory again in relation to gambling, but this study provides stronger support for Social Learning Theory.

Theory of Reasoned Action

Cummings and Corney (1987) proposed that Fishbein's (1975) Theory of Reasoned Action (TRA) may help explain participation in gambling activities. The TRA was partially supported by this research, in that positive attitudes towards gambling were associated with

participation in a greater number of gambling activities. However, subjective norms did not have a direct effect on gambling activities, as proposed by TRA; this research indicates that subjective norms may have an indirect effect on gambling activities through attitudes, which provides additional support for Social Learning Theory.

Social Learning Theory

Of the three theories proposed as possible explanations for participation in gambling activities, Social Learning Theory received the most support. Based on this research, it appears that female college students develop attitudes towards gambling from friends, family and others (e.g spiritual leaders, teachers) in their lives, and these attitudes in turn are associated with participation in fewer (negative attitudes) or greater (positive attitudes) participation in gambling activities. Although male college students' negative expectancies were associated with anti-gambling subjective norms, negative expectancies were not associated with male college student gambling activities; as well, pro-gambling subjective norms were not associated with positive expectancies for male college students.

On the other hand, male college students appear to develop positive attitudes towards gambling by watching gambling-related media; although male college students who play poker appear to watch more poker tournaments on TV, overall male college students' exposure to gambling related media was positively associated with positive expectancies about gambling. Female college students, however, do not appear to develop new attitudes about gambling from watching the media, which may be due in part to the fact that movies, TV series and poker tournaments tend to portray only males as gamblers, so female college students are less likely to identify with the actors in this type of media.

Defining Problem and Pathological Gambling

Students who participated in the qualitative interviews scored a 3 or 4 out of 10 on the NODS, indicating that they were all “problem gamblers;” however the four students reported qualitatively different experiences with gambling. Based on this preliminary qualitative research, it appears that future research is needed to determine what constitutes “problem” gambling. Examining the behaviors of the students interviewed for this research, it appears that playing to make money, rather than playing for fun or competition, playing for “high” rather than “low” stakes, and not having specific strategies for deciding when to end a session of play may be better predictors of a progression toward pathological gambling than spending a lot of time thinking about gambling or “chasing” (trying to win back money previously lost). In fact, to meet DSM-IV criteria for pathological gambling, one must endorse five out of 10 potential symptoms related to pathological gambling; however each symptom is qualitatively different with some of the criteria indicating a significantly greater degree of problematic functioning than others (e.g. preoccupation with gambling vs. committing crimes to finance gambling). Future longitudinal and/or qualitative research may help to better define what constitutes “problem” gambling. If current DSM-IV criteria continue to be used to determine if participants are problem or pathological gamblers, researchers may want to assign weights to specific symptoms in order to account for the perceived difference in severity of each symptom.

Limitations

As with all cross-sectional data, results from this research cannot prove causation: it is possible that participating in gambling activities influences students’ viewing of gambling-related media and their perception of gambling subjective norms. In fact, the alternative model

that I tested had reasonable fit with the data, although the fit was not as good as that of the hypothesized model and it explained less variance in gambling behaviors; also students indicated in the qualitative interviews that they sought out televised poker tournaments as a way to improve their skills at poker. However, the students also stated that they do not seek out any other media related to gambling, and this other media (e.g. billboards, in-store advertising) appeared to be seen more frequently and also to be more likely to influence impulsive decisions to play.

Results of the structural equation modeling must be interpreted with caution as the data were not normally distributed. Conducting SEM with non-normal data increases the chance of model rejection, because estimated standard errors and test statistics tend to be inflated (Nevitt & Hancock, 2001; Zhu, 1997). Both bootstrapping and standard estimating procedures were used in the analysis of this data and both resulted in standard error estimates that were exactly the same, indicating that the skew and kurtosis present in the data were not large enough to affect the standard error estimates. However, results must be interpreted with caution, as standard error estimates are not as reliable as those obtained using normally distributed data, and there may have been less power to reject a misspecified model (Nevitt & Hancock, 2001).

