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# Post Secondary Student Problem Gambling and Academic Motivation

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Post Secondary Student Problem Gambling and Academic Motivation:  
A Study Evaluating the Relationships between the Level of Gambling Activity and  
Academic Motivation of Post Secondary Students

by

Leanne Bourdeau

A Thesis  
Submitted to the Faculty of Graduate Studies  
through the Faculty of Education  
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the Degree of Master of Education at the  
University of Windsor

Windsor, Ontario, Canada

2011

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Academic Motivation of Post Secondary Students

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May 16, 2011

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## STUDENT PROBLEM GAMBLING AND MOTIVATION

### ABSTRACT

The purpose of this quantitative survey design study was to examine potential relationships between academic motivation and the level of gambling activity of post secondary students. Data was collected using two quantitative surveys, the Canadian Problem Gambling Index (CPGI) and the Motivational Strategies for Learning Questionnaire (MSLQ). A total of 96 students from a medium size university in Southern Ontario enrolled in the Fall 2010 semester volunteered to participate in the study. The findings indicate that there were significant relationships between levels of gambling activity, labeled as ‘gambler type’ and the following demographic variables measured from the CPGI: sex, length of residency, and having a preoccupation with gambling, as well as trends with class and two variables from the MSLQ, time management and effort regulation. Significant relationships were also shown between levels of gambling activity, labeled as ‘gambler type’ with those who had a preoccupation with gambling and with the following variables measured from the MSLQ: extrinsic goal motivation, critical thinking, self regulation, and peer learning, as well as trends with test anxiety and effort regulation. These findings from the study illustrate the importance of institutions and related stakeholders in further examining how levels of student gambling activity may adversely impact academic motivation and success.

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## **Chapter 1**

### **Introduction**

With the heightened glorification of gambling and rapid expansion of gaming venues worldwide, the prevalence of problem gambling has risen amongst all cohorts, with the onset of gambling behaviours leading to problem gambling beginning as early as 9 years of age (Jacobs, 2000). Further, it is estimated that amongst the adult population there is a 2% to 4% rate of problem gamblers (Dickson, Derevensky, & Gupta, 2004). These researchers found that 4% to 8% of Canadian youth qualify as problem gamblers. However, it is argued that the greatest percentage of problem gamblers lies within the post secondary population with approximately 16.4% of such students having the highest overall lifetime rate of problem and moderate at risk gambling over youth (11.8%) and adults (6.1%) (Shaffer & Hall, 2001).

As a certified gambling counsellor at Windsor Regional Problem Gambling Services, I garnered awareness of the scope of this apparently hidden, yet pervasive addiction and its impact upon one's ability to problem solve, cope, regulate emotion, and manage motivation. The majority of clients who present for treatment however range from young adults to the elderly who are not actively enrolled in academia. Student populations generally do not identify themselves as having a problem with gambling, thus do not seek treatment (Hardoon, Derevensky, & Gupta, 2003). Hence, research, targeted intervention, and treatment strategies for post secondary student gamblers are lacking.

Although there are some studies that have researched the impact of gambling on academic achievement, school truancy, delinquency, familial and social relationships, mental health, and correlations with other risk-taking and addictive behaviours, these studies focused upon elementary and secondary students (Gupta & Derevensky, 1998a; Gupta & Derevensky, 1998b; Ste-Marie, Gupta, & Derevensky, 2002). Specifically there is limited research on the

relationship between the level of gambling activity of post secondary students and their motivation and attitudes towards degree pursuit. Consequently, this alarming pandemic, particularly amongst post-secondary students further merits timely critical examination and research.

This area of study is significant for gambling counsellors, researchers, and policy makers, as well as educators, parents, and students. It is hoped that by fostering awareness and understanding of student gambling, prevention and intervention strategies may be employed in attempt to decrease the prevalence of this illness.

The purpose of this survey study is to examine the relationship between academic motivation and the level of gambling activity of post secondary students. The null hypothesis suggests that there is no relationship between academic motivation and the level of gambling activity of post secondary students.

In this chapter the nature and context of the study, the role of the researcher, the problem, significance, purpose and hypothesis were addressed. In the next chapter a review of the literature related to the study is provided examining student gambling and motivation.

## **Chapter 2 Literature Review**

### **Student Gambling**

Gambling was described as staking something of value on the outcome of an uncertain contingency (Eadington, 1976) with four classifications of gamblers. These classifications were determined according to assessment scores on varying gambling screens that measured the level of gambling activity and related problems over a course of twelve months. Non-problem gamblers were those who reported to never having gambled during the previous 12 months. Low risk or social gamblers were generally those who reported having gambled less than once a week and having no gambling related problems. Problem or pathological gamblers were generally those who reported having gambled at least once per week and having experienced a number of gambling related problems, with this number dependent upon each screen's requirements. Moderate risk or at-risk gamblers were generally those who reported having gambled at least once per week and having experienced one or more gambling related problems, yet not enough to have qualified as problem or pathological gamblers. Such gambling related problems included poor academic or career achievement, school truancy, missing work, delinquency, crime involvement, familial, social, and financial strains, depression, suicide, and increased likelihood for involvement in other risk-taking and addictive behaviours (Gupta et al., 1998a; Gupta et al., 1998b; Ste-Marie et al., 2002).

Studies regarding student gambling trajectories have demonstrated that there has been a significant continual rise in the level of gambling activity amongst students beginning as early as grade six as non or social gamblers, and continuing through post-secondary school as problem or pathological gamblers at a rate that doubles, if not triples the adult population

(Gupta et al., 1998a; Gupta et al., 1998b; Gupta, Derevensky, & Marget, 2004; Shaffer et al., 2001, Ste-Marie et al., 2002; Vitaro, Wanner, Ladouceur, Brendgen, & Tremblay, 2004).

Moreover, it was suggested by these researchers that the act of gambling served as a venue through which students attempted to deal with unpleasant emotions such as anxiety, stress, loneliness, guilt, and low self-worth by engaging in prolonged forms of distraction, avoidance, and dissociation. Such unhealthy coping mechanisms were generally linked with having poor affect regulation. Affect regulation is “the process of monitoring and evaluating affective states, [whereby] individuals take action either to maintain or to change (enhance or suppress) the intensity of affect, or to prolong or shorten the affective episode” (Larsen & Prizmic, 2004, p. 40). The ability to monitor one’s affective state was therefore considered critical as affective states are significantly influenced by thought processes, which in turn impact emotion, behaviour, and motivation. Hence without the ability to healthily regulate one’s affective state, a potential adverse outcome may include the development of an addiction. This presumption was found to be even more poignant for students as this population typically includes youth who have experienced fewer opportunities to develop effective affect regulation and coping strategies to deal with life stressors than adults, as demonstrated within the following studies.

#### Prevalence and Associated Conditions

Gupta et al., (1998a) explored the prevalence and correlation associated with adolescent gambling behaviour with 417 male and 400 female high school students from four Montreal secondary schools. The participants’ ages ranged from 12 to 17 years, and from grades seven through eleven. Most students were Caucasian and resided in middle class communities. Data collection included the use of the DSM-IV-J, which screened for

pathological gambling amongst the adolescent population. The screen consisted of 12 items, whereby a score of 4 or greater met criteria for problem or pathological gambling, and 3 or less met criteria for moderate or at-risk gambling. In addition, a self-administered Gambling Activities Questionnaire (GAQ) devised by the authors using a 7-point Likert scale was implemented to explore four correlates of gambling including: descriptive information, familial history, cognitive perceptions, and comorbidity. Independent and chi-square analyses were used to formulate results.

Results of the study showed criteria for problem gambling was met by 4.7 percent of the sample and 3.3% were described to be moderate risk gamblers. Differences in sex revealed that 7.2 % of the males and 2.0% of the females were identified as problem gamblers. The mean age for the onset of gambling behaviour for those who were identified as problem or moderate risk gamblers was 10.9 years. Differences in the motivation cited for gambling by the problem and moderate risk gamblers as compared to the low risk or social gamblers included: escaping from problems; alleviating depression; coping with loneliness; relaxing: improving social involvement; and feeling important as a result of gambling. It is however noted that all groups reported enjoyment, excitement, and the desire to make money as the greatest reasons for gambling.

Moreover, 43.3 % of the male problem gamblers and 75% of the female problem gamblers stole money to fund their gambling. With respect to borrowing money to gamble, 56.7 % of the problem male gamblers borrowed from friends and family compared to 50% of the problem female gamblers. Further, these problem gamblers tended to have a parent with a gambling problem; were 5 times more likely to have legal charges against them; were 25 times more likely to have stolen money; and, were 4 times more likely to have borrowed

money to fund their gambling than low risk or social gamblers. It was shown that males engage more in games of skill (i.e. poker, table games, sports betting) whereas females engage primarily in games that required no skill (i.e. bingo, scratch tickets, slot machines). Both sexes viewed luck and skill to be key determinants in winning.

Lastly, Gupta et al. (1998a) discovered that gambling was reported to be the primary and most frequently used addictive behaviour over cigarette smoking, alcohol, and illicit drug use amongst this sample in attempt to cope with negative affective states. Specifically, these rates were linearly progressive with a total weekly reported rate of gambling activity of 24% in grade seven, 29.5% in grade nine, and 30.9% in grade eleven. On average this totaled 28.2% of regularly growing gambling activity amongst this sample followed by 17.4% of cigarette smoking, 13.5 % of alcohol use, and 3.4% of illegal drug use. Hence students engaged in gambling activity more than any other type of maladaptive coping strategies.

Subsequently the study brought attention to an area of research that has gone grossly unrecognized, especially amongst the youth population. However, the researchers admittedly were unable to gather data with reliability and validity with respect to its questionnaire. As well, chi-square analyses could not always be computed due to small cell sizes with some subdivisions of the sample population. Students who had dropped out of school due to their gambling behaviours were not included in this sample, as the study took place in school settings.

#### Coping Strategies

Gupta et al. (2004) further explored the coping strategies used by adolescents with problematic gambling behaviours. Differences in coping styles included the use of cognitive strategies whereby the coping mechanisms focused directly on the stressor, such as with task-

oriented and problem-focused methods, and emotion-oriented strategies which aimed to regulate the emotions associated with the experiences of stress via ruminating, daydreaming, and the direct processing of emotions. The researchers sought to empirically assess the coping strategies of adolescent gamblers in attempt to initiate appropriate prevention modalities.

The participants included 220 male and 367 female students ranging in age from 12 to 17 years from four English secondary schools across the greater Montreal region. Data collection consisted of the use of the GAQ, where each participant's answers were analyzed individually and no cumulative scores were computed. The Coping Inventory for Stressful Situations (CISS) was also used that examined coping methods used by adolescents via self-reports using a 5-point Likert frequency scale. Within it were three subscales which classified task-oriented, emotion-oriented, and avoidance-oriented coping methods. Thirdly, the DSM-IV-J was used to screen for problem gambling amongst adolescents and included correlates of problem gambling such as: progression and preoccupation; tolerance; withdrawal and loss of control; escape; chasing lies and deception; illegal acts; and family/school disruption.

The results revealed that 6.5 % of the sample qualified as problem gamblers, with 16-17 year olds having shown the highest rate of pathological gambling. The results in this age group was speculated to have been attributed to their 'ease' of accessibility to legalized gambling facilities as the legal age to gamble in Montreal was 18 years. As well, the authors noted the increase in the prevalence of problem gamblers in all age groups as compared to a previous study in that region where the rate was found to be 4.7% (Gupta et al., 1998a). This was theorized to have been due to the increased availability of electronic gaming machines,

video lottery terminals, and exposure to legalized gambling. In addition, approximately 30 % of the sample that qualified as problem gamblers reported having stolen money to fund their gambling. Problem gamblers were also more likely to have been involved in alcohol and drug use, and to have smoked cigarettes. With regard to school attendance and performance, the truancy rate for problematic gamblers was shown to be 44.7 %, with over 75% having been preoccupied with planning their next way to gamble, thereby having significantly interfered in their ability to concentrate on and succeed in their academics.

With respect to coping styles, problem gamblers were shown to have used more distraction and emotion-oriented coping methods such as rumination and avoidance as compared to low-risk or social gamblers and non-problem gamblers. Specifically, distraction had the highest rate, closely followed by avoidance and emotion-oriented styles.

Subsequently, a strength of the study was the significant implications for the prevention and treatment of problem gambling amongst the youth population; whereby, emphasis on teaching effective cognitive coping skills such as the development of task-oriented and problem-focused skills seemed critical. Limitations of the study, as noted by the authors, included the fact that it was cross sectional by design, therefore could not infer causality. A longitudinal study was suggested to link coping skills and gambling behaviours. As well, the reliability of the self-reports used in all of the measurements posed valid concerns, as did the fact that students who had dropped out of school due to their gambling behaviours were not included in the sample, as the study took place in school settings.

#### Gambling Associated Behaviours

Powell, Hardoon, Derevensky and Gupta (1999) sought to examine the relationship between risk-taking, sensation seeking, and gambling behaviours among 28 male and 30

female university students from McGill University. They ranged in age from 18 years to 35 years. They were all voluntary participants who were recruited via on-campus flyers and word of mouth.

The data collection consisted of in-person questionnaires and telephone surveys, as well as screening tools which included the: Sensation Seeking Scale (SSS), Arnett Inventory or Sensation Seeking (AISS), Risk-Taking Questionnaire (RTQ), South Oaks Gambling Screen (SOGS), South Oaks Gambling Screen-Revised for Adolescents (SOGS-RA), Massachusetts Gambling Screen for Adolescents (MAGS), and the Diagnostic and Statistical Manual third edition (DSM-III). Means, standard deviation, ANOVAs and post-hoc analyses were computed.

The results indicated that 19% of the sample was identified as problem gamblers (5 or more on the SOGS), with 41% as having qualified as moderate risk gamblers (1-4 on the SOGS). Problem gamblers were significantly higher risk takers than moderate risk gamblers, which was particularly interesting for this study as it was the first to examine the risk taking differences between these two groups. Overall, problem gamblers, both male and female, indicated having the highest significant risk taking and sensation seeking behaviours than all other groups (moderate risk, low risk, and non-problem gamblers). Moreover, although males generally proved to be greater risk takers than females, female moderate risk gamblers reported similar risk taking and sensation seeking scores as males with no problems. This suggested that females who had a tendency towards risk-taking and sensation-seeking behaviours might have been more at risk of developing problematic behaviours. No conclusions or inferences could have been made with respect to female problem gamblers, as

there was only one in the sample, whereas there were 13 in the moderate risk gambling category.

Of the three scales of measurement and the SOGS, the highest correlation with gambling was with the SOGS and RTQ. This indicated that as gamblers progressed in their gambling behaviours, their level of sensation seeking remained uniform, while their levels of risk taking increased over time. This was typically illustrated by the need for gamblers to have increased their wagers over time in order to obtain the same high/rush, which was also indicative of the development of tolerance.

Limitations of the study included: a small sampling size, a sampling procedure that included the usage of flyers to attract participants who had a bias towards gambling, and the fact that only one female problem gambler was identified, which limited the ability to have compared sexes in this category. It did however provide support for the notion that affect regulation with respect to the use of distraction, dissociation, and avoidance of everyday problems and stressors, as employed via gambling, proved detrimental given the propensity for risk taking merely increased over time, and resulted in increased maladaptive and social consequences.

