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Retailer Compliance with Youth Access Statutes and Regulatory Policies for Lottery Products and Alcohol: Evaluating the Role of Gender and Vendor Age

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ABSTRACT

Despite the implementation of legal prohibitions and regulatory policies to limit the commercial availability of lottery products to minors, published research continues to document a high prevalence of participation in and ease of access to lottery playing amongst adolescents. This study systematically investigated the influence of individual-level factors in vendor compliance with youth access statutes and policies for lottery and alcohol products. Six underage youths each attempted to purchase a lottery ticket, a beer, or both products together in the same 313 convenience stores, for a total of 1,219 purchase attempts. The results revealed that only a moderate proportion of vendors surveyed in this study were compliant with existing statutes and policies, and that gender and vendor age variables play a significant role in youth purchasing of lottery tickets and alcohol. These findings were interpreted in terms of their implications for strengthening regulatory policies and future research.

RÉSUMÉ

Malgré l'adoption de lois visant la limitation d'accès des jeunes mineurs aux produits de loterie, des résultats de recherche montrent une prévalence élevée d'achat de billets de loterie par les mineurs et leur accès relativement facile à ce type de produit. Cette étude examine le lien entre diverses caractéristiques individuelles des acheteurs et des vendeurs et le respect de l'application des lois visant la limitation d'accès des mineurs. Six jeunes mineurs ont tenté d'acheter soit un billet de loterie, soit une bière grand format, ou les deux produits à la fois dans 313 points de vente (dépanneurs) montréalais. Au total, 1 219 tentatives d'achat ont été effectuées. Les résultats montrent qu'un peu plus de la moitié des vendeurs se conformait aux lois et règles en vigueur. De plus, il appert que le sexe et l'âge des vendeurs jouent un rôle important dans la décision de vendre ou non les produits demandés par les acheteurs mineurs. Les résultats ont été interprétés en termes de leur implication dans le développent de stratégies pour limiter l'accès des mineurs aux produits de loterie et aux produits alcoolisés et de nouvelles pistes de recherche sont suggérées.

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TABLE OF CONTENTS

ABSTRACT....ii

RÉSUMÉ....iii

ACKNOWLEDGEMENTS....iv

LIST OF TABLES....viii

CHAPTER I....1

Introduction....1

CHAPTER II....3

Review of Literature....3

Youth Gambling Participation and Problem Gambling....4

Lottery Participation....5

Youth Access Policies for Lottery Products: Québec and Canada....7

History of Gambling and Gambling Legislation in Canada....7

Current Legislation and Policies for Lottery Gambling: Restricting Youth Access....10

Compliance with Youth Access Regulations and Policies for Lottery Gambling....13

Factors Associated with Illegal Sales of Restricted Products....14

Situational Factors....15

Purchaser Factors....16

Vendor Factors....17

Theoretical Models Explaining Illegal Sales of Restricted Products....18

Rational Choice Model....18

Sociocultural Model....19

Decision-Heuristics Model....20

Research Goals and Hypotheses....21

CHAPTER III....24

Method....24

Participants....24

Purchasers and Materials....27

Purchasers....27

Purchase Attempt Survey....29

Procedure....31

Data Entry....33

Data Coding and Analysis....33

CHAPTER IV....37

Results....37

Vendor Compliance with Age Identification Policies....37

Product Type....37

Gender....38

Vendor Age Group....39

Category of Store Ownership....40

Purchaser Gender and Vendor Gender....43

Purchaser Gender and Vendor Age Group....45

Vendor Gender and Vendor Age Group....46

Gender and Product Type....47

Vendor Age Group and Product Type....50

Logit-Model Analysis....51

Factors Associated with Requests for Age Identification....52

Factors Associated with Purchase Outcome.....53

CHAPTER V.....56

Discussion.....56

Vendor Compliance with Age Identification Policies.....56

Vendor Compliance with Policies for Lottery vs. Alcohol Products.....59

Gender and Age Differences in Vendor Compliance.....61

Factors Mediating Compliance with Policies for Lottery vs. Alcohol Products.....63