Future Research

Results of this study indicate that future research is needed to better understand the effect of gambling-related media on students' expectancies about gambling and their gambling behaviors. Specifically, longitudinal research is needed to clarify the direction of effects and/or to test transactional model that include reciprocal causal paths. It appears that some media (e.g. in-store advertising) are more likely to encourage impulsive gambling decisions, whereas other

media (e.g. televised poker tournaments) may be watched more frequently because gamblers are drawn to it, but may also influence students' desire to participate in gambling activities. Possible moderating factors, such as motivation, involvement, and perceived realism should be examined to improve our understanding of who is most likely to be affected by gambling-related media and how students use the information that they receive from the media. Research in this area may be helpful in developing prevention efforts designed to counteract the effects of gambling-related media exposure. Future research should also examine more closely how perceived subjective norms affect male and female expectancies about gambling and their participation in gambling activities.

Implications

This research has implications for prevention, treatment and policy related to gambling-related media and awareness of gambling problems. Research on the effects of smoking and drinking in the media has led to reductions in the amount of drinking and smoking seen on TV and in the movies and restrictions on smoking- and alcohol-related advertising. It has also led to the creation of media literacy campaigns, anti-smoking advertisements and responsible drinking campaigns directed at children and adults to help counteract the predominantly positive messages seen in the media about smoking and drinking. This research and other recent research (Lee, Lemanski, & Jun, 2008) indicated that similar measures are needed for gambling-related media. In particular, the qualitative interviews suggested that limitations on the amount and/or viewing times of poker tournaments may be warranted as this was one form of gambling-related media that all students endorsed watching and is currently shown on television starting at 3:00PM. Policymakers may also want to consider restrictions on in-store advertising for state lotteries, as

this type of advertising was reportedly seen most frequently by students in both the quantitative and qualitative portions of this research and was also endorsed by all students in the qualitative interviews as an immediate and direct influence on their decision to gamble.

In addition, increased public awareness of the potential problems associated with excessive gambling is also needed, as female college students apparently get a significant amount of information and attitudes about gambling from friends, family, and others. Parents should be aware of both the problems associated with gambling and the potential influence that gambling-related media may have on their children so that they may make informed decisions about the activities that their children participate in and the types of media that they view. This research also demonstrates the pervasiveness of gambling-related media, which has implications for treatment professionals as those who are in treatment for problem gambling will be exposed to potential “triggers” for relapse daily through the media.

Finally, policymakers may want to consider national restrictions on the legal age for gambling, similar to those imposed on drinking. The students who participated in the qualitative interviews indicated that they started gambling for money as early as age 14. Although most states restrict gambling to those age 16 or older, research has shown that increasing the legal drinking age to 21 has significantly reduced the number of deaths related to alcohol among youth. The decision to increase the legal drinking age was based partially on research that indicated that adolescents and young adults are particularly vulnerable to the effects of addictive substances, and gambling problems have been shown to exist with greater prevalence in adolescent populations (Jacobs, 2000, 2004).

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APPENDICES

Appendix A: Demographic Questions

For descriptive purposes, please provide us with the following information:

- 1) Date of birth _____
- 2) Gender: Male/Female (circle one)
- 3) State of residence _____
- 4) Your estimated annual income:
 - \$0 - \$25,000
 - \$26,000 - \$50,000
 - \$51,000 - \$75,000
 - \$76,000 - \$100,000
 - Over \$100,000
- 5) Your parents' estimated annual income
 - \$0 - \$25,000
 - \$26,000 - \$50,000
 - \$51,000 - \$75,000
 - \$76,000 - \$100,000
 - Over \$100,000
- 6) Of what ethnicity/ethnicities do you consider yourself?

- 7) Do you have access to the internet: (check all that apply)
 - At school At home At work Someplace else...where? _____
- 8) Do you participate in organized sports activities? (check all that apply)
 - No
 - Yes – at my church/place of worship
 - Yes – at a neighborhood recreation center
 - Yes – in a community or city sports league
 - Yes – I am a student athlete at GSU
 - Yes – other (where?) _____

9) Check which of the following people in your life you believe has (or had) a gambling problem.

_____ Father

_____ Mother

_____ Brother/Sister

_____ My Spouse/Partner

_____ My Child(ren)

_____ Another Relative

_____ A Friend or Someone Important in My Life

_____ No one

Appendix B: Gambling Activities

Please indicate how often you usually participates in each the following types of activities **during the past year**. Please keep in mind that when we say “gambling” we are referring to times when you wager money or other items of value in order to participate in an activity with an uncertain outcome. For example, we would include buying a lottery ticket, paying to play bingo, going to a casino or playing cards for money with friends.