#### Gambling and Anxiety

Ste. Marie et al., (2002) sought to determine if adolescent gamblers suffered from *state anxiety*, defined as the degree of anxiety an individual was experiencing at an exact moment and that fluctuated over time and in intensity; or from *trait anxiety*, which was defined as a more generalized, stable, and enduring type of anxiety.

The participants included 512 male and 532 female students who ranged from grades seven to eleven, aged 12 to 17 years and from six high schools across the Montreal region.

The data collection measures included the GAQ, which examined the frequency and type of gambling activities, location of gambling sites, with whom one gambled with, and characteristics about the gambling behaviours.

The DSM-IV-MR-J was used to categorize participants gambling behaviours as fitting a low-risk gambler, moderate risk gambler, problem gambler, or non-problem gambler. The State-Trait Anxiety Inventory (STAI) was used to assess self-reports that measured state and trait anxiety. Lastly, a questionnaire called the Behaviour Assessment System for Children (BASC) was used to evaluate the behaviours and self-perceptions of children who ranged from 2.5 years to 18 years. However the study only used two of the five subscales within the BASC. They included an anxiety scale (BAS) and social stress scale (BSSS).

Results from the DSM-IV-MR-J indicated that 4.5 % of the sample participants were categorized as problem gamblers. Chi-square tests found more problem and moderate risk gambling in males than females. A chi-square test was used to determine a statistically significant relationship between trait anxiety and gambling severity, however not with state anxiety. As well, there were no statistically significant findings between gambling severity and BASC and/or BSSS. With respect to sex however, a significant main effect was shown with state anxiety and social stress, whereby females had higher scores on each scale of measurement. Lastly with the use of chi-square tests, high levels of trait anxiety were shown to be correlated with those who gambled because they were lonely (100%); unhappy (89%); they wanted to escape from problems at home and school (85%); and wanted to feel older (45%).

Ste. Marie et al. (2002) were the first to examine the type of anxiety associated with gambling severity; it provided an avenue for gambling treatment providers to explore when

working with gambling clients. Assessments for anxiety disorders and appropriate anxiety reduction techniques were supported empirically for treatment purposes.

The BASC's forced choice format was noted as a concern for it may have posed difficulty for adolescents to accurately answer, as they may have responded with a "false" reply when unsure of what to answer or if the answer was true, but only some of the time. In addition, weaknesses in the reliability and validity of the BASC's Self-Report of Personality (SRP) which housed the anxiety subscale, had been scrutinized as "the internal consistency coefficients for individual scales [fell] below the recommended criterion level of acceptance" (Ste Marie et. al., p. 137), thereby having potentially adversely impacted the accuracy of the results.

#### Emotional Intelligence and Addictive Behaviour

The relationship between adolescent gambling behaviour, via internet and gaming usage, and affect regulation was studied by Parker, Taylor, Eastabrook, Schell, and Wood (2008). The researchers recruited 249 male and 418 female public high school students from communities in Central and Eastern Ontario via advertisements and presentations to teachers and parents. The mean age of the sample was 16.2 years and the majority was Caucasian, followed by a small percentage of Black, Asian, and Native American youth. As well, participants were grouped according to age, where the younger group ranged from 13-15 years, and the older group ranged from 16-18 years.

Data collection was gathered using four tools. Such tools included the Internet Addiction Questionnaire (IADQ), which was a self-report of problematic internet behaviours, with a 5 point Likert scale; the Problem Video Game Playing Scale (PVGS), a nine-item questionnaire that required an answer of either yes or no, and measured addictive use of

video games in adolescents; the SOGS-RA, a 12 item self-report questionnaire which measured gambling behaviour in adolescents with a 4-point Likert scale; and the youth version of the Emotional Quotient Inventory (EQ-I:YV), a 60 item self-report which measured the emotional intelligence of children and youth using a 4-point Likert scale with four subscales within it. The subscales were comprised of measurements for intrapersonal, interpersonal, stress management, and adaptability skills.

Results from an ANOVA indicated that the older group scored higher than the younger group on most aspects of Emotional Intelligence. Females, overall, scored higher than males on intrapersonal and interpersonal scales, while males scored higher on the adaptability scale. As well, males scored higher than females on both problem gaming and gambling behaviours. These results were not deemed surprising by the researchers, as males have been empirically documented to exhibit more problematic gambling behaviours than females and video games were generally designed for males. Surprisingly however, there were no differences between genders with respect to internet use.

Overall, the researchers empirically concluded a predictive relationship between high usages of video games, the Internet, and/or gambling, with the propensity for the onset of an addiction. As well, they coined the term “dysfunctional preoccupation” as a latent variable evidenced by the development of the aforementioned variables and linked it to the addictive onset. Lastly, via a path analysis, Emotional Intelligence was determined to have been a moderate to strong predictor of addiction-evidenced behaviours, with interpersonal abilities having the highest inverse correlation with both the age samples.

Limitations of the study included the fact that the researchers did not distinguish what type of activity the participants were using the Internet for. Males arguably tended to have

used it for game playing, which is what the study was examining, whereas females tended to have used the Internet for communicating with friends, which may have accounted for the lack of differences between results with regard to Internet use and sex. Also, the usage of 4-point Likert scales posed a concern as such scales by design, forced choice.

Results of the study spoke to affect regulation in that a significant inverse relationship existed between emotional intelligence and addictive behaviours. It was suggested that individuals with addictive behaviours tended to have been deficient in interpersonal skills, a key component of affect regulation, because they did not spend time cultivating relationships due to the copious amounts of time spent engaging in video games, the internet, and gambling; thereby having increased the propensity for continued maladaptive affective regulatory skills.

#### Impulsivity

Vitaro, Wanner, Ladouceur, Brendgen, and Tremblay (2004) examined longitudinal trajectories of gambling behaviours among adolescents according to self reports and teacher rated perceptions of inhibition (anxiety) and disinhibition (impulsivity, risk taking, sensation seeking). The study began in 1984, when the students were in kindergarten with a total number of 1 161 students, however as the study proceeded a total of 903 males who ranged in age from 11 years to 17 years from 53 schools in a low class region in Montreal, remained. Males were only studied as they have been empirically found to have higher rates of problem gambling than females.

The data was collected via self-reports and teacher rated reports of inhibition when the students were 6 and 10 years old using 5 items in the Social Behaviour Questionnaire (SBQ). Self reports and teacher rated reports of disinhibition were computed when the

participants were 13 and 14 years old using 3 items from the SBQ as well as reports of inhibition using the same 5 items from the SBQ used at the ages of 6 and 10 years. At ages 15, 16, and 17 years, the SOGS-RA was administered to assess gambling behaviours and related problems over a 12-month period.

Results using a TRAJ (semi-parametric clustering technique for longitudinal data) identified three gambling trajectory groups. The first, called 'low gamblers', showed consistently low probabilities of gambling throughout the study and comprised 61.7% of the sample. The second group (22% of the sample) were called 'chronic high gamblers' started gambling at age 11 years and had a high probability of gambling, which increased over time. The third group was the 'late onset gamblers', comprised of 16.2% of the sample, and who hadn't gambled before the age of 13 years. Interestingly, their probability of gambling increased quickly after this age and they soon resembled having similar gambling probabilities regarding frequency of gambling and gambling related problems as the 'chronic high group.'

The results of the SOGS-RA showed that more than 20% of the chronic high gamblers were classified as high-risk or problem gamblers, followed by 15% of the late onset group, and 4.1% of the low gambler group. These results indicated that two to three years of gambling involvement was enough to have caused as much adverse consequences for late onset gamblers as a longer duration of gambling activity did for chronic high gamblers. It is noted that the researchers speculated if the late onset group had more to do with an inability to be assertive and refuse temptation from peers with regard to risk taking than the chronic high gamblers, who arguably needed more self-regulation strategies due to personality dispositions involving more high impulsivity and risk taking and low inhibition.

With respect to the self-rated reports, chronic high gamblers were shown to be more impulsive at ages 13 and 14 years than low and late onset gamblers, and less inhibited at ages 6, 10, 13, and 14 years than low gamblers. Teacher-rated inhibition at ages 6, 10, 13 and 14 years and disinhibition at ages 13 and 14 years showed that there was no significant difference between the chronic high gamblers and low gamblers. Overall, the results regarding chronic high gamblers showed significant impulse control deficits and manifested risk taking and sensations seeking behaviours as early dispositional risk factors in childhood which correlated with problem gambling behaviours in adolescence and adulthood.

Strengths of the study included the fact that it was the first longitudinal study examining gambling behaviours in youth, as well as its large sample size, and the use of two types of self-report groups, teachers and youth. Limitations included having a homogenous sample as well as biases inherent in self-reports.

#### Emotional States and Gambling Expectancy

Shead and Hodgins (2009) explored affect regulation expectancies among university student gamblers. The purpose of the study was to expand on existing research regarding alcohol expectancies to examine how positive affect regulation expectancies influenced gambling behaviour with the use of priming. The participants were 513 University of Calgary undergraduate psychology students with a mean age of 22.1 years. As well, all participants had to have had some “gambling experience” in order to partake in the study.

The data measures consisted of the use of an Implicit Measure of Gambling Expectancies where participants answered open-ended questions about their gambling expectancies and mood when gambling. An 18-item Gambling Expectancy Questionnaire

(GEQ) that assessed how the participant was thinking and feeling at that exact moment was used, however it did not have a means of gathering psychometric data.

Third, the Problem Gambling Severity Index (PGSI), a 9-item scale measuring past year problem gambling behaviours was used to assess gambling severity. The Alcohol Use Disorders Identification Test (AUDIT), a 10-item questionnaire, was used to assess harmful alcohol consumption. The Barratt Impulsivity Scale, Version 11, a 30-item self-report questionnaire was used to assess how frequently participants viewed statements of impulsivity as pertaining to themselves, with a 4-point Likert scale. Lastly, a Demographic Questionnaire was used to gather demographic information.

Results of this part of the study revealed that the Relief Expectancy Gamblers, those having strong expectations that gambling enhances positive moods, and Reward Expectancy Gamblers, those having strong expectations that gambling relieves negative affective states, reported more problems with gambling and drinking, with higher impulsivity ratings than Non-Expectancy Gamblers, those having neither strong expectancies. Also, gambling to enhance moods (Relief EGs) predicted heavier gambling, whereas gambling to relieve negative affective states (Reward EGs) predicted more severe gambling problems. Subsequently, a second part of the study was implemented with a total of 132 students from the original sample via an in-person portion. Specifically there were 39 Relief EGs, 44 Reward EGs, and 49 Non-EGs.

Data measures for this aspect of the study included a Scrambled Sentence Task (SST), whereby the use of semantic priming was used for participants to formulate sentences using scrambled words. As such, they either formed a “relief of negative emotions” sentence or an “augmentation of positive emotions” sentence. As well, a measure of gambling behaviour

was implemented via a web-based computer program that was preprogrammed to initially reward the participant for playing at the beginning, however the longer a person played, the more they would lose, until all the money was lost.

Results of this aspect of the study did not reveal significant outcomes; therefore the researchers further narrowed their sample to include a 'pure sample' resulting from a more strict application of the GEQ with a sample size of 54 gamblers. Consequently, Relief EGs gambled significantly more after being primed with messages relieving negative emotions as compared to mood enhancing messages. With regard to Reward EGs, there was not a significant increase in gambling activity after being primed with relieving negative emotions as expected. Rather, a significant linear increase was revealed when exposed to relief expectancies (mood enhancements), with this group as well as the Relief EGs and Non-EGs.

A significant limitation of the study included the fact that the participants were selected because they gambled regularly, therefore had biases towards gambling. As well, since none of the participants were categorized as problem or moderate risk gamblers, the results were arguably less strong; as problem or moderate risk gamblers likely would have produced greater results with respect to affect regulation expectancies and priming effects than the applied sample. In addition, the GEQ did not have a means of gathering psychometric data, and all self-reports were inherently wrought with biases. A highlighted strength included the fact that it evidenced a significant correlation with emotional states and expectancies with gambling behaviour, having lent support for clinicians to examine the emotional correlates as well as the cognitive distortions that were typically the main focus of therapy.

Failure to Seek Treatment

Hardoon et al. (2003), explored the differences in empirical measures and perceived gambling severity among adolescents and why they failed to seek treatment. Participants included 599 female and 381 male students across four junior colleges in Montreal, with a mean age of 18.6 years.

Data collection consisted of the following screens to assess for diagnosis along the pathological gambling continuum. They included: the DSM-IV-J (Diagnostic and Statistical Manual of Mental Disorders for Juveniles), the SOGS-RA (South Oaks Gambling Screen-Revised for Adolescents), the GA 20 Questions (Gamblers Anonymous 20 Questions), and the GAQ (Gambling Activities Questionnaire).

The results indicated that according to the empirical measures from the DSM-IV-J, 3.4 % of the participants were likely to have been problem gamblers. The SOGS-RA classified 4 % of the sample to be problem gamblers, and the GA 20 Questions classified 5.8% of the sample to have been problem gamblers. In contrast, only 1.1 % of the participants reported themselves as likely having been problem gamblers. It is further noted that according to the DSM-IV-J, 12.7% of the sample were deemed to have been moderate risk gamblers, the SOGS-RA showed 24% to have been classified in this category, and GA 20 Questions showed 46.6% to have been moderate risk gamblers. According to the participants however, only 3.3 % reported to have been moderate risk gamblers, and 66 % reported to have been low-risk or social gamblers.

With respect to sex, a significantly larger percentage of males were classified by the DSM-IV-J to have been problem gamblers with 7.6%, as compared to 0.7% for the females. As well, significantly more males, 2.2%, than females, 0.3%, self-classified as problem gamblers, although the two females who did self-classify in this respect did not

have corresponding empirical findings according to any of their gambling behaviour screens. It is suggested that the two did not properly complete their self-measured reports. It is further noted that of the problem gamblers, as qualified by the DSM-IV-J, 51.5% reported gambling to escape problems.

Most adolescents failed to seek treatment as only 1% of up to 8% of problem gamblers tended to seek treatment. They either did not view themselves as having had a problem, and/or they minimized the severity of their problem. As well, gambling addictions were not readily recognizable by the individual, friends, family, or school communities, and therefore went undetected.

An interesting strength of the study included the notion that a more stringent and/or reliable measure for problem gambling amongst youth may need to be developed as a limitation of the study included the fact that the empirical screens produced different results. The study also brought attention to the fact that there was at best, minimal awareness of the prevalence of problem gambling and its' impact on youth, thereby having increased the likelihood that an addiction could have ensued and decreased the likelihood for intervention and treatment. In addition, it provided further support to demonstrate that such students gambled in attempt to escape problems.

With regard to limitations, self-reports and screens were not all accurately completed. With regard to the variances in the results of the four screening tools, it was inferred that either the screens over identified problematic gamblers or the participants underestimated or were dishonest about the severity of their problems.

Gambling and Proximity to Casinos

Adams, Sullivan, Horton, Menna, & Guilmette (2007) examined the differences in Canadian university students' gambling activity and their proximity to a visible casino within their respective communities. A total of 1579 students from the University of Guelph, Wilfred Laurier University, the University of Windsor, and Brock University were tested in the Fall semester of 2001 and Winter semester of 2002.