Implications for Prevention and Awareness Initiatives.....65

Limitations and Future Directions.....68

References.....71

APPENDIX A: Compliance Check Survey Form.....84

APPENDIX B: Ethics Certificate.....89

APPENDIX C: Informed Consent Form.....92

APPENDIX D: Data Coding Scheme.....97

LIST OF TABLES

Table 1. Sample Distribution by Municipality....25

Table 2. Sample Distribution by Banner....26

Table 3. Sample Distribution by Product Type, Gender, and Vendor Age Group....27

Table 4. Observed Frequencies of Request for Age Identification Categorized by Product Type....37

Table 5. Observed Frequencies of Purchase Outcome by Product Type....38

Table 6. Observed Frequencies of Request for Age Identification Categorized by Gender....39

Table 7. Observed Frequencies of Purchase Outcome Categorized by Gender....40

Table 8. Observed Frequencies of Purchase Outcome Categorized by Vendor Age Group (Estimated)....41

Table 9. Observed Frequencies of Request for Age Identification Categorized by Category of Store Ownership....42

Table 10. Observed Frequencies of Purchase Outcome Categorized by Category of Store Ownership....42

Table 11. Observed Frequencies of Request for Age Identification (ID) by Purchaser and Vendor Gender....44

Table 12. Observed Frequencies of Purchase Outcome by Purchaser and Vendor Gender....44

Table 13. Observed Frequencies of Request for Age Identification (ID) by Purchaser Gender and Vendor Age Group (Estimated)....45

Table 14. Observed Frequencies of Purchase Outcome by Purchaser Gender and Vendor Age Group (Estimated)....46

Table 15. Observed Frequencies of Request for Age Identification (ID) by Vendor Gender and Age Group (Estimated)....48

Table 16. Observed Frequencies of Purchase Outcome by Vendor Gender and Age Group (Estimated)....48

Table 17. Observed Frequencies of Purchase Outcome by Product Type and Purchaser Gender....49

Table 18. Logit-Model Analysis Predicting Request for Age Identification.....53

Table 19. Logit-Model Analysis Predicting Sale Refusal (Purchase Outcome).....54

CHAPTER I

Introduction

Today's youth are the first generation in Canadian history to have lived their entire lives in an environment where opportunities to gamble are as close at hand as the neighbourhood convenience or grocery store (Morton, 2003; Poulin, 2000). In the province of Québec alone, lottery products are sold by close to 10,000 retailers (Loto-Québec, 2007). The impact of this extensive accessibility has not gone unnoticed; beginning in the 1990's, Québec researchers uncovered that gambling constitutes a popular pastime for youth, with lottery playing ranking high amongst favourite gambling activities (Gupta & Derevensky, 1998; Ladouceur, 1996). While for many adolescents, gambling is an occasional activity with few negative consequences, there is nevertheless a small but significant percentage of youth who go on to develop a serious gambling problem. The fact that severe gambling problems frequently result in far-reaching and long-lasting negative outcomes draws attention to the importance of youth gambling prevention (Derevensky, Gupta, Dickson, & Deguire, 2004).

Restricting minor's access to lottery products, through minimum-age legislation and other regulatory policies, has been a fundamental component of youth gambling prevention initiatives. For example, in February 2000, the Québec legislature enacted a law banning the sale of lottery tickets to individuals under the age of 18 years. Loto-Québec, the provincial crown corporation mandated to operate and regulate gambling, has since implemented several policies to support the application of the law. One of the more recent policies instructs all retailers to request age identification from consumers appearing 25 years of age and younger (Loto-Québec, 2005). A number of years after the formal ratification of the law, however, close to one-third of Québec's adolescents still report having gambled on lottery products (Martin, Gupta, &

Derevensky, 2007). While not scientific, results from privately-sponsored "sting operations" also reveal that only a small minority of retailers refuse to sell lottery tickets to underage purchasers (Moore, 2000, 2001). It is therefore of great importance to identify those factors which contribute to the sustained commercial accessibility of lottery tickets to minors despite the existence of legal prohibitions.