	Never	Once/ Year or Less	Every 6 months or so	Every 2 -3 Months	1 -2 Times/ Month	Once/ Week	2 – 3 Times/ Week	Daily
Played poker on the internet	0	1	2	3	4	5	6	7
Gambled on the internet (other than poker)	0	1	2	3	4	5	6	7
Played poker	0	1	2	3	4	5	6	7
Played other card games	0	1	2	3	4	5	6	7
Bet on horses, dogs or other animals (at OTB, the track, or with a bookie)	0	1	2	3	4	5	6	7
Bet on sport (parlay cards, with bookie)	0	1	2	3	4	5	6	7
Bet on sport (office pool, with friends)	0	1	2	3	4	5	6	7
Played dice games (e.g. craps, over and under)	0	1	2	3	4	5	6	7
Gambled at a casino	0	1	2	3	4	5	6	7
Played the numbers	0	1	2	3	4	5	6	7
Played lotto-type lottery games	0	1	2	3	4	5	6	7
Played the daily lottery	0	1	2	3	4	5	6	7

Played scratch-offs	0	1	2	3	4	5	6	7
Played Keno	0	1	2	3	4	5	6	7
Played Bingo	0	1	2	3	4	5	6	7
Played the stock and/or commodities market	0	1	2	3	4	5	6	7
Played gambling machines (e.g. slot machine, poker machine)	0	1	2	3	4	5	6	7
Played a game of skill (e.g. bowling, pool, golf, shooting hoops)	0	1	2	3	4	5	6	7
Played pull tabs or "paper" games other than lotteries	0	1	2	3	4	5	6	7
Raffles, casino nights or other small stakes charitable gaming sponsored by schools, clubs	0	1	2	3	4	5	6	7
Cockfights and/or dogfights	0	1	2	3	4	5	6	7
Some form of wagering not listed above (please specify):	0	1	2	3	4	5	6	7

2) What is the largest amount of money you have ever gambled with on any one day?

- Never gambled
- Up to \$10.00
- More than \$10.00 up to \$100.00
- More than \$100.00 up to \$1,000.00
- More than \$1,000.00 up to \$10,000.00
- More than \$10,000.00

3) How much do you wager in a typical week?

4) Do you play poker, but not for money or any items of value?

YES

NO

If yes, where? (e.g. internet, friend's home, bar etc.)

5) Do you participate in any other activity that is often called "gambling" but not for money or any items of value (e.g. poker, blackjack, roulette, etc.)?

YES

NO

If yes, where? (e.g. internet, friend's home, bar, etc.)

Appendix C: NODS

1. Have there ever been periods lasting two weeks or longer when you spent a lot of time thinking about your gambling experiences or planning out future gambling ventures or bets?

YES

NO

2. Have there ever been periods lasting two weeks or longer when you spent a lot of time thinking about ways of getting money to gamble with?

YES

NO

3. Have there ever been periods when you needed to gamble with increasing amounts of money or with larger bets than before in order to get the same feeling of excitement?

YES

NO

4. Have you ever tried to stop, cut down, or control your gambling?

YES GO TO 5

NO GO TO 8

5. On one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable?

YES

NO

6. Have you ever tried but not succeeded in stopping, cutting down, or controlling your gambling?

YES GO TO 7

NO GO TO 8

7. Has this happened three or more times?

YES

NO

8. Have you ever gambled as a way to escape from personal problems?

YES

NO

9. Have you ever gambled to relieve uncomfortable feelings such as guilt, anxiety, helplessness, or depression?

YES

NO

10. Has there ever been a period when, if you lost money gambling one day, you would return another day to get even?

YES

NO

11. Have you ever lied to family members, friends, or others about how much you gamble or how much money you lost on gambling?

YES GO TO 12

NO GO TO 13

12. Has this happened three or more times?

YES

NO

13. Have you ever written a bad check or taken something that didn't belong to you from family members or anyone else in order to pay for your gambling?

YES

NO

14. Has your gambling ever caused serious or repeated problems in your relationships with any of your family members or friends?

YES

NO

15. Has your gambling caused you any problems in school, such as missing classes or days of school or your grades dropping?

YES

NO

16. Has your gambling ever caused you to lose a job, have trouble with your job, or miss out on an important job or career opportunity?

YES

NO

17. Have you ever needed to ask family members or anyone else to loan you money or otherwise bail you out of a desperate money situation that was largely caused by your gambling?

YES

NO

COMPLETE THIS SECTION ONLY IF YOU HAVE GAMBLED IN THE PAST YEAR.