Data collection consisted of mailed surveys, classroom administered surveys, collections from psychology research pools, and having publically approached students to partake in such surveys on campus. Males were oversampled due to the reported increased ratio of male to female students on campus. Participants ranged from first to fourth year students and from a broad range of degree programs.

The South Oaks Gambling Screen (SOGS) was used to classify students into the four subtypes of gamblers. A 17 item form that listed the different types of legalized gambling within the province of Ontario was also provided for the participants to indicate which one(s) they had engaged, via a 'yes' or 'no' response, within the last month.

Results using a chi-square analysis showed no significant differences between males and females for four types of gambling. These included: break-open tickets, video lottery machines, horse racing, and Internet gambling. Differences were however revealed with more males having engaged in games of skill such as LOTTO 6/49 tickets, Pro-Line, casino table games, casino blackjack, card games, dice games, sport pools, and investing; whereas females participated more in instant game tickets, bingo, slots, and raffles.

In addition, proximity to a casino, with Wilfred Laurier University and the University of Guelph being considered far from a casino, and the University of Windsor and Brock University being considered as close to a casino, using chi-square analysis showed that of the

17 types of legitimate gambling, two had significant differences. These included casino slots and table games. Specifically, 55.3 % of participants enrolled in a university close to a casino reported playing slots versus 29.1% of participants enrolled in a university far from a casino, and 14.2% of participants enrolled in a university close to a casino reported playing table games (except blackjack) versus 7.2% of participants enrolled in a university far from a casino.

The SOGS findings classified 77.2% of the sample to have been non-problem gamblers, with 66% from universities far from a casino and 34% from a university close to a casino; 18.6% to be low-risk or social gamblers, with 57.3% from universities far from a casino and 42.7% from a university close to a casino; 3.3% to be moderate or at-risk gamblers, with 51.9% from universities far from a casino and 48.1% from a university close to a casino; and 0.9% to be problem gamblers, with 20% from universities far from a casino and 80% from a university close to a casino. With respect to sex, males consistently had higher percentages of gambling problems than females.

Subsequently this study has brought attention to a cohort of participants that have not been traditionally studied to date within a context of gambling behaviours and addiction. Limitations of the study included the fact that the sample was not representative of the total campuses population and “the SOGS may [have] provide[d] different results from other assessment tools ...such as the Canadian Problem Gambling Index (CPGI)” (Adams et al., 2007, pp. 13). A longitudinal study was also hypothesized to have been necessary to monitor and assess the progression from low risk to problematic gamblers, which has not been conducted amongst Ontario university students to date. It is also noted that this study

measured legalized forms of gambling only, which in turn dismissed the contribution of non-legalized forms of gambling activity and clubs.

Overall the types of affect regulation utilized by student problem gamblers corroborated the results of a study by Larsen (1993) that examined affect regulation of students. The study concluded that among “college students, distraction was the single most frequently mentioned mood regulation strategy” (Larsen, 2004, p. 44).

### **Academic Motivation**

Academic motivation is theoretically described by Scheel and Gonzalez (2007) to be comprised of three components; academic self-efficacy, purposefulness and intentionality, and social support. This model was developed from social learning theory (Bandura, 1982) where academic self-efficacy was defined as “a self-perception of competence to effectively complete schoolwork and an expectation that one can succeed when faced with a challenging academic task” (Scheel et al., 2007, p. 51). Specifically, the perception was contingent upon a student’s ability to have drawn strength from past academic successes and having asked for and received support from others when faced with adversity. Hence social learning theory identified two aspects of self-regulation.

The first aspect of self-regulation dealt with the development of healthy cognitive regulation as demonstrated with positive beliefs about one’s own ability to successfully complete a task. Self-determination theory (Ryan & Deci, 2000a), rooted from social learning theory, further asserted that students who were able to have understood or linked how their reasons, intentions, and efforts for having engaged in a particular course or assignment could have resulted in contributing towards their future success, were more likely to have had a higher level of motivation towards that particular course or assignment. Within the theory of

self-determination were three subtypes, which included intrinsic and extrinsic motivation, and amotivation as described below.

Intrinsic motivation refers to the desire to engage in a particular behaviour in order to satisfy one's own needs, as with learning about topics of personal interest and being challenged. Specifically, students who enrolled in a particular course for the sheer enjoyment of learning were said to have been internally driven. This includes having perceived self-control and purpose over the learning where it was not contingent upon outside reinforcement, and not to have resulted out of an attempt to satisfy others. For this reason intrinsically motivated behaviours were linked with the strongest level of success and sustained effort over externally motivated and amotivated behaviours, and to have required the highest level of self-regulation (Rothman, Baldwin, & Hertel, 2004; Ryan et al., 2000a; Ryan & Deci, 2000b; Scheel et al., 2007).

These same researchers described extrinsic motivation to have reflected a desire to gain a reward, avoid a punishment, or please others. It was reported to have required the lowest level of self-regulation as it was externally influenced by others and outside reinforcement. Therefore students may have engaged in a task to gain a passing grade or avoid a failing grade, to prove their self-worth, to gain esteem via achieving good grades and having their performance compared to peers for rank and competition purposes, as a means of validation of intelligence and capability, and/or because students believed that their efforts would have been rewarded in the future with academic and career success.

Amotivation was described as "the state of lacking an intention to act" (Ryan et al., 2000b, p. 61) or indifference towards a task, and resulted from not having valued an activity, felt competent, or believed it would have generated a purposeful outcome.

The second the aspect of self-regulation dealt with the development of healthy affect regulation as demonstrated with interpersonal and intrapersonal skills (Bandura, 1982). Interpersonal skills were reportedly demonstrated by having the ability to learn through modeling and seeking verbal encouragement and support from various types of social influences (peers, teachers, counsellors, parents, etc.); thereby fostering and maintaining academic pursuit.

Intrapersonal skills include the management of psychological and related physiological states. Self-determination theory further sub-typed intrapersonal skills to have included a form of extrinsic motivation called introjected regulation. Introjected regulation was described as students having performed an action with a “feeling of pressure in order to avoid guilt or anxiety or to [have] attain[ed] ego-enhancements or pride” (Ryan et al., 2000b, p. 62). Such regulation was therefore utilized to enhance or maintain self-esteem and feelings of self-worth. A study by Ryan and Connell (1989), reported introjected regulation to have been associated with poor coping skills when faced with adversity or failure, and forms of intrinsic motivation to have been associated with enjoyment, competence, genuine interest, and more positive coping skills.

Pintrich and Schrauben (1992) described academic motivation as having been comprised of two components inherent of self-regulation. The first component included motivational dimensions including value components reflecting having a desire to learn for intrinsic reasons such as challenge, curiosity, and mastery; for extrinsic reasons such as grades, rewards, competition, evaluation by others; and for task value, particularly perception of a course’s usefulness, relevance, and importance for obtaining a future goal. Expectancy components included control of learning beliefs and self-efficacy reasons pertaining to

beliefs that one has control over the academic outcome of a course via personal effort and ability. Affective components focused on managing test anxiety where emotional aspects of affective and physiological arousal were identified, as well as the cognitive aspects of being preoccupied and/or having negative thoughts and beliefs about performing well during a test.

The second component included learning strategy dimensions such as cognitive and metacognitive approaches. These included rehearsal, elaboration, and organization strategies, as well as critical thinking and metacognitive self-regulation inclusive of time management. Moreover, effort regulation was cited with regard to having been able to maintain effort and concentration in light of distraction and competing difficulties. Lastly, resource management, or peer learning, was posited to have been critical for clarifying issues and concepts with peers in attempt to develop new and collaborative learning. Therefore under the aforementioned models of academic motivation, students required an ability to establish and maintain healthy cognitive and affective aspects of motivation, as well as metacognitive approaches to learning, and social support via interpersonal and intrapersonal skill development (Pintrich et al, 1992).

#### Motivational and Self-Regulatory Predictors of Academic Success

Kitsantas, Winsler, & Huie (2008) sought to study the predictive relationships between ability, self-regulation, motivation, affective components, and academic success amongst post-secondary students. A total of 243 undergraduate students enrolled in introductory courses from a mid-Atlantic university participated in the study. Within the sample, 63.8% were female and the mean age was 18 years. The majority of participants were Caucasian (64%), with above average math and science scores upon admittance to university.

Data was obtained via two self-reported questionnaires and various aptitude measures. A demographic questionnaire recorded age, gender, ethnicity, family income, and parental education. The Motivated Strategies for Learning Questionnaire (MSLQ) assessed motivational beliefs for task value, self-efficacy, and test anxiety; and self-regulation for meta-cognitive skills and time and study management. Both domains were measured using a 7-point Likert scale. Prior ability was assessed through high school SAT scores and GPAs, first year university GPAs, and from institutional records for their second year of university.

Results using ANOVAs showed that among ethnicities, Caucasians had higher verbal SAT scores than African Americans and Asian Americans. Caucasians and Asian Americans had higher math SAT scores than African Americans. No significant differences were shown with respect to self-regulation. With regard to motivational variables, African Americans had greater adaptive task value than Asian Americans, and Caucasians had greater self-efficacy scores than Asian Americans.

Students who transferred from another university to the sample university site revealed having had significantly higher task value scores than those who had only been enrolled within the sample university. Younger students showed having had higher verbal SAT scores, higher high school GPAs, and lower time management scores.

Means and standard deviation were used to assess for correlations with prior ability measures. The strongest correlations were revealed with second semester GPAs and high school GPAs, followed by second semester GPAs and verbal SAT scores. With respect to self-regulation measures, the strongest correlation was revealed with first-year academic performance and time and study management. Amongst the motivational measures, the strongest correlations were revealed with first year academic achievement and self-efficacy,

followed by first year academic achievement and task value. Strong correlations continued with the onset of the third year of university, or fifth semester, with study and time management, later GPAs, task value, and self-efficacy. Task value was positively correlated with first and second year academic achievement, and test anxiety was negatively correlated with both years of academic achievement. However after other variables were accounted for, neither task value nor test anxiety showed to have been significant.

Overall self-efficacy, time management, and verbal SAT scores were strong predictors of academic success during the first year of university. In the second year of university, time management, verbal SAT scores, and gender, showed as strong predictors of academic success. With regard to gender, females had higher high school GPAs and verbal SAT scores, and higher levels of academic achievement in their second year of university than males. In contrast, males had higher math SAT scores than females. There were no significant differences between genders for motivational or self-regulatory variables.

Limitations of the study included the fact that when assessing the relationship between ethnicities, African Americans were underrepresented with a total of 17 who participated in the study. Approximately 20% of the sample dropped out before the fifth semester, with more academically successful students remaining. With respect to test anxiety, the researchers surmised that the results of this variable might be skewed. Students may exhibit test anxiety in some courses (math), yet not in others (history) because test anxiety may be context specific and not stable across time as compared to time management.

#### Academic Motivation and Substance Use

Andrews and Duncan (1997) examined the relationship between academic motivation and substance use. Information was initially gathered from 435 adolescent students ranging

from 13 to 17 years of age and their mothers. All participants were from Northwest Urban areas and were screened to include students who were considered to have been at risk of alcohol, cigarette, and marijuana use based upon their parents' history of substance use.

Self-reported assessments were conducted four times, over the course of twelve years. Substance use was measured via status reports regarding alcohol, cigarette, and marijuana use and frequency of use. Academic motivation was assessed via a construct of academic motivation measurement for value achievement and expectation of achievement from the student's perspective, and expectation of achievement from the mother's perspective. Potential mediators that were examined included: family relationships via a construct of four scales; global self-esteem via a subscale of the Self-Perception Profile for Adolescents; and general deviance via a construct of four subscales.

Results using means, standard deviation, and other generalized estimating equations showed there was an increase in frequency in all substances over time, with alcohol use having the greatest increase in frequency. Alcohol use seemed to have been a normative behaviour whereas cigarette and marijuana use were not. Significant results for changes in alcohol use and academic motivation were not found.

Significant inverse relationships were shown for changes in cigarette use and academic motivation for all participants except for young adolescents, with no significant mediating effects from family relationships. Age significantly predicted cigarette use for males but not for females. Self-esteem and deviance did not mediate the relationship between cigarette use and academic motivation.

Changes in marijuana use were inversely related to changes in academic motivation. When measuring for family relationships, self-esteem, and deviance, the significant

relationship between changes in marijuana use and academic motivation was shown to be non-significant, indicating that the former three variables accounted for the changes between the latter two variables. Deviance when measured with academic motivation, showed a significant predictable relationship.

In summary, a cyclical relationship is shown with an increase in the use of cigarette and marijuana use over time and a decrease in academic motivation, which in turn results in greater substance use and continued decrease in academic motivation.

This study provides support for how poor self-regulation and coping skills in students via substance use, adversely impacts academic motivation and achievement. It is one of few longitudinal studies measuring these variables using generalized estimating equations. Limitations include the use of convenience sampling and criterion of having a parent who uses substances, thereby selecting at-risk students only.

#### Academic Motivation and Stress

Smith and Sinclair (1998) examined the relationship between academic motivation and stress. A total of 62 grade eleven students comprised of 32 males and 27 females, and 67 grade 12 students comprised of 40 males and 27 females, from a high school in Sydney, Australia participated in the study.

Measurement tools for assessing academic motivation consisted of the Pattern of Adaptive Learning Scale and the Motivated Strategies for Learning Questionnaire. Levels of stress were measured using the Depression Anxiety Stress Scale. Students' attitudes regarding personal goals and perceptions of their parents' and teachers' goals were assessed using a 7 point Likert scale to rank a set of pre-established goals with respect to importance. A focus

group was conducted to gather further information on students' beliefs and attitudes regarding other aspects of stress and goals.

Results of the study revealed that 25 % of grade 11 and 31% of grade 12 students experienced higher than average levels of depression, anxiety, or stress. Of the grade 12 female students, 44% reported these levels compared to 22% of their male counterparts.

With respect to goals, students in grade 11 indicated that getting a high score (performance based goal orientation) on an aptitude test was their most important goal, closely followed by learning new things (self-mastery goal orientation). Students in grade 12 reported their primary goal to have been obtaining a good grade in a particular class at school (performance based goal), followed by obtaining a high score on their aptitude test. The least important reported goals in grade 11 were to have fun and to study hard. In grade 12 these two goals were reversed, yet remained at the bottom of the rank of importance. The researchers speculated that as students progress in grade level, goals become more performance based in orientation than mastery based, which indicates a shift from intrinsic motivation to extrinsic motivation.

Correlations between affective states, goals, and self-efficacy showed that in both grades stress was significantly correlated with depression and anxiety for males and females. For males in both grades, significant relationships were shown between negative affective states and performance-avoidance goals. Performance-avoidance goals were marked by low levels of motivation, fear of failure, and low expectations of competence or self-efficacy, whereas performance-approach goals were marked by high levels of motivation, low fear of failure, and high expectations of competence or self-efficacy. For females, significant correlations were found between depression and performance-avoidance goals in grade 12

only. With respect to self-efficacy, grade 11 female students had significant negative correlations with stress and depression. A positive significant relationship was shown in both grades and within both sexes between self-efficacy and mastery goal orientations, indicating a positive significant relationship between self-efficacy and intrinsic motivation.