To date, no empirically controlled study has examined the issue of retailer compliance with youth access laws or age identification policies for lottery products. The present study will investigate vendor compliance with current statutes and age identification policies for the sale of lottery products. In order to provide perspective, youth access to alcohol products (e.g., beer) and lottery products will be compared. This research will also examine the function and predictive importance of gender and apparent age in vendors' decision to comply with age identification policies. The results of this study will provide both researchers and provincial regulatory agencies with concrete information on the extent and variables influencing youth access to alcohol and lottery products from commercial sources, as well as clarify the weaknesses in the current policies which facilitate access.

CHAPTER II

Review of the Literature

Gambling in Canada, as in other countries worldwide, has experienced marked changes over the last century. Beginning at the end of the First World War, gambling underwent a progressive transformation from a stigmatized criminal activity to a socially acceptable form of entertainment (Morton, 2003). Besides being viewed as an innocuous recreational activity, gambling (gaming) today is considered an important source of public revenue, a tool for stimulating economic development, a channel for the creation of stable employment opportunities, and a legitimate means for funding charitable, non-profit, and/or community service groups (Derevensky & Gillespie, 2005; Korn, 2000).

Periodic amendments to Canada's gambling statutes are largely responsible for this shift in public attitudes towards gaming. These revisions fundamentally sanctioned gambling in Canada by permitting the provincial governments to regulate and operate a range of games of chance (Campbell, Hartnagel, & Smith, 2005; Campbell & Smith, 1998, 2003). Since then, the gaming industry has undergone a rapid expansion and impressive growth; by 1992, provincial lotteries were available nationwide, six out of ten provinces offered video lottery terminals, and five offered pari-mutuel sports wagering (Yorke, 2003). No sooner than 2004, gambling in Canada represented a nearly $13 billion a year business, with net revenues increasing by 275% from $1.687 billion in 1992-1993 to $6.329 billion in 2003-2004 (Azmier, 2005). By 2004, there were more than 39,000 video lottery terminals, 47,000 slot machines, and 33,000 lottery ticket outlets across Canada (Azmier, 2005). Given the substantial revenues generated by the gaming industry, new and existing forms of gambling will continue to proliferate at a staggering rate (Barmaki & Zangeneh, 2007; Derevensky et al., 2004).

In view of this rapid expansion, the majority of today's youth have lived their entire lives in an environment of legalized gambling (Poulin, 2000; Shaffer, Hall, & Vander Bilt, 1999). To fulfill business objectives, gambling corporations have frequently resorted to the promotion of game offerings via the media (radio, television, print, public advertising spaces). When these activities are advertised, the excitement and entertainment aspects are often emphasized. Since youth is a developmental period associated with experimentation and sensation seeking (Korn, Gibbins, & Azmier, 2003; Spear, 2000), it is not surprising that gambling has become an appealing activity for children and adolescents as well. The end result is an increase in youth gambling involvement (Jacobs, 2000, 2004; Shaffer & Zinberg, 1994).

Youth Gambling Participation and Problem Gambling

Once considered to be an adult activity, it is now well established that, to some extent, Canadian youth actively participate in gambling. Several researchers report that a significant proportion of youth gamble, although do so occasionally and do not experience any negative consequences (Stinchfield, 2004). For example, of a representative sample of all high school students in the province of Québec, approximately 36% (170,800 students) reported having gambled at least once in the last year, and 30% (142,500 students) indicated having gambled less than once per week (Martin et al., 2007). These figures are somewhat lower than previous findings by Ladouceur and colleagues (e.g., Ladouceur, Boudreault, Jacques, & Vitaro, 1999; Ladouceur & Mireault, 1988), and Gupta and Derevensky (1997, 1998). However, recent changes in the commercial accessibility of provincially-regulated games of chance to minors may explain this discrepancy in results (Chevalier, Martin, Gupta, & Derevensky, 2005; Martin et al., 2007).