18. [ANSWER ONLY IF 1=YES]

Since [current month][last year], have there been any periods lasting two weeks or longer when you spent a lot of time thinking about your gambling experiences or planning future gambling ventures or bets?

YES

NO

19. [ANSWER ONLY IF 2=YES]

Since [current month][last year], have there been periods lasting two weeks or longer when you spent a lot of time thinking about ways of getting money to gamble with?

YES

NO

20. [ANSWER ONLY IF 3=YES]

Since [current month][last year], have there been periods when you needed to gamble with increasing amounts of money or with larger bets than before in order to get the same feeling of excitement?

YES

NO

21. [ANSWER ONLY IF 4=YES]

Since [current month][last year], have you tried to stop, cut down, or control your gambling?

YES GO TO 22

NO GO TO 25

22. [ANSWER ONLY IF 5=YES]

Since [current month][last year], on one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable?

YES

NO

23. [ANSWER ONLY IF 6=YES]

Since [current month][last year], have you tried but not succeeded in stopping, cutting down, or controlling your gambling?

YES

NO

24. [ANSWER ONLY IF 7=YES]

Since [current month][last year], has this happened three or more times?

YES

NO

25. [ANSWER ONLY IF 8=YES]

Since [current month][last year], have you gambled as a way to escape from personal problems?

YES

NO

26. [ANSWER ONLY IF 9=YES]

Since [current month][last year], have you gambled to relieve uncomfortable feelings such as guilt, anxiety, helplessness, or depression?

YES

NO

27. [ANSWER ONLY IF 10=YES]

Since [current month][last year], has there ever been a period when, if you lost money gambling on one day, you would often return another day to get even?

YES

NO

28. [ANSWER ONLY IF 11=YES]

Since [current month][last year], have you more than once lied to family members, friends, or others about how much you gamble or how much money you lost on gambling?

YES GO TO 29

NO GO TO 30

29. [ANSWER ONLY IF 12=YES]

Has this happened three or more times?

YES

NO

30. [ANSWER ONLY IF 13=YES]

Since [current month][last year], have you written a bad check or taken money that didn't belong to you from family members or anyone else in order to pay for your gambling?

YES

NO

31. [ANSWER ONLY IF 14=YES]

Since [current month][last year], has your gambling caused serious or repeated problems in your relationships with any of your family members or friends?

YES

NO

32. [ANSWER ONLY IF 15=YES]

Since [current month][last year], has your gambling caused you any problems in school, such as missing classes or days of school or getting worse grades?

YES

NO

33. [ANSWER ONLY IF 16=YES]

Since [current month][last year], has your gambling caused you to lose a job, have trouble with your job, or miss out on an important job or career opportunity?

YES

NO

34. [ANSWER ONLY IF 17=YES]

Since [current month][last year], have you needed to ask family members or anyone else to loan you money or otherwise bail you out of a desperate money situation that was largely caused by your gambling?

YES

NO

Appendix D: Gambling Expectancy Questionnaire

Instructions: Please complete the following scale. If you do not gamble, please respond based on what you think would happen if you did gamble.

When I gamble, how likely is it that....

	No Chance	Very Unlikely	Unlikely	Neither Likely nor Unlikely	Likely	Very Likely	Certain to Happen
I have fun	1	2	3	4	5	6	7
I become more relaxed	1	2	3	4	5	6	7
I am surrounded by similar people	1	2	3	4	5	6	7
I stop being bored	1	2	3	4	5	6	7
I become distracted from my life	1	2	3	4	5	6	7
I only want to spend time with people who gamble	1	2	3	4	5	6	7
I escape all of my problems	1	2	3	4	5	6	7
I feel excited	1	2	3	4	5	6	7
I spend more money than I want to	1	2	3	4	5	6	7
I spend time with people I like	1	2	3	4	5	6	7
I make a profit	1	2	3	4	5	6	7
I become anxious or tense	1	2	3	4	5	6	7
My parents do not approve	1	2	3	4	5	6	7
I deal with boredom	1	2	3	4	5	6	7
I feel independent	1	2	3	4	5	6	7
I feel a rush	1	2	3	4	5	6	7
I feel guilty	1	2	3	4	5	6	7
I feel in over my head	1	2	3	4	5	6	7
I feel like gambling all the time	1	2	3	4	5	6	7
I take my mind off of my problems	1	2	3	4	5	6	7
I lose friends	1	2	3	4	5	6	7
I want to gamble more and more	1	2	3	4	5	6	7
I get hooked	1	2	3	4	5	6	7
I spend time with my family and friends	1	2	3	4	5	6	7
I shut the world out	1	2	3	4	5	6	7
I forget things I want to forget	1	2	3	4	5	6	7
I lose the trust of my family and friends	1	2	3	4	5	6	7