This study supports previous research in this literature review in that poor affect regulation and coping skills are related to lower levels of academic motivation and achievement. It also speculates that males seem to deal with stress via avoidance of their problems and denial, whereas females seem to admit to and deal with their problems more directly, as indicated within the literature on student problem gambling. A main limitation of the study includes biases inherent in self-reports marked by the minimization of distressed states.

#### Help Seeking and Motivation to Learn

Kozanitis, Desbiens, and Chouinard (2007) studied how perceptions of teacher support and reaction towards questioning impacted student help-seeking behaviours and motivation to learn. A total of 1558 undergraduate students from two French-speaking universities in Quebec were sampled between the eight and twelfth week of the Fall 2003 and Winter 2004 semesters.

Data collection consisted of three self-reported surveys including twenty items from the Motivational Strategies for Learning Questionnaire. These academic motivation items measured self-efficacy beliefs, task value, mastery goals, and performance approach goals. A French version of the Perceived Teacher Support of Questioning questionnaire was implemented to measure students' perception of teacher support of their questions and an adaptation of existing questionnaires was used to measure students' perception of teacher

reactions to questions. The Test of Sources and Indicators of School Motivation was used to assess students' help-seeking strategy.

Results using a structural equation model and various goodness-of-fit computations of the models showed that perception of teacher reaction had a direct and positive effect on help-seeking and indirect and positive effects on self-efficacy and task value. Perception of teacher support had an indirect effect on task value only. Self-efficacy had a direct effect on help-seeking, and indirect effects on mastery goals, performance goals, and task value. Task value had an indirect effect on mastery goals. Mastery goals had direct and positive effects on help-seeking. Performance goals had a negative direct effect on help seeking.

In summary, university students are more likely to use self-regulated academic motivational strategies when they perceive support from teachers. Students are also more likely to use help-seeking strategies (asking question) to regulate their learning if they have a higher sense of self-efficacy and if they perceive their questions to be positively received by their teachers which in turn positively impacts students' task value and sense of mastery.

A main strength of the study included demonstrated empirical evidence supporting a relationship between academic motivation and teacher behaviour via perception of teacher support and reaction to help-seeking strategies such as questioning. Limitations included the fact that the measurement tools were self-reports that are inherently bias as well as other factors that may have influenced students from asking questions such as peer pressure, classroom size, and whether the course they were assessed in was elective or mandatory.

## **Conclusion**

This chapter examined the scope and correlates of gambling activity amongst the student population and factors claiming to have impacted student motivation. Emotion-

focused versus cognitive-focused styles of coping were primarily shown to have been used with students via various methods of avoidance, risk-taking, distraction, and escape (Gupta et al., 2004). A dysfunctional preoccupation with gambling (Hardoon et al., 2003; Parker et al., 2008) developed amongst problem and moderate at-risk student gamblers that may have impacted their affective states (Ste-Marie et al., 2002) and ability to concentrate on academics (Gupta et al., 2004; Hardoon et al., 2003) as well as their academic motivation. Cognitive components of self-regulation and intrinsic motivation were revealed to have had the greatest positive impact on academic motivation and achievement via self-efficacy, task value, and time management (Rothman et al., 2004; Ryan et al., 2000a; Ryan et al., 2000b; Scheel et al., 2007). Affective components of self-regulation were revealed to have had the greatest gains in academic motivation and achievement with the development and use of interpersonal and intrapersonal skills via help seeking behaviours and support (Bandura, 1982; Kozanitis et al., 2007). The next chapter contains a description of the methodology, participants, participants' recruitment, data collection, and analysis used within this researcher's study.

### **Chapter 3**

#### **Methodology**

This research was conducted using a quantitative survey design, reflecting a positivist framework where the scientific method is used as a means of discovering knowledge (Creswell, 2009; Nardi, 2006). This method was chosen because it best services the surveying of a large cross-sectional sample size as well as effectively and objectively measures numeric sets of variable data in attempt to discover whether a relationship between two or more variables exists. Specifically, this researcher sought to examine potential relationships between academic motivation and the level of gambling activity of post secondary students. The use of a quantitative hypothesis was developed with the adoption of the null hypothesis such that the researcher could remain impartial throughout the deductive research process.

#### **Research Question**

The purpose of the study as previously stated was to examine the relationship between academic motivation and the level of gambling activity of post secondary students. Accordingly, the study sought to assess the null hypothesis with the following deductive statement.

1) There is no relationship between academic motivation and the level of gambling activity of post secondary students.

#### **Site and Participant Selection**

The study took place at a medium size university in Southern Ontario in the Fall 2010 semester. A random sample method (Creswell, 2009) was used to select participants from introductory courses from the faculties of psychology, social work, math, business,

education, and engineering to assess the relationship between academic motivation and the level of gambling activity of students. These faculties were purposefully chosen because a balanced proportion of males and females was desired, with males traditionally being over-represented in the fields of math, business, and engineering, and females traditionally being over-represented in the fields of psychology, social work, and education.

Introductory courses were selected as research has shown that the largest percentage of problem gamblers tend to be youth (Dickson et al., 2004; Shaffer et al., 2001), and generally most students enrolled in introductory classes tend to be from a younger cohort.

After approval from the Research Ethics Board was received, this researcher contacted 6 professors via email from the aforementioned faculties who taught introductory courses in search of permission to approach their students for participation purposes. This researcher then appeared in each of the classes to explain the nature of the study, extent of potential participation involvement, and the dates, times, and locations available to participate in the study.

A total of 96 participants, 51 females and 44 males, volunteered to participate in the study. One participant did not complete the question pertaining to sex, accounting for the discrepancy in the total count. There were a total of 19 participants between the ages of 17 to 19 years, 52 participants between the ages of 20 to 24 years, 11 participants between the ages of 25 to 29 years, and 13 participants between the ages of 30 to 51 years. Of the introductory courses selected a total of 3 participants from psychology, 22 participants mathematics, 18 participants from business, and 53 participants from education partook in the study, with no participants from engineering or social work.

### **Data Collection**

## **Description of Quantitative Instruments**

### **Canadian Problem Gambling Index (Appendix C)**

Canadian Problem Gambling Index (CPGI, 2001) was initially developed by a research team from the Canadian Centre on Substance Abuse and a subcommittee, the Inter-Provincial Task Force on Problem Gambling, in Winnipeg in 1996 to measure the prevalence of gambling and problem gambling in the general population (Ferris & Wynne, 2001). It was the first instrument to distinguish between different sub-types of gamblers, including, non, low risk, moderate, and problem gamblers and to be validated within a general population rather than clinical samples of problem gamblers as compared to the SOGS and DSM-IV. It has undergone a number of revisions since its inception and has been used in all ten Canadian provinces as well in Australia, Norway, and Iceland (McCready & Adlaf, 2006).

The final version of the CPGI was used in this research inquiry and consists of 9 items. Five of these items speak to gambling behaviours asking “how often have you: bet more than you could really afford; needed to gamble with larger amounts of money to get the same feelings of excitement; gone back another day to try to win back the money you lost; borrowed money or sold anything to get the money to gamble; felt that you might have a problem with gambling” (p. 13). Four of the items speak to gambling consequences asking how often: “have people criticized your betting or told you you have a problem; have you felt guilty about the way you gamble; has your gambling caused you health problems including anxiety and stress; has your gambling caused any financial problems for you or your household” (p.13). All items are scored using a 4-point Likert scale where between 0-3 points are awarded for each response within the scale. Classification of gambler subtypes are

then determined based upon each person's total score and range from sums of 0-27 points (McCready et al., 2006).

The reliability of the nine items in the CPGI was computed using Cronbach's alpha reliability coefficient measuring internal consistency. It is argued that scale reliability and consistency increases when an instrument has more items or variables. The fact that the CPGI has nine items yet scored an alpha measure of 0.84 indicates high reliability. Comparative instruments including the SOGS and DSM-IV have 20 and 10 items respectively and scored respective alpha measures of 0.81 and 0.76. In a retest of the reliability of these same instruments using the Pearson Product-Moment correlation coefficient, the CPGI scored second to the DSM-IV with a correlation of 0.78, the DSM-IV scored 0.91, and the SOGS scored 0.75, with all correlations significant at the 0.01 level (2-tailed) (Ferris et al., 2001).

Tests on the validity of the nine items in the CPGI measured content validity, criterion-related validity, and construct validity. It was concluded that "the CPGI demonstrates very good validity on all fronts, by a number of different indicators" (Ferris et al., p. 42).

This researcher adapted this final version of the CPGI to include nine demographical questions measuring: sex, age, minority and ethnic status, length of residency in Windsor-Essex County, full or part time student status, major, year of study, and sources of income. Three additional questions were asked measuring: whether a participant gambled in the last 12 months; type(s) of gambling involvement; and whether a participant believed s/he was/had been preoccupied with gambling.

#### **Motivated Strategies for Learning Questionnaire (Appendix D)**

Motivated Strategies for Learning Questionnaire (MSLQ, 1991) was designed to assess postsecondary students' motivational orientations and their use of different learning strategies for individual courses. It was informally created in 1982 at the University of Michigan when the authors began to research college student learning and teaching. It was formally designed in 1986 with the support of the National Center for Research on Improving Postsecondary Teaching and Learning. Between 1982 and 1986 over 1000 University of Michigan undergraduate students enrolled in a "Learning to Learn" course were provided with the self-report instrument to assess the effectiveness of this course. Approximately 50 to 140 items were statistically analyzed accounting for internal reliability coefficient computations, factor analysis, and correlations (Pintrich, Smith, Garcia, & McKeachie, 1993).

Continuous revisions of the MSLQ were developed upon such statistical results which lead to it being administered at three postsecondary institutions in the Midwest including a university, liberal arts college, and a community college across the years of 1986, 1987, and 1988. A total of 1771 students completed the MSLQ during these years where the outcomes of statistical analyses lead to further refinement of the instrument. (Pintrich et al., 1993).

The final version of the instrument was produced in 1991 and includes 81 items. These items are subdivided into two sections, a motivation section consisting of 31 items, and 6 subsections, and a learning strategy section consisting of 50 items, and 9 subsections. The subsections identified within the MSLQ can be used together or individually for assessment purposes according to each researcher's needs. All items are scored using a 7-point Likert scale. The mean of each subsection, i.e. 4 items within the extrinsic goal

orientation subsection, is computed to determine each individual's score within that domain. The questionnaire was designed to be administered in a classroom setting and is estimated to take 20-30 minutes to complete. Results from a study exploring the reliability and predictive validity of the MSLQ revealed "the [MSLQ] has relatively good reliability in terms of internal consistency... the subscales represent a coherent conceptual and empirically validated framework for assessing student motivation and use of learning strategies in the college classroom" (Pintrich et al., 1993, p. 811). For these reasons the MSLQ was used in this research inquiry to assess motivational orientations and learning strategies employed by students while comparing these results to those of the CPGI-R, in order to deduce whether there is no relationship between academic motivation and the level of gambling activity of students.

### **Data Analysis**

Following the administration of the CPGI-R and MSLQ, this researcher created a data spreadsheet in Excel for the selected variables to be assessed. All items from the CPGI-R were entered as were 32 items from the MSLQ including all items from the motivation scales and 5 scales from the learning strategies scales. This researcher choose to exclude the other items within this scale due to the notion that these items did not seem to best reflect the foci of this research inquiry with respect to the participant's ability to demonstrate healthy cognitive and emotional regulation skills and peer interaction as compared to the other scale items.

Upon completing all data entry, this researcher computed a number of descriptive statistics using the statistical package for social sciences system, SPSS, (Coladarci, Cobb, Minium, & Clarke, 2008), originally developed by Nie and Hull in 1968. Correlations were

also observed and the null hypothesis statement revisited. The results are provided in the results section of this quantitative inquiry.

### **Ethical Considerations**

The study followed all ethical procedures and guidelines in accordance and approval with the University of Windsor Research Ethics Board and general research standards practices (Creswell, 2009). All participants were adults who signed a letter of consent and were provided with a letter of information outlining the voluntary and confidential practices of the study, and the fact that they could withdraw at any time without any consequences to them. In order to ensure confidentiality the information provided by the participants was stored in a locked filing cabinet. All participants were coded by a participant number, with no names ever having been used, and no other personally identifying information recorded.

The expectations, rights, and responsibilities of the participants were outlined in writing and reiterated verbally by the researcher. A maximum of 30 minutes was required by each participant via the administration of two quantitative questionnaires. Five participation time slots were made available ranging from early morning to late evening as were other mutually agreed upon dates and times for those who had interest in participating yet required additional availability. All participants were informed that they would have full access to the findings of this research inquiry via the REB website.

### **Conclusion**

This chapter provided a description of the methodology, participants, participants' recruitment, data collection instruments, and analysis used within this researcher's study. The next chapter explores the results and details of the analysis of the data collected in the study including trends and significant findings.

## **Chapter 4**

### **Analysis of Results**

To evaluate the outcome of the null hypothesis, suggesting that there is no relationship between academic motivation and the level of gambling activity of post secondary students, participants were provided with and completed a copy of the CPGI-R and MSLQ. This researcher quantitatively examined the participants' responses to these questionnaires using SPSS where results and trends were found.

#### **Participant Findings**

A total of 96 out of a potential 530 participants volunteered to complete the surveys in the study, resulting with participation rate of 18%. Some participants did not fully complete all questions asked, accounting for discrepancies in some total counts and computations. The limited number of participants may have impacted the significance levels in the analysis of the results, as a greater number of participants would have reflected the general population more accurately.

#### **Age**

Age ranged from 17 to 51 years, with a total of 19 participants between the ages of 17 to 19 years, 52 participants between the ages of 20 to 24 years, 11 participants between the ages of 25 to 29 years, and 13 participants between the ages of 30 to 51 years. Results of a chi-square test using cross tabulations for the sample's age and gambler type (non problem, low risk, moderate risk, and problem gambler) indicated that there were no significant differences.

**Sex**

With respect to sex, a total of 51 females and 44 males were shown in the study. A total of 18.2% and 11.4% of males and 5.9% and 5.9% of females were significantly shown as low and moderate risk gamblers respectively.