While for many adolescents, gambling is an occasional recreational activity with few negative consequences, there is nevertheless a small but significant percentage of youth that experience gambling-related problems. In Canada, approximately 3-6% of adolescents meet diagnostic criteria for pathological gambling, and another 8-10% are at risk for developing severe gambling problems (Chevalier, Deguire, Gupta, & Derevensky, 2003; Chevalier et al., 2005; Poulin, 2000). A high proportion of these youth started gambling at an early age, between 10 and 12 years old (Gupta & Derevensky, 1998; Wynne, Smith, & Jacobs, 1996). There is also growing empirical evidence of significant associations between youth gambling participation and alcohol and drug use (Hardoon, Derevensky, & Gupta, 2002; Winters & Anderson, 2000), depression and anxiety (Griffiths, 1995; Gupta & Derevensky, 1998), disruption of family relationships (Derevensky & Gupta, 2004), delinquency and criminal behaviour (Blaszczynski, 1994; Wynne et al., 1996), and absenteeism or truancy (Griffiths, 1989; Jacobs, 2004).

Lottery Participation

Adolescents who gamble often participate in an assortment of unlicensed games of chance, such as playing cards or betting on sports (Jacobs, 2004; Shaffer & Zinberg, 1994; Westphal, Rush, Stevens, & Johnson, 2000). However, there is a growing body of evidence to suggest that youth who gamble may start with provincially regulated lottery products. For example, in a study of lottery playing amongst youth, Felsher, Derevensky, and Gupta (2004) found that children and adolescents reported first playing instant lotteries at 10 years of age, and at 11 years of age for traditional lottery draws. Along the same lines, Felsher and colleagues reported that children and adolescents purchase their first instant and/or traditional lottery draw tickets at a young age, approximately 12 years old. These results are consistent with previous findings for the average age of onset of gambling involvement.

Not only are youth initiated into gambling via the lottery, empirical evidence would suggest that the lottery remains a preferred gaming activity. Chevalier et al. (2005) had grade 7 to grade 11 students identify their principal gambling venues. They found that, of a variety of unlicensed and provincially regulated games of chance, adolescents favoured instant lotteries or "scratch tickets" (26%), followed closely by playing cards for money (23%). Similarly, Poulin (2000) indicated that, for secondary school students, instant scratch tabs (56%) were played more often than cards for money (35%) or betting on sports activities (26%). Thus, it would seem that instant lotteries are particularly appealing to both novice and more experienced youth gamblers.

The appeal and preference for instant lottery tickets is likely a result of its easy accessibility (Felsher, Derevensky, & Gupta, 2003). Findings from a representative study of the gambling behaviours of Louisiana students illustrate the facility with which minors purchase instant lottery products in spite of legal prohibitions; more than half (65%) of the students surveyed indicated that they had played instant lottery tickets, a gambling activity that is age-restricted under Louisiana law (Westphal et al., 2000). More direct evidence for the relative accessibility of lottery products to minors is also available in the extant literature. In fact, a comparable percentage of Ontarian underage youth (65%) report minimal difficulties in purchasing lottery tickets from the local convenience store despite age-restrictions (Felsher et al., 2004). What's more, even though older adolescents find it less difficult to purchase lottery tickets than younger adolescents, more than half (55%) of young adolescents revealed that it is easy to acquire lottery tickets.

Parental acceptance of lottery playing may also encourage youth involvement. Côté, Vitaro, and Ladouceur (2003) conducted telephone interviews with 597 parents of children aged 5 to 17 years in 2000. They found that while most parents (99%) believe that gambling can

become problematic for some people, one-third (34%) admit to having themselves purchased a lottery ticket for their child as a gift. Côté et al. also revealed that close to half (46%) of parents who reported that they gambled did so in the company of their child, with traditional lottery draws (69%) and instant lottery draws (38%) comprising their preferred gambling activities. Moreover, when queried about reasons for initiating lottery play, close to half (48%) of youth aged 10 to 18 years indicate that it is because their parents' play (Felsher et al., 2003). These results suggest that parents may be unintentionally promoting youth gambling involvement in lottery play.