All I think about is gambling	1	2	3	4	5	6	7
I feel sad or depressed	1	2	3	4	5	6	7
I feel ashamed of myself	1	2	3	4	5	6	7
I enjoy myself	1	2	3	4	5	6	7
I win money	1	2	3	4	5	6	7
I get a thrill out of gambling	1	2	3	4	5	6	7
My friends and classmates think I'm cool	1	2	3	4	5	6	7
I lie	1	2	3	4	5	6	7

Appendix E: Media Exposure

1) How many hours do you normally spend watching TV during the following times?

	An Average Weekday	An Average Saturday or Sunday
7:00am – 3:00pm		
7:00am – 3:00pm		

3) How many hours do you normally spend surfing the internet **on an average weekday**?

4) How many hours do you normally spend surfing the internet **on an average Saturday or Sunday**?

5) Please tell us how often you remember seeing gambling promoted in the following types of advertisements.

	Never	Less Than Once/ Month	1 – 2 Times/ Month	Once/ Week	2 – 3 Times/ Week	Daily
Georgia Lottery Ads (TV, radio, billboard, newspaper, transit, magazine, internet)	0	1	2	3	4	5
In-store promotions for the Georgia Lottery	0	1	2	3	4	5
Flyers at the university for poker tournaments	0	1	2	3	4	5
Bar or restaurant flyers promoting poker tournaments	0	1	2	3	4	5
Casino Ads (TV, radio, billboard, newspaper, transit, magazine, internet)	0	1	2	3	4	5
Gambling Website Ads (TV, radio, billboard, newspaper, transit, magazine, internet)	0	1	2	3	4	5

6) Please tell us how often you usually watch the following kinds of television shows.

	Never	Less Than Once/ Month	1 – 2 Times/ Month	Once/ Week	2 or more Times/ Week
Televised poker tournaments (e.g. World Poker Tour)	0	1	2	3	4
Televised gambling instruction	0	1	2	3	4
TV shows about gambling or that contain gambling content (e.g. “Caesars 24/7,” “Las Vegas,” “American Casino,” “Tilt,” “The Casino”)	0	1	2	3	4

7) Please tell us how often you have watched the following types of news items about gambling in the past year.

	Never	Less Than Once/ Month	1 – 2 Times/ Month	Once/ Week	2 or more Times/ Week
News coverage of lottery winners	0	1	2	3	4
News coverage/ documentary about gambling problems (TV or newspaper)	0	1	2	3	4
News coverage of poker tournaments (TV or newspaper)	0	1	2	3	4

8) In the past year, have you seen any movies that include gambling or that take place in a gambling setting, such as a casino? Some examples of movies like this are:

Casino Royale

Ocean’s 11 (George Clooney, Brad Pitt, Julia Roberts)

Ocean’s 12

Indecent Proposal (Robert Redford, Demi Moore, Woody Harrelson)

Honeymoon in Vegas (James Caan, Nicolas Cage, Sarah Jessica Parker)

How many movies like these have you seen in the past year?

6) Have you ever seen gambling portrayals or promotions for gambling in any other media that we did not already mention? If yes, what do you remember seeing?

Appendix F: Subjective Norms

Please tell us what you believe others think about you participating in gambling activities.

	Absolutely should not gamble						Definitely should gamble	Does not apply
My parents think I...	-3	-2	-1	0	1	2	3	999
My friends think I....	-3	-2	-1	0	1	2	3	999
My best friend thinks I....	-3	-2	-1	0	1	2	3	999
My girlfriend/ boyfriend/ partner thinks I...	-3	-2	-1	0	1	2	3	999
My siblings think I....	-3	-2	-1	0	1	2	3	999
My church thinks I....	-3	-2	-1	0	1	2	3	999
My coach thinks I....	-3	-2	-1	0	1	2	3	999
My classmates think I....	-3	-2	-1	0	1	2	3	999
My co-workers think I....	-3	-2	-1	0	1	2	3	999

Please tell us how important others' opinions are to you when you decide whether or not to participate in gambling activities.