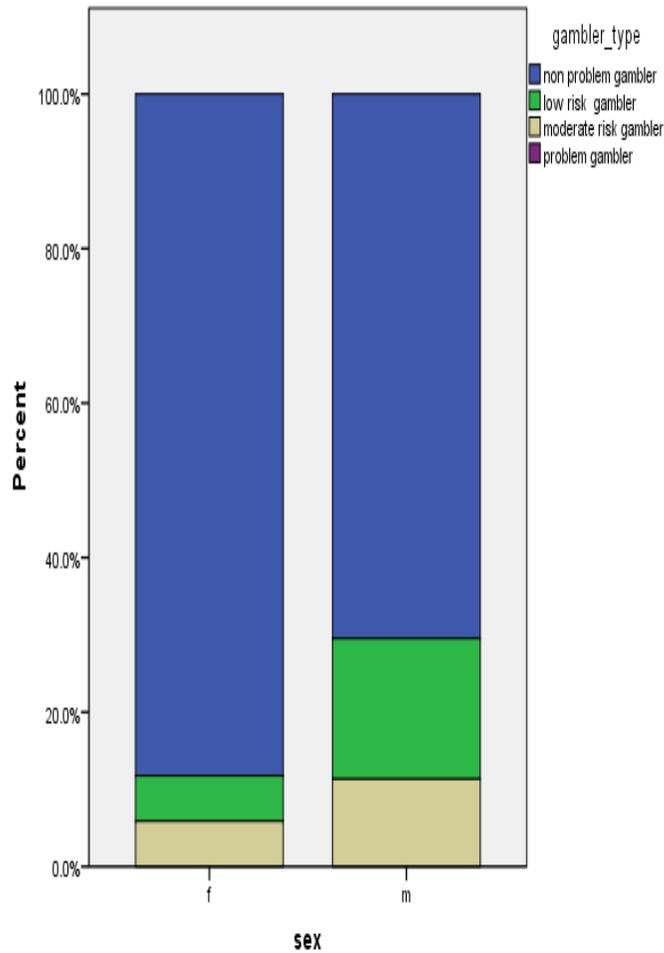
Table 1. *Chi-Square Test Results for the Cross Tabulation of Sex and Gambler Type*

<b>Chi-Square Tests</b>			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.862 <sup>a</sup>	2	.088
Likelihood Ratio	4.941	2	.085
N of Valid Cases	95		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.71.

This table shows the results of a chi-square test using cross tabulations for the sample with a significant difference between sex and gambler type at the .01 level ( $p = .088$ ).

Figure 1. Comparative frequency of responses between sex and gambler type.



This bar graph shows that there were more males with low and moderate risk levels of gambling than females, according to the results of the Chi-square test using cross tabulations for sex and gambler type.

### Length of Residency

Length of residency for 95 participants indicated that 16 participants resided in Windsor-Essex County for less than one year, 17 participants resided in Windsor-Essex County for between one and five years, and 62 participants resided in Windsor-Essex County for more than five years. Significantly, there were 31.3% of low risk and 6.3% of moderate

risk gamblers, totaling 37.6% of at risk gamblers who resided in this area for less than one year, as compared to a total of 11.8% and 17.8% of at risk gamblers who resided in this same area for between one and five years and for more than five years respectively.

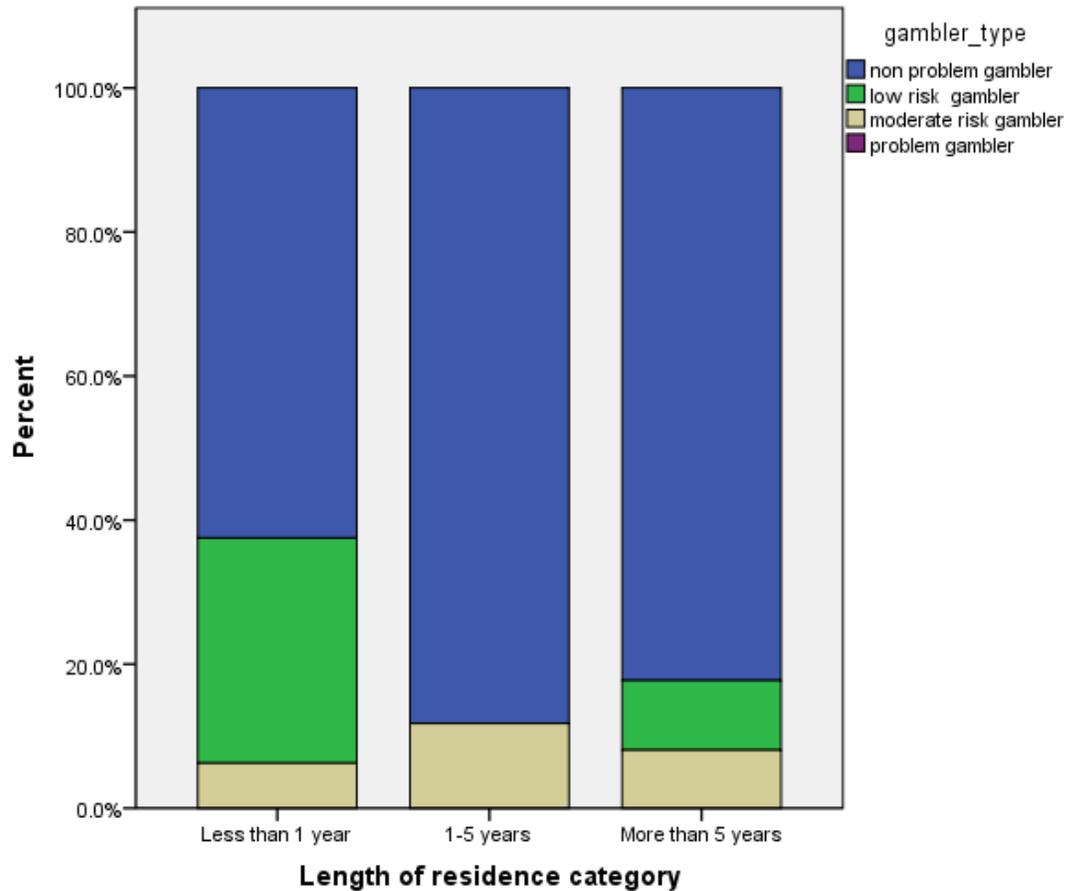
Table 2. *Chi-Square Test Results for the Cross Tabulation of Length of Residency and Gambler Type*

<b>Chi-Square Tests</b>			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.630 <sup>a</sup>	4	.071
Likelihood Ratio	8.926	4	.063
Linear-by-Linear Association	.792	1	.373
N of Valid Cases	95		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is 1.35.

This table shows the results of a chi-square test using cross tabulations for the sample with a significant difference between length of residency and gambler type at the .1 level ( $p = .071$ ).

Figure 2. Comparative frequency of responses between length of residency and gambler type.



This bar graph shows that there were more low and moderate risk gamblers who resided in Windsor-Essex County for less than one year as compared to any other length of residency, according to the results of the chi-square test using cross tabulations for length of residency and gambler type.

### Student Status

Student status showed that 90 participants were full-time students and 5 were part-time students. Results of a chi-square test using cross tabulations for the sample's student status and gambler type indicated that there were no significant differences.

### Preoccupation

Of the 64 participants who responded to whether they had a preoccupation with gambling, 5 indicated that they did. Of the 5, 3 were significantly classified as low risk gamblers and 2 were significantly classified as moderate risk gamblers.

Table 3. *Chi-Square Test Results for the Cross Tabulation of Preoccupation and Gambler Type*

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.879 <sup>a</sup>	2	.002
Likelihood Ratio	13.205	2	.001
Linear-by-Linear Association	10.342	1	.001
N of Valid Cases	64		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .63..05

This table shows the results of a chi-square test using cross tabulations for the sample with a significant positive correlation between having a preoccupation with gambling and gambler type at the .05 level ( $p = .002$ ).

### Class

Of the introductory classes selected a total of 3 participants from psychology, 22 participants from mathematics, 18 participants from business, and 52 participants from education partook in the study, with no participants from engineering or social work. A total

of 44.4% of business class participants as compared to 9% of math, 0% of psychology, and 17.3% of education class participants were typed as low and moderate risk gamblers.

Although these results were non-significant at the .1 level ( $p = .122$ ), there seems to be a trend with a greater number of low and moderate risk gamblers in business.

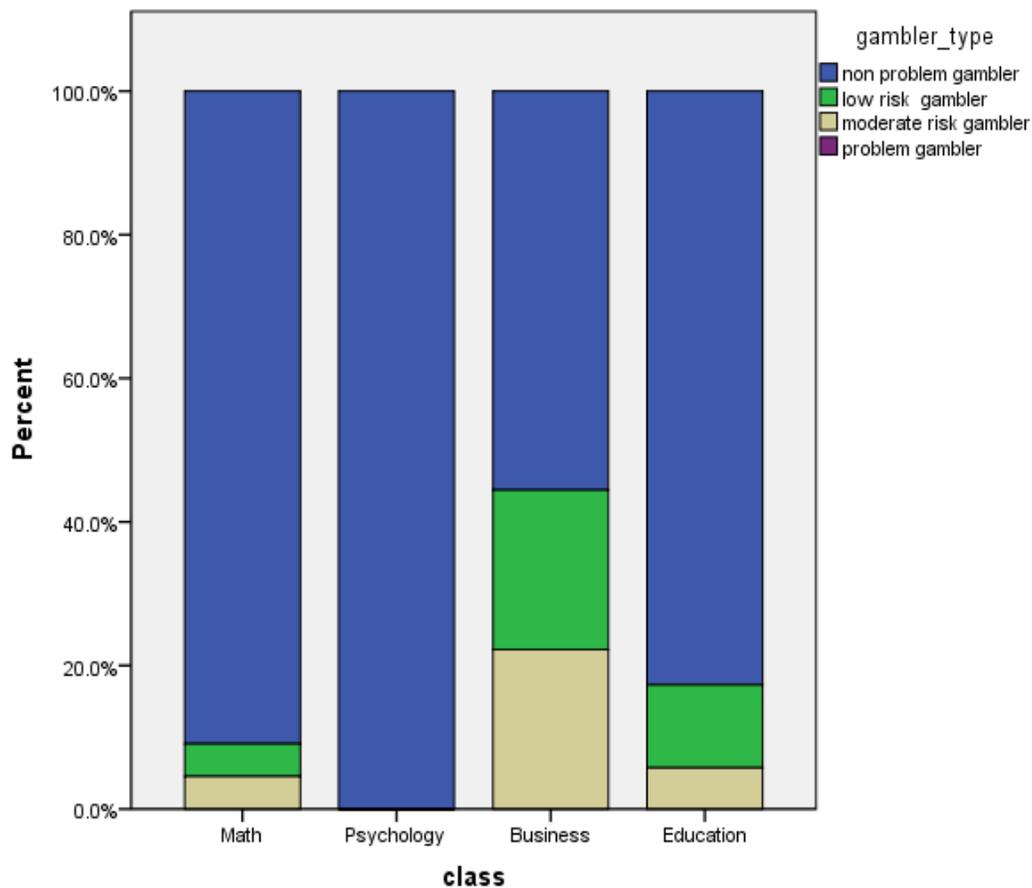
Table 4. *Frequency Results for the Cross Tabulation of Class and Gambler Type*

class \* gambler\_type

		Crosstab				
		gambler_type			Total	
		non problem gambler	low risk gambler	moderate risk gambler		
class	Math	Count	20	1	1	22
		% within class	90.9%	4.5%	4.5%	100.0%
	Psychology	Count	3	0	0	3
		% within class	100.0%	.0%	.0%	100.0%
	Business	Count	10	4	4	18
		% within class	55.6%	22.2%	22.2%	100.0%
	Education	Count	43	6	3	52
		% within class	82.7%	11.5%	5.8%	100.0%
Total		Count	76	11	8	95
		% within class	80.0%	11.6%	8.4%	100.0%

This table shows the frequency results of a chi-square test using cross tabulations for class and gambler type. A total of 2/22 participants in math, 0/3 participants in psychology, 8/18 participants in business, and 9/52 participants in education showed as low and moderate risk gamblers.

Figure 3. Comparative frequency of responses between class and gambler type.



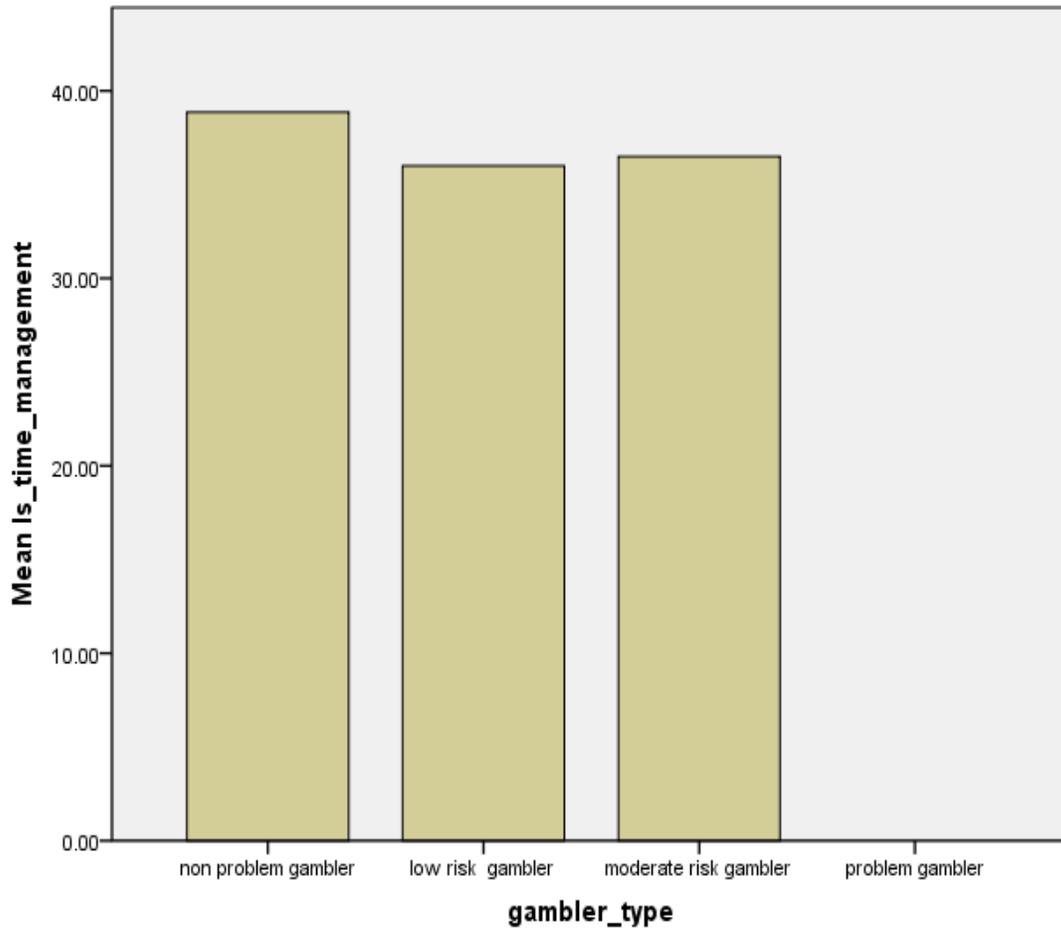
This bar graph shows a seeming trend of increased numbers of low and moderate risk gamblers from business class as compared to math, psychology, or education classes, according to the results of the chi-square test using cross tabulations for class and gambler type.

### Motivation and Learning Strategies and Gambler Type

Assessed variables within the MSLQ using a one-way ANOVA did not show any significant differences between gambler types; however a trend was shown within two

learning strategy variables. Time management skills seemed to be more positively correlated with non problem gamblers than low or moderate risk gamblers ( $p=.196$ ).

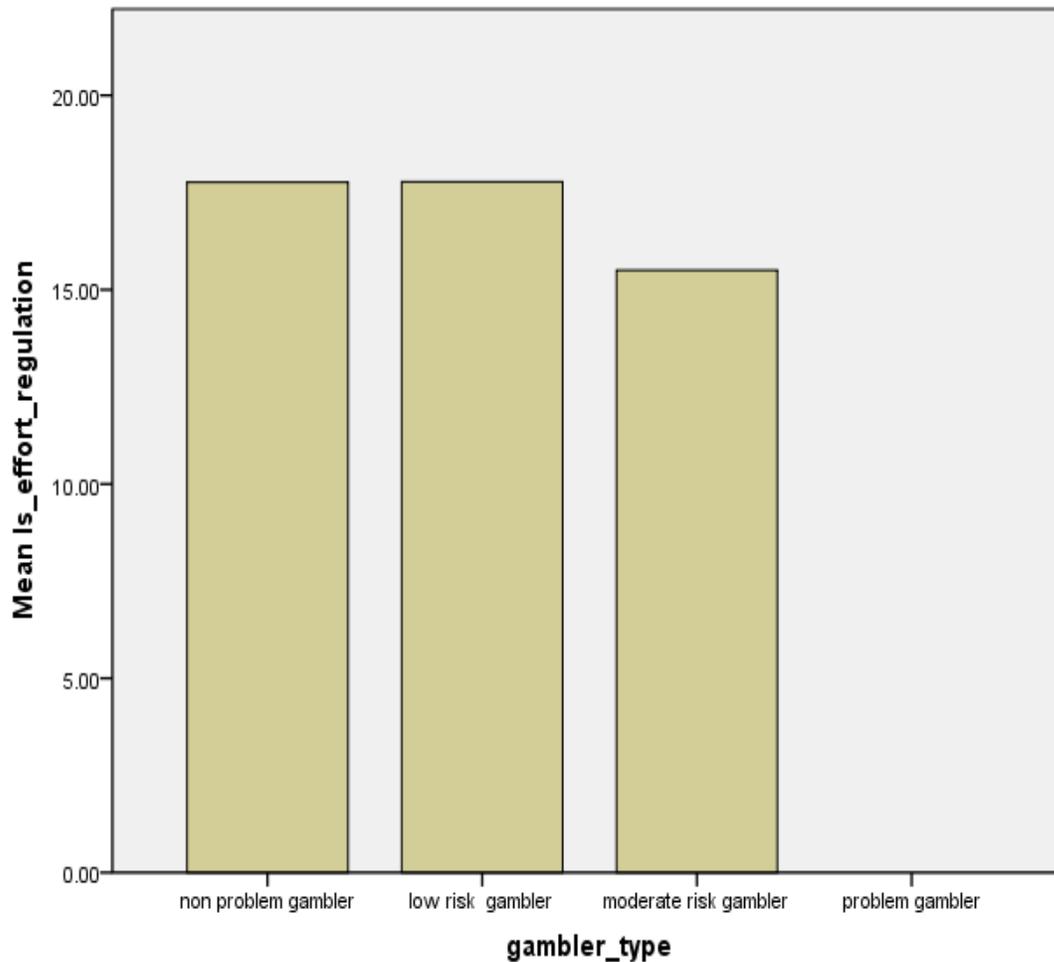
Figure 4. Mean frequencies between time management and gambler type.



This bar graph shows lower mean frequency levels for the learning strategy variable time management with low and moderate risk gamblers as compared with non-problem gamblers, according to results of a one-way ANOVA.

Effort regulation seemed to be more positively correlated with non problem and low risk gamblers than moderate risk gamblers ( $p=.167$ ).

Figure 5. Mean frequencies between effort regulation and gambler type.



This bar graph shows lower mean frequency levels for the learning strategy variable effort regulation with moderate risk gamblers as compared with non-problem and low risk gamblers, according to results of a one-way ANOVA.

**Motivation and Learning Strategies and Preoccupation**

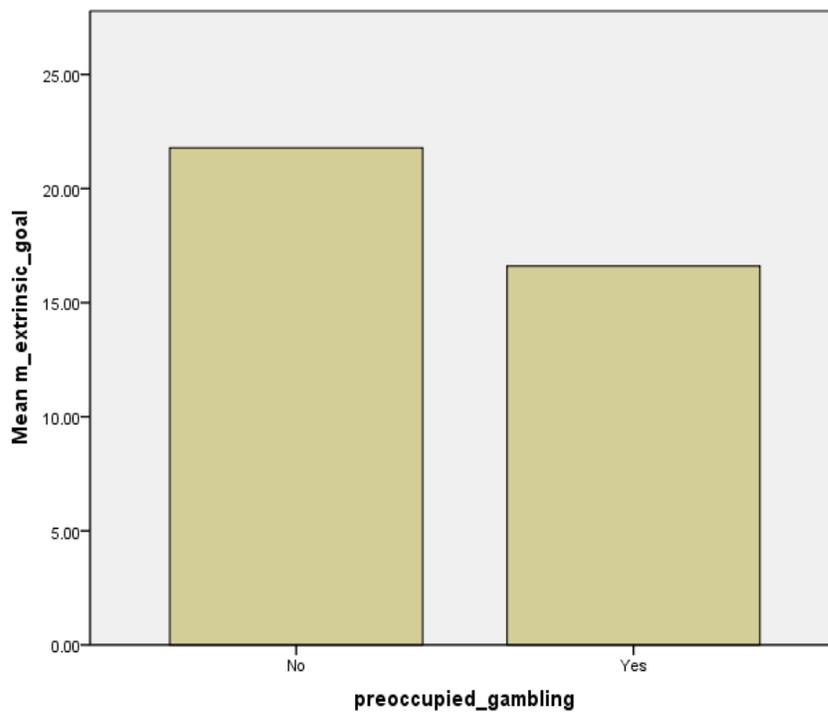
Results using a one-way ANOVA showed a significant difference between those who indicated having a preoccupation with gambling and those who did not for the motivation variable extrinsic goal motivation, and for the following learning strategy variables: critical thinking, self-regulation, and peer learning. This same test showed trends with the motivation variable test anxiety and learning strategy variable effort regulation, where those who indicated being preoccupied with gambling seemed to have higher levels of test anxiety and less effort regulation skills.

Table 5. *One-Way ANOVA Test Results of Differences between Motivation and Learning Strategy Variables and Preoccupation*

		F	Sig.
m_intrinsic_goal	Between Groups	1.539	.220
	Within Groups		
	Total		
m_extrinsic_goal	Between Groups	5.899	.018
	Within Groups		
	Total		
m_task_value	Between Groups	.063	.803
	Within Groups		
	Total		
m_control_beliefs	Between Groups	.002	.961
	Within Groups		
	Total		
m_self_efficacy	Between Groups	.262	.611
	Within Groups		
	Total		
m_test_anxiety	Between Groups	2.231	.140
	Within Groups		
	Total		
ls_critical_thinking	Between Groups	4.150	.046
	Within Groups		
	Total		
ls_self_regulation	Between Groups	8.749	.005
	Within Groups		
	Total		
ls_time_management	Between Groups	1.215	.275
	Within Groups		
	Total		
ls_effort_regulation	Between Groups	1.855	.179
	Within Groups		
	Total		
ls_peer_learning	Between Groups	3.129	.082
	Within Groups		

This table shows the results of measured variables within motivation and learning strategy and preoccupation with gambling using a one-way ANOVA. Significant levels were found with extrinsic goal motivation at the .05 level ( $p = .018$ ); critical thinking at the .05 level ( $p = .046$ ); self-regulation at the .05 level ( $p = .005$ ); and peer learning at the .1 level ( $p = .082$ ). Apparent trends were shown with the motivation variable test anxiety at the .1 level ( $p = .140$ ), and learning strategy variable effort regulation, at the .1 level ( $p = .179$ ).

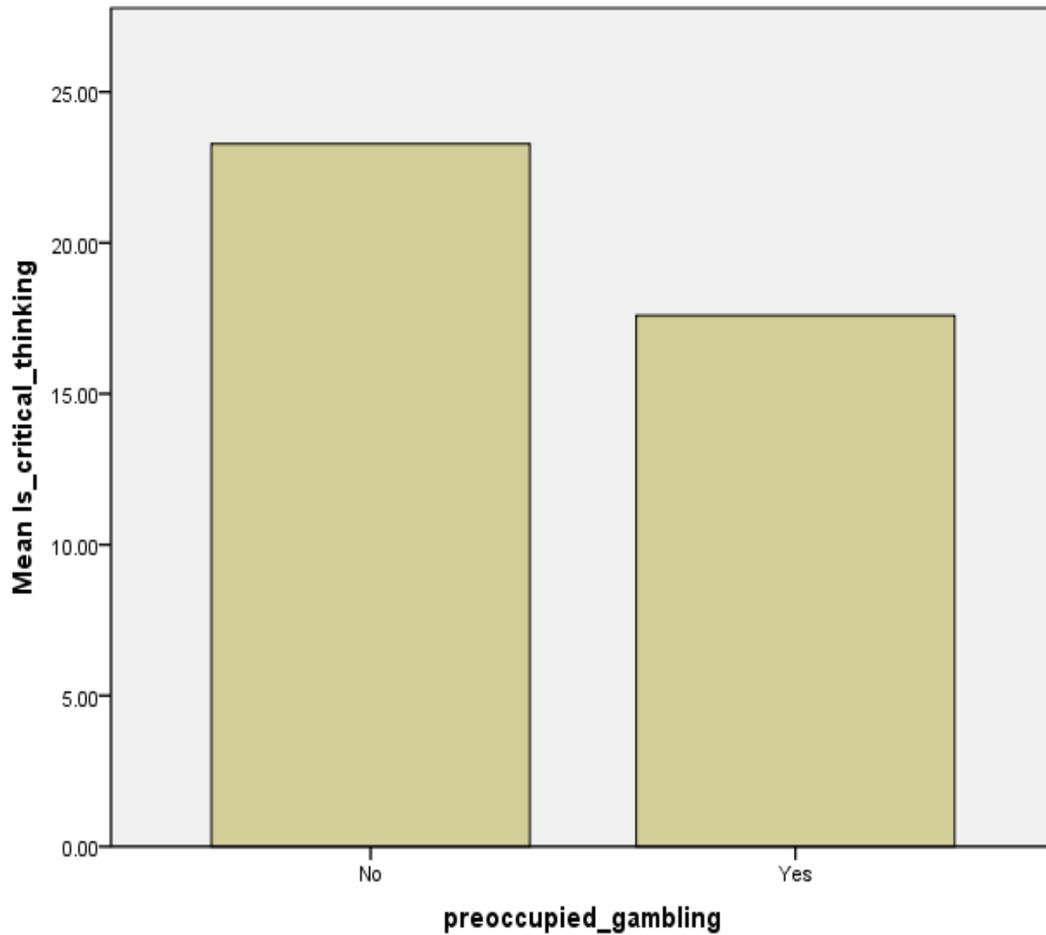
*Figure 6.* Mean frequencies between extrinsic goal motivation and preoccupation.



This bar graph shows that participants who had a preoccupation with gambling had lower mean frequency levels for the motivation variable extrinsic goal motivation than those who did not have a preoccupation with gambling, according to results of a

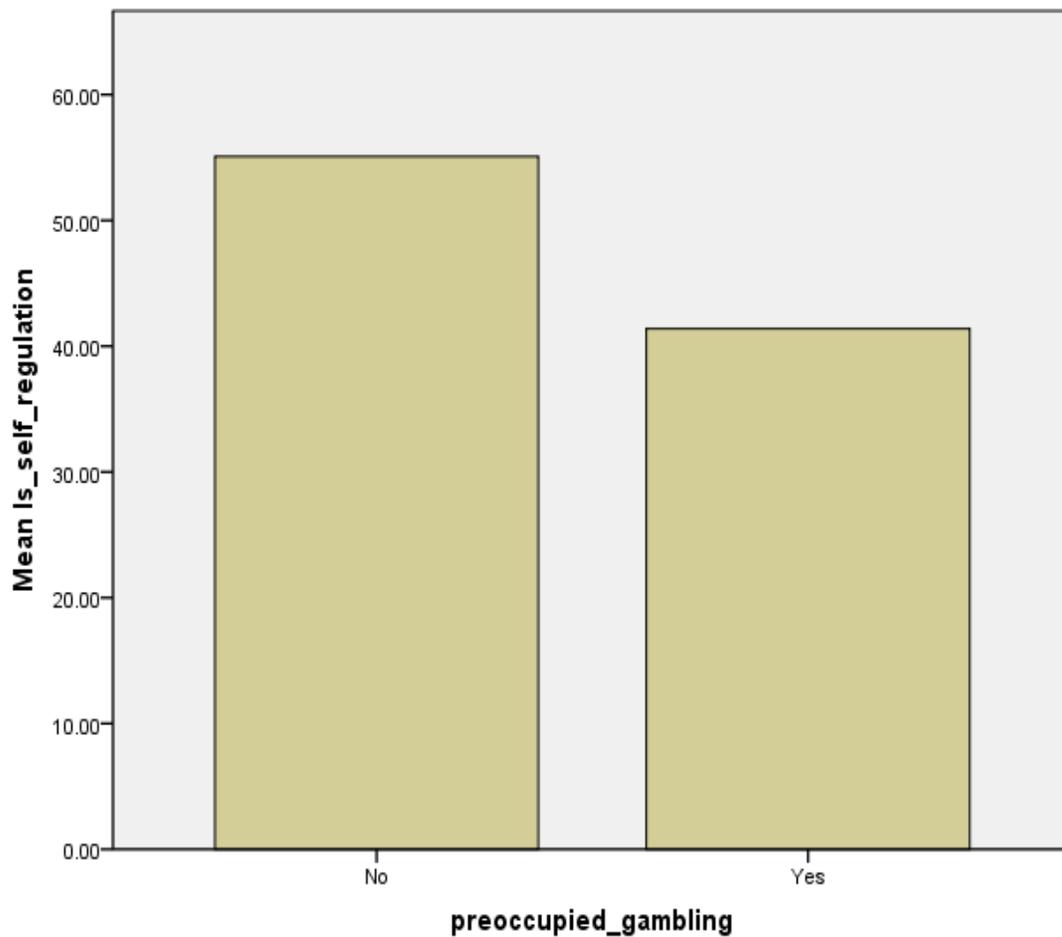
one-way ANOVA test.

Figure 7. Mean frequencies between critical thinking and preoccupation.