	Not at all important						Extremely important	Does not apply
My parents	-3	-2	-1	0	1	2	3	999
My friends	-3	-2	-1	0	1	2	3	999
My best friend	-3	-2	-1	0	1	2	3	999
My girlfriend/ boyfriend/ partner	-3	-2	-1	0	1	2	3	999
My siblings	-3	-2	-1	0	1	2	3	999
My church	-3	-2	-1	0	1	2	3	999
My coach	-3	-2	-1	0	1	2	3	999
My classmates	-3	-2	-1	0	1	2	3	999
My co-workers	-3	-2	-1	0	1	2	3	999

Appendix G: Interview Questions

1. Tell me about the wagering/gambling that you do. (*What you like to play, where you play and with whom, how often you play*).
2. How old were you when you first started gambling?
3. Tell me about a particular gambling session. (*This could be a session when you were having a bad day, where you won or lost a lot of money, or one in which you played longer than you expected*)
4. How do you decide when to end a session?
5. What do you like about playing? (*Is it fun or, exciting, do you play with friends?*).
6. What do you dislike about playing?
7. You indicated that you've seen or heard the following media portrayals of gambling: (*read from questionnaire*).
 - a. Give me an example of _____ (*ask about each item that the participant indicated seeing*).
 - b. Overall, what was the message you took away from _____ (*ask about each item that the participant indicated seeing*).
 - c. Now, think about when you first started gambling. Do you remember seeing any of these media before you first gambled? If yes, which ones?
 - d. Can you think of a time when you went looking for gambling shows or advertising because of your desire to gamble?
 - e. Can you think of a time when you saw gambling-related media and then decided to go gamble?
8. For participants who indicate they watch poker tournaments on TV:
 - a. When did you first start watching the poker tournaments?
 - b. How often do you watch?
 - c. Why do you watch?
 - d. What is your impression of the people who participate in those tournaments?
 - e. What message(s) do you take away from the tournaments?
 - f. What parts of the tournaments do you find most interesting?
 - g. What parts of the tournaments do you find most exciting?
 - h. What parts of the tournaments bore you?
 - i. Overall, would you say that your desire to gamble influences you to watch the televised tournaments, or would you say that watching the poker tournaments increases your desire to gamble
9. For participants who indicate they gamble on the internet:
 - a. When did you first start?
 - b. How did you find out about it in the first place?
 - c. How often do you play?
 - d. How many sessions do you play at any one sitting?
 - e. How long does a typical session last?
 - f. What do you like about playing on the internet?
 - g. What do you dislike about playing on the internet?
 - h. Do you gamble in any other setting? If so, which setting do you prefer and why?

Appendix H: Qualitative Analysis Codebooks

Gambling Behaviors	
Label	Definition
Setting/Context	Games played, where played
Game of Choice	Preferred game(s)
Amount Spent	Any discussion of amounts wagered
Perspectives	Explanation of why behavior(s) occurred
Feelings	
Process	Specific stated feelings about gambling behaviors or gambling process
Outcome	Specific stated feelings about gambling outcomes
Pros	Benefits/positive reinforcers for playing
Cons	Cons/punishment for playing
Money <i>Added later</i>	Perspectives on money, particularly how gambling may have changed those perspectives
Future <i>Added later</i>	Perspectives about their future, particularly how they view their future involvement in gambling and how that might affect them personally
Process	How often betting occurs When betting occurs Process of betting
Events	
Age	Age when started betting
Introduction	How he/she first got introduced to gambling
Strategies	Gambling Strategies
To win	Strategies that he/she believes increases odds of winning
To minimize loss	Strategies that he/she believes decreases the odds of losing more money
That increase possibility of loss or addiction	Strategies that increases the odds of becoming addicted and/or losing more money, such as “chasing” (trying to win back what you’ve lost)
Relationships	Who they play with

Media Exposure	
Label	Definition
Setting/Context	Where the advertising is seen (TV, radio, in-store, etc)
What	What is seen, specifically (e.g. winning tickets, billboard ad for lottery)
Perspectives	What meanings does participant gain from specific media
Play	Meanings that are positive and may encourage someone to play
Abstain	Meanings that are negative and may encourage someone to abstain from playing
Frequency	How often the advertising is seen
Relationships	How advertising affects behavior
Media	Media influences gambling behavior
Gambling	Gambling influences media exposure