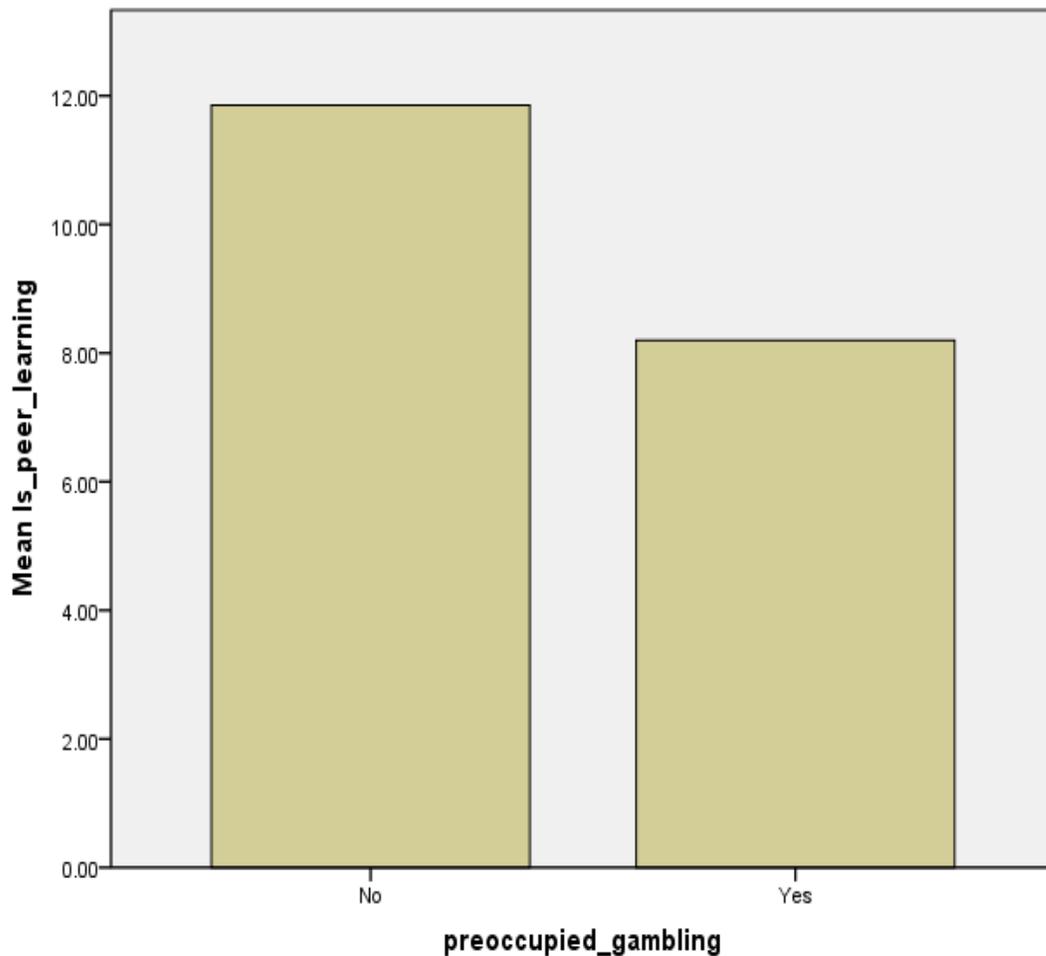
This bar graph shows that participants who had a preoccupation with gambling had lower mean frequency levels for the learning strategy variable critical thinking than those who did not have a preoccupation with gambling, according to results of a one-way ANOVA test.

Figure 8. Mean frequencies between self regulation and preoccupation.



This bar graph shows that participants who had a preoccupation with gambling had lower mean frequency levels for the learning strategy variable self regulation than those who did not have a preoccupation with gambling, according to results of a one-way ANOVA test.

Figure 9. Mean frequencies between peer learning and preoccupation.



This bar graph shows that participants who had a preoccupation with gambling had lower mean frequency levels for the learning strategy variable peer learning than those who did not have a preoccupation with gambling, according to results of a one-way ANOVA test.

### Conclusion

This chapter reviewed the results from the study; the significant findings and trends that were shown from data analysis of the participants' responses of the CPGI-R and MSLQ.

The next chapter reviews the summary of the major findings with respect to the applicable literature this study builds upon as well as limitations of this research study, suggestions for future research, and the conclusion.

## Chapter 5

### Discussion, Recommendations, Conclusion

This chapter contains a summary of the major findings with respect to the applicable literature this study builds upon as well as limitations of this research study, suggestions for future research, and the conclusion.

#### Major Findings

To evaluate the outcome of the null hypothesis, suggesting that there is no relationship between academic motivation and the level of gambling activity of post secondary students, this researcher used a quantitative research approach using survey design. Findings of cross tabulations between gambler type and measured variables and mean frequency calculations between having a preoccupation with gambling and measured variables are discussed next.

##### Findings between Gambler Type

The findings revealed that there were no shown significant differences between gambler type and age. This finding is inconsistent with previous research (Dickson et al., 2004; Powell et al., 1999; Shaffer et al., 2001; Williams, Connolly, Wood, & Nowatzki, 2006) that states that youth, those between the ages of 17-24 years, and post secondary students tend to have the greatest rates of at risk and problem gamblers as compared to adults over 24 years who are not enrolled in academics. Further inconsistencies with previous research by these same researchers were shown with gambling types, as none of the post secondary students were classified to be problem gamblers.

There were also no significant differences shown between gambler type and student status. Since there seems to be no previous research that examined the relationship between these two variables, no comparison of results may be made.

Significant differences were revealed between gambler type and sex where more males than females were shown as low and moderate risk gamblers, totaling 29.6% of males and 11.8% of females. This finding is consistent with previous research (Adams et al., 2007; Gupta et al., 1998a; Haroon et al., 2003; Parker et al., 2008; Powell et al., 1999; Ste. Marie et al., 2002) that states that there are more males who gamble than females. Powell et al., (1999) theorize that since males tend to be greater risk takers than females, males tend to have higher rates of addictive behaviours including gambling. Males are also shown to have lower levels of intrapersonal and interpersonal skills than females (Parker et al., 2008) suggesting that poorer emotional regulation skills may be positively correlated with higher means of escaping from problems through gambling.

Significant differences were revealed between gambler type and length of residency within Windsor-Essex County. There were more low and moderate risk gamblers, totaling 37.6% who resided in this area for a period of less than one year as compared to 29.6% of low and moderate risk gamblers who resided in this same area for more than one year. This finding is consistent with previous research (Adams et al., 2007; Gupta et al., 2004; Jacobs, 2000), which suggests that initial exposure, and ease of accessibility to legalized gambling is positively correlated with gambling problems. It is postulated that the participants who resided in this area for less than one year had not been as easily exposed to legalized gambling venues prior to their relocation to this area where there is one casino in the City of Windsor and three casinos in Detroit, Michigan, located minutes away.

Significant differences were revealed between gambler type and having a preoccupation with gambling. All participants who indicated that they had a preoccupation with gambling were shown to be at risk gamblers. This finding supports previous research (Gupta et al., 2004; Haroon et al., 2003; Parker et al., 2008) that states that at risk and problem gamblers have a dysfunctional preoccupation with gambling that interferes with their ability to focus on aspects outside of gambling related activities.

An apparent trend was shown between gambler type and class where there were more participants from business (44.4%) followed by education (17.3%) and math (9%) that showed to be low and moderate risk gamblers. Previous research on gambler type and student major (Williams et al., 2006) seems to support this trend. Although these researchers found the strongest significant predictive reliability between problem gamblers and education and kinesiology majors, it was closely followed by management majors (business students) as well as those with superior ability to calculate numbers associated with math majors. These researchers suggested that a significant portion of education majors who are studying physical education as well as kinesiology students are athletes; and athletes have been shown to be associated with risk-taking behaviours such as gambling activity (Rockey, Beason,, & Gilbert, 2002). Management students might also have a higher correlation with risk-taking behaviours and an interest in making money, possibly accounting for their higher involvement in gambling activities (Williams et al., 2006). The correlation with math students may be due to awareness of odds and probability and/or to a belief in one's ability to count cards.

An apparent trend was also shown between gambler type and time management and effort regulation. Time management skills seemed to be more positively correlated with non

problem gamblers than low or moderate risk gamblers, suggesting that those who are not at risk of problem gambling have better cognitive self regulation skills. This is consistent with past research which states that at risk and problem gamblers tend to have poor levels of cognitive self regulation skills (Gupta et al., 2004; Hardoon et al., 2003; Parker et al., 2008).

These same researchers lend support for the trend shown with effort regulation skills and gambler types whereby effort regulation seems to be more positively correlated with non-problem and low risk gamblers than moderate risk gamblers. The results of their research suggests that the greater the level of at risk and problem gambling behaviours in students, the poorer the level of effort regulation which is described by Pintrich and Schrauben (1992) as the ability to focus on a task free from distraction. Hence, since higher levels of at risk and problem gamblers tend to have increased levels of anxiety and cognitive and emotional stressors as well as a preoccupation with gambling, it is reasonable to infer that they would be less able to focus on a task than non-gamblers and low risk gamblers.

#### Findings between Preoccupation

Participants who indicated having a preoccupation with gambling had significantly lower frequency levels for extrinsic goal motivation, critical thinking, self-regulation, and peer learning than those who did not have a preoccupation with gambling. These finding are consistent with previous research (Gupta et al., 2004; Hardoon et al., 2003; Parker et al., 2008; Ryan et al., 2000a) that states that having a preoccupation with gambling adversely interferes with students' ability to focus on academics and limits their motivation, affect regulation, and relationship building skills.

Apparent trends were also shown with participants who indicated having a preoccupation with gambling. These participants seemed to have higher levels of test anxiety

and less effort regulation skills than those who were not preoccupied with gambling. With respect to test anxiety, previous research (Ste. Marie et al., 2002; Gupta et al., 2004; Parker et al., 2008) supports this trend where having a preoccupation with gambling is positively correlated with increased levels of anxiety and decreased academic motivation and success. Smith et al.,(1998) also state that poor affect regulation as indicative of having ongoing high levels of anxiety is associated with lower levels of academic motivation and achievement.

Research by Pintrich et al.,(1992) lends support for the trend between the inverse relationship between having a preoccupation with gambling and effort regulation skills. These researchers explain that effort regulation requires the ability to maintain adequate levels of concentration on a particular academic task without distraction, which is reasonably inferred to be problematic for those who are preoccupied with thoughts of gambling.

### **Limitations of the Study**

A small sample size of 96 participants from a restricted range of sampled classes limited the findings of the research as the general population is not reflected. Second, upon administering the questionnaires, this researcher did not define all of the types of activities in this research (lottery tickets, scratch tickets) that were considered gambling to the initial class of participating math students. A large percentage of these students therefore did not complete the gambling related portion of the CPGI-R due to their belief that they had not gambled when in fact they had. This limitation was made known to this researcher after these participants completed their questionnaires and then remained to discuss some of their gambling experiences. Types of gambling activities were then verbally explained by this researcher to all subsequent class participants, resulting with more completed CPGI-R questionnaires. Third, not all participants completed all of the questions in either of the

questionnaires thereby restricting the ability for these variables to be analyzed and compared for results. Biases inherent in self-reports are also considered as limitations to the study.

### **Conclusion**

Based on the statistical analysis and interpretations of the data collected for this study, the null hypothesis may be rejected as there are some relationships between academic motivation and the level of gambling activity of post secondary students. Quantitative evidence showed significant relationships between levels of gambling activity, labeled as ‘gambler type’ with those who had a preoccupation with gambling and with the following variables measured from the MSLQ: extrinsic goal motivation, critical thinking, self regulation, and peer learning, as well as trends with test anxiety and effort regulation.

Quantitative evidence also showed significant relationships between levels of gambling activity, labeled as ‘gambler type’ and the following demographic variables measured from the CPGI-R: sex, length of residency, and having a preoccupation with gambling, as well as trends with class and two variables from the MSLQ, time management and effort regulation.

It is further noted that as a certified gambling counsellor at Windsor Regional Problem Gambling Services, this researcher has had and continues to have marked involvement with student problem gamblers. These gamblers typically present for treatment after having gambled away all of their tuition funds and dropped out of post secondary school, demonstrating trace levels of various aspects of academic motivation. Therefore since having front line experience in this field, this researcher intends to continue studying and promoting awareness in the area of student problem gambling where a need arguably remains.

**Further Studies**

Further studies conducted to expand on this research could be of benefit using a larger population inclusive of local college students, in attempt to obtain a more accurate representation of the general post secondary student population. A longitudinal study following first year students through to graduation of their bachelor programs could also provide useful information on the progression of gambling activity and how this may impact academic motivation over time, as there has yet to be a longitudinal study researching this population and area of foci. Others may center their research on prevention and intervention strategies related to problem gambling and its implication on the post secondary culture, environment, and related stakeholders. Thus the practical implications of such studies may impact students and their families, teachers, counsellors, academic administration, and policy makers.

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## Appendix A

### CONSENT TO PARTICIPATE IN RESEARCH

**Title of Study: An Examination of the Relationship between Academic Motivation and the Level of Gambling Activity of Students**

You are asked to participate in a research study conducted by **Leanne Bourdeau, a graduate student**, under the supervision of **Dr. Geri Salinitri**, from the **Department of Education** at the University of Windsor. The results of this study will contribute to the M.Ed. thesis of Leanne Bourdeau.

If you have any questions or concerns about the research, please feel to contact **Leanne Bourdeau at (519) 984-1325 or at [bourdea@uwindsor.ca](mailto:bourdea@uwindsor.ca)**. You may also contact **Dr. Geri Salinitri at (519) 253-3000 Ext. 3961**.

#### PURPOSE OF THE STUDY

The purpose of this survey study is to examine the relationship between academic motivation as measured by the motivated strategies for learning questionnaire and the level of gambling activity of students as measured by the Canadian problem gambling index. The null hypothesis suggests that there is no relationship between academic motivation and the level of gambling activity of students. It is argued that the greatest percentage of pathological gamblers lies within the post secondary population. As well, academic institutions, such as the University of Windsor, which are located in close proximity to legalized gaming venues seemingly influence desensitization to the costs of gambling and provide greater access to gambling, thereby increasing the propensity for problematic and pathological gambling amongst these university students. Moreover, a chronic preoccupation with gambling has been demonstrated to be inherent in gambling addiction and arguably impacts the ability for students to focus upon and achieve in the field of academics, potentially affecting academic motivation. It is hoped that upon completion of this study, the results will help stakeholders impacted by problem gambling in the areas of awareness, education, prevention, treatment, and tertiary levels of care.

#### PROCEDURES

If you volunteer to participate in this study, you will be asked to complete 2 questionnaires at one point in time.

- 1) The Canadian Problem Gambling Index (CPGI), which asks questions about your demographical information and gambling experience.
- 2) The Motivated Strategies for Learning Questionnaire (MSLQ), which asks questions about your attitudes regarding your educational aspirations, beliefs in your ability to succeed, and study habits.

#### POTENTIAL RISKS AND DISCOMFORTS

This study poses very little potential for risk. However, it is possible that a participant may experience some discomfort while completing the CPGI if he/she begins to recognize concerning qualities about his/her gambling experiences. There is a list of problem gambling resources provided within the questionnaire envelopes that you may access for questions, support, and treatment as requested.

#### POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Participating in this study has the potential of providing you with some insight into your own gambling behaviour, thereby fostering self-awareness in an area which may not have been otherwise recognized. Should this prove true, this study also provides a list of professional problem gambling resources for you to access for questions, support, and treatment as requested.

The results of this study will provide information about students with problem gambling and how it may impact educational motivation, which may help stakeholders (students, teachers, gambling counsellors, policy makers, etc.) impacted by problem gambling, particularly within a student population.

#### COMPENSATION FOR PARTICIPATION

Participation in this study will be for the purpose of research alone. However you will be provided with information on how to obtain treatment for problem gambling should you believe that you or someone close to you may be suffering from problem gambling.

#### CONFIDENTIALITY

**Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission; however as this study is anonymous, the likelihood of this happening is extremely rare.** The data will be stored in this researcher's file cabinet and on this researcher's computer. The results of this study will be disseminated on the REB website.

#### PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you

may leave at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. **The investigator may withdraw you from this research if circumstances arise which warrant doing so.**

#### FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

A summary of the results of this study will be made available online for your information.

Web address: [www.uwindsor.ca/reb](http://www.uwindsor.ca/reb)

Date when results are available: September 2011

#### SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

#### RIGHTS OF RESEARCH SUBJECTS

You may leave at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: [ethics@uwindsor.ca](mailto:ethics@uwindsor.ca)

#### SIGNATURE OF RESEARCH SUBJECT/LEGAL REPRESENTATIVE

I understand the information provided for the study **An Examination of the Relationship Between Academic Motivation and the Level of Gambling Activity of Students** as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

\_\_\_\_\_  
Name of Subject

\_\_\_\_\_  
Signature of Subject

\_\_\_\_\_  
Date

#### SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

\_\_\_\_\_  
Signature of Investigator

\_\_\_\_\_  
Date



## Appendix B

### **LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH**

**Title of Study: An Examination of the Relationship between Academic Motivation and the Level of Gambling Activity of Students**

You are asked to participate in a research study conducted by **Leanne Bourdeau, a graduate student**, under the supervision of **Dr. Geri Salinitri**, from the **Department of Education** at the University of Windsor. The results of this study will contribute to the M.Ed. thesis of Leanne Bourdeau.

If you have any questions or concerns about the research, please feel to contact **Leanne Bourdeau at (519) 984-1325 or at [bourdea@uwindsor.ca](mailto:bourdea@uwindsor.ca)**. You may also contact **Dr. Geri Salinitri at (519) 253-3000 Ext. 3961**.

#### PURPOSE OF THE STUDY

The purpose of this survey study is to examine the relationship between academic motivation as measured by the motivated strategies for learning questionnaire and the level of gambling activity of students as measured by the Canadian problem gambling index. The null hypothesis suggests that there is no relationship between academic motivation and the level of gambling activity of students. It is argued that the greatest percentage of pathological gamblers lies within the post secondary population. As well, academic institutions, such as the University of Windsor, which are located in close proximity to legalized gaming venues seemingly influence desensitization to the costs of gambling and provide greater access to gambling, thereby increasing the propensity for problematic and pathological gambling amongst these university students. Moreover, a chronic preoccupation with gambling has been demonstrated to be inherent in gambling addiction and arguably impacts the ability for students to focus upon and achieve in the field of academics, potentially affecting academic motivation. It is hoped that upon completion of this study, the results will help stakeholders impacted by problem gambling in the areas of awareness, education, prevention, treatment, and tertiary levels of care.

#### PROCEDURES

If you volunteer to participate in this study, you will be asked to complete 2 questionnaires at one point in time.

- 1) The Canadian Problem Gambling Index (CPGI), which asks questions about your demographical information and gambling experience.
- 2) The Motivated Strategies for Learning Questionnaire (MSLQ), which asks questions about your attitudes regarding your educational aspirations, beliefs in your ability to succeed, and study habits.

#### POTENTIAL RISKS AND DISCOMFORTS

This study poses very little potential for risk. However, it is possible that a participant may experience some discomfort while completing the CPGI if he/she begins to recognize concerning qualities about his/her gambling experiences. There is a list of problem gambling resources provided within the questionnaire envelopes that you may access for questions, support, and treatment as requested.

#### POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Participating in this study has the potential of providing you with some insight into your own gambling behaviour, thereby fostering self-awareness in an area which may not have been otherwise recognized. Should this prove true, this study also provides a list of professional problem gambling resources for you to access for questions, support, and treatment as requested.

The results of this study will provide information about students with problem gambling and how it may impact educational motivation, which may help stakeholders (students, teachers, gambling counsellors, policy makers, etc.) impacted by problem gambling, particularly within a student population.

#### COMPENSATION FOR PARTICIPATION

Participation in this study will be for the purpose of research alone. However you will be provided with information on how to obtain treatment for problem gambling should you believe that you or someone close to you may be suffering from problem gambling.

#### CONFIDENTIALITY

**Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission; however as this study is anonymous, the likelihood of this happening is extremely rare.** The data will be stored in this researcher's file cabinet and on this researcher's computer. The results of this study will be disseminated on the REB website.

#### PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may leave at any time without consequences of any kind. You may also refuse to answer any

questions you don't want to answer and still remain in the study. **The investigator may withdraw you from this research if circumstances arise which warrant doing so.**

#### FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

A summary of the results of this study will be made available online for your information.

Web address: [www.uwindsor.ca/reb](http://www.uwindsor.ca/reb)

Date when results are available: September 2011

#### SUBSEQUENT USE OF DATA

This data may be used in subsequent studies.

#### RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: [ethics@uwindsor.ca](mailto:ethics@uwindsor.ca)

#### SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

\_\_\_\_\_  
Signature of Investigator

\_\_\_\_\_  
Date

## APPENDIX C

**Canadian Problem Gambling Index (CPGI)**

Please answer the following 21 questions about yourself by either circling the applicable descriptor or with the use of numbers or words as relevant:

1. Sex:

Male Female

2. Age: \_\_\_\_\_

3. Are you a visible minority? If yes please proceed to question #4, if no, please proceed to question #5.

YES NO

4. Which ethnicity best describes you?

South Asian Asian Aboriginal African Ancestry Latin American

5. Approximately how long have you resided in Windsor-Essex County? \_\_\_\_\_

6. Are you a part-time or full-time student? \_\_\_\_\_

7. What major are you studying?

Business Math Psychology Social Work Engineering

Other \_\_\_\_\_

8. What year of study are you in?

First Second Third Fourth Other \_\_\_\_\_

9. What is/are your source(s) of income for payment of tuition? Please circle all that apply.

Own Job Parents Scholarship Bursary OSAP

Other \_\_\_\_\_

10. Have you gambled in the past 12 months? If yes, please proceed to question #11. If no, please proceed to Motivational Strategies for Learning Questionnaire.

YES NO

11. Thinking about the past 12 months, what type(s) of gambling have you participated in? Please circle all that apply.

- |                   |                               |                 |
|-------------------|-------------------------------|-----------------|
| Casino Card Games | Card Games Outside the Casino | Sports Betting  |
| Slot Machines     | Bingo                         | Lottery Tickets |
| Online Games      | Other_____                    | Scratch Tickets |

12. Thinking about the past 12 months, have you been, or are you preoccupied with gambling (I relive past gambling experiences, plan the next venture or am thinking of ways to get money with which to gamble).

- YES                      NO

13. Thinking about the past 12 months, how often have you bet more than you could really afford to lose?

- |                       |   |
|-----------------------|---|
| Never.....            | 1 |
| Sometimes.....        | 2 |
| Most of the time..... | 3 |
| Almost Always.....    | 4 |
| Don't Know.....       | 8 |
| No response.....      | 9 |

14. Thinking about the past 12 months, how often have you needed to gamble with larger amounts of money to get the same feelings of excitement?

- |                       |   |
|-----------------------|---|
| Never.....            | 1 |
| Sometimes.....        | 2 |
| Most of the time..... | 3 |
| Almost Always.....    | 4 |
| Don't Know.....       | 8 |
| No response.....      | 9 |

15. Thinking about the past 12 months, how often have you gone back another day to try to win back the money you lost?

- |                       |   |
|-----------------------|---|
| Never.....            | 1 |
| Sometimes.....        | 2 |
| Most of the time..... | 3 |
| Almost Always.....    | 4 |
| Don't Know.....       | 8 |
| No response.....      | 9 |

16. Thinking about the past 12 months, how often have you borrowed money or sold anything to get money to gamble?

Never.....	1
Sometimes.....	2
Most of the time.....	3
Almost Always.....	4
Don't Know.....	8
No response.....	9

17. Thinking about the past 12 months, how often have you felt that you might have a problem with gambling?

Never.....	1
Sometimes.....	2
Most of the time.....	3
Almost Always.....	4
Don't Know.....	8
No response.....	9

18. Thinking about the past 12 months, how often have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?

Never.....	1
Sometimes.....	2
Most of the time.....	3
Almost Always.....	4
Don't Know.....	8
No response.....	9

19. Thinking about the past 12 months, how often have you felt guilty about the way you gamble or what happens when you gamble?

Never.....	1
Sometimes.....	2
Most of the time.....	3
Almost Always.....	4
Don't Know.....	8
No response.....	9

20. Thinking about the past 12 months, how often has your gambling caused you any health problems, including stress or anxiety?

Never.....	1
Sometimes.....	2
Most of the time.....	3
Almost Always.....	4
Don't Know.....	8
No response.....	9

21. Thinking about the past 12 months, how often has your gambling caused any financial problems for you or your household?

Never.....	1
Sometimes.....	2
Most of the time.....	3
Almost Always.....	4
Don't Know.....	8
No response.....	9

## APPENDIX D

**The Motivated Strategies for Learning Questionnaire (MSLQ)**

To identify your strengths and weaknesses as a learner, you need a diagnostic tool. The Motivated Strategies for Learning Questionnaire (MSLQ) was developed to measure the types of learning strategies you use and your academic motivation. It contains several sections. For each section, you will receive a score. You and your instructor will use these scores to identify areas that need improvement. It is important that you answer all of the questions honestly. These are opinions about yourself; there are no right or wrong answers.

**Directions: Below are statements that people use to describe themselves. Please darken in the circle of the response that best describes you using the following scale:**

**NOT AT ALL TRUE OF ME** ● ● ● ● ● ● ● **VERY TRUE OF ME**

- |  |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|
| 1. When I study, I practice saying the material to myself over and over.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When studying for classes, I read my class notes and the course reading over and over.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I memorize key words to remind me of important concepts when I study.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When I study, I make lists of important terms and memorize the lists.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 2. When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I try to relate ideas in one subject to those in other courses whenever possible.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When reading for classes, I try to relate the material to what I already know.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When I study, I write brief summaries of the main ideas from the readings and the concepts from the lectures.                    | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I try to understand the material in classes by making connections between the readings and the concepts from the lectures        | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I try to apply ideas from course readings in other class activities such as lecture and discussion.                              | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 3. When I study the readings for a class, I outline the material to help me organize my thoughts.                                | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

- |  |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|
| When I study, I go through the readings and my class notes and try to find the most important ideas.                                     | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I make simple charts, diagrams, or tables to help me organize course material.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When I study, I go over my class notes and make an outline of important concepts.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 4. I often find myself questioning things I hear or read in this classes to decide if I find them convincing.                            | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When a theory, interpretation, or conclusion is presented in class or in readings, I try to decide if there is good supporting evidence. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I treat the course material as a starting point and try to develop my own ideas about it.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I try to play around with ideas of my own related to what I am learning in a class.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| Whenever I read or hear an assertion or conclusion in classes, I think about possible alternatives.                                      | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 5. During class time I often miss important points because I'm thinking of other things.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When reading for classes, I make up questions to help focus my reading.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When I become confused about something I'm reading, I go back and try to figure it out.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| If course materials are difficult to understand, I change the way I read the material.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| Before I study new material thoroughly, I often skim it to see how it is organized.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I ask myself questions to make sure I understand the material I have been studying in class.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I try to change the way I study in order to fit the course requirements and instructor's teaching style.                                 | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I often find that I have been reading for class but don't know what it was all about.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying.            | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When studying, I try to determine which concepts I don't understand well.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When I study, I set goals for myself in order to direct my activities in each study period.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

6. I prefer course material that arouses my curiosity, even if it is difficult to learn. ① ② ③ ④ ⑤ ⑥ ⑦  
 The most satisfying thing for me in classes is trying to understand the content as thoroughly as possible. ① ② ③ ④ ⑤ ⑥ ⑦  
 When I have the opportunity, I choose course assignments that I can learn from even if they don't guarantee a good grade. ① ② ③ ④ ⑤ ⑥ ⑦
7. Getting a good grade is the most satisfying thing for me right now. ① ② ③ ④ ⑤ ⑥ ⑦  
 The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade. ① ② ③ ④ ⑤ ⑥ ⑦  
 If I can, I want to get better grades in this class than most of the other students. ① ② ③ ④ ⑤ ⑥ ⑦  
 I want to do well in this class because it is important to show my ability to my family, friends, employer, or others. ① ② ③ ④ ⑤ ⑥ ⑦
8. I think I will be able to use what I learn in this course in other courses. ① ② ③ ④ ⑤ ⑥ ⑦  
 It is important for me to learn the material in this class. ① ② ③ ④ ⑤ ⑥ ⑦  
 I am very interested in the content area of this course. ① ② ③ ④ ⑤ ⑥ ⑦  
 I think the material in this class is useful for me to learn. ① ② ③ ④ ⑤ ⑥ ⑦  
 I like the subject matter of this course. ① ② ③ ④ ⑤ ⑥ ⑦  
 Understanding the subject matter of this course is very important to me. ① ② ③ ④ ⑤ ⑥ ⑦
9. If I study in appropriate ways, then I will be able to learn the material in this course. ① ② ③ ④ ⑤ ⑥ ⑦  
 It is my own fault if I don't learn the material in this course. ① ② ③ ④ ⑤ ⑥ ⑦  
 If I try hard enough, then I will understand the course material. ① ② ③ ④ ⑤ ⑥ ⑦

- |     |  |   |   |   |   |   |   |   |
|-----|--|---|---|---|---|---|---|---|
|     | If I don't understand the course material, it is because I didn't try hard enough.                           | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 10. | I believe I will receive an excellent grade in this class.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I'm certain I can understand the most difficult material presented in the readings for this course.          | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I'm confident I can understand the basic concepts taught in this course.                                     | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I'm confident I can understand the most complex material presented by the instructor in this course.         | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I'm confident I can do an excellent job on the assignments and tests in this course.                         | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I expect to do well in this class.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I'm certain I can master the skills being taught in this class.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 11. | When I take a test I think about how poorly I am doing compared with other students.                         | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | When I take a test I think about items on other parts of the test I can't answer.                            | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | When I take tests I think of the consequences of failing.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I have an uneasy, upset feeling when I take an exam.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I feel my heart beating fast when I take an exam.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 12. | I usually study in a place where I can concentrate on my course work.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I make good use of my study time.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I find it hard to stick to a study schedule.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I have a regular place set aside for studying.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
|     | I make sure I keep up with the weekly readings and assignments for my courses.                               | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| I attend class regularly.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I often find that I don't spend very much time on school work because of other activities.                                | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I rarely find time to review my notes or readings before an exam.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 13. I often feel so lazy or bored when I study that I quit before I finish what I planned to do.                          | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I work hard to do well even if I don't like what we are doing.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When course work is difficult, I give up or only study the easy parts.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| Even when course materials are dull and uninteresting, I manage to keep working until I finish.                           | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 14. When studying for a class, I often try to explain the material to a classmate or a friend.                            | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I try to work with other students to complete the course assignments.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When studying for a class, I often set aside time to discuss the course material with a group of students from the class. | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| 15. Even if I have trouble learning the material in a class, I try to do the work on my own, without help from anyone.    | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I ask the instructor to clarify concepts I don't understand well.   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| When I can't understand the material in a course, I ask another student in this class for help.                           | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
| I try to identify students in my classes whom I can ask for help if necessary.  | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

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