It is clear then, from the research findings, that a majority of youth gamble on occasion with few negative consequences, but that a small yet significant number of youth are identified as having gambling problems. Of the adolescent's who gamble, most began by playing the lottery because it is relatively attractive and low cost. The appeal for lottery play is likely the result of its ease of access and its endorsement as a harmless form of entertainment. The problem, however, is that lottery playing may act also as a "gateway" to other types of gambling participation (Felsher et al., 2004; Shaffer & Zinberg, 1994). As a result, policy makers and regulators have enacted statutes prohibiting vendors from selling lottery tickets to minors.

Youth Access Policies for Lottery Products: Québec and Canada

History of Gambling and Gambling Legislation in Canada

The popularity of games of chance in Canada is not a recent phenomenon. Ethnographic evidence reveals that First Nations populations participated in a variety of gambling activities prior to the arrival of European explorers (Salter, 1979). Some of the more prevalent games of chance included "gaming sticks" and hand-dice games (Mandal & Vander Doelen, 1999). Wagering on social activities such as lacrosse and archery was also common during that period

(Thompson, 2001). Gambling within traditional Native populations, however, served a larger purpose than simply entertainment. Specifically, it functioned as a system to evenly distribute resources within communities during periods of economic stress, as well as a quasi-religious ritual to ensure the successful outcome of a ceremony (Salter, 1979; Wardman, el-Guebaly, & Hodgins, 2001).

Participation in gambling activities extended beyond tribal societies in pre-confederacy Canada. In his review of the history of gambling, Yorke (2003) indicates that the Canadian gambling experience is marked by three major periods, where gambling transitioned from a prohibited activity to a legal one. The first documented wave of regulated gambling began in the French colonial town of Louisbourg in the 1750's. At that time, several lotteries were introduced to raise capital for large economic projects (e.g., construction of canals), or to distribute lands to the population (Morton, 2003). Other forms of gambling were also prevalent in the French colonies of Canada. In fact, card games gained so much popularity during this period that sizeable shipments of card decks were imported (Yorke, 2003). This increase in gambling participation, nevertheless, led to a rise in the incidence of problem gambling and financial ruin, prompting the government to enact statutes regulating or prohibiting wagering on cards, dice, tables, and bowling, especially in public houses and taverns (Dunkley, 1985; Wamsley, 1998).

A second wave of gambling in Canada surfaced in the mid-nineteenth century, just prior to confederation in 1867. Wagering on horse races, both on and off track, gained popularity with Canada's economic elite during this period (Wamsley, 1998). Additionally, lotteries offering goods instead of cash prizes were launched and multiplied until the late 1850's (Morton, 2003). Legislation was passed shortly thereafter to prohibit draws and the sale of tickets, with the exception of lotteries exclusively for charitable purposes (Barmaki & Zangeneh, 2007). Despite

this effort to limit the proliferation of raffles, ambiguities in the legislation allowed for private lotteries to continue to operate until 1892 (Brenner & Brenner, 1990). In that same year, the Criminal Code of Canada was enacted to codify existing law on crimes, and gambling provisions were incorporated in a section of the Code titled "Offences against Religion, Morals and Public Convenience" (Campbell et al., 2005). These provisions disallowed any type of gambling activity save racetrack betting. Specifically, the acts of keeping common gaming houses, gambling in public conveyances such as railway cars and steamboats, operating lotteries, and cheating at play were entered into the Code as indictable criminal offences (Campbell & Smith, 2003). The acts of being found in common gaming houses, obstructing peace officers from entering said locations, and keeping a cock-fight pits were also incorporated into the Criminal Code, but as offences punishable by way of summary conviction (Robinson, 1983).

Following its formal adoption in 1892, a few major amendments were made to the gambling provisions of the Criminal Code of Canada (Campbell et al., 2005; Campbell & Smith, 1998, 2003; Derevensky & Gillespie, 2005; Robinson, 1983). One such amendment, entered in 1900, allowed for the operation of raffles offering prizes of small value, provided that they were held at religious or charitable bazaars for the purpose of fundraising. Another exemption was introduced in 1925, authorizing the operation of games of chance during agricultural fairs and exhibitions. A third revision to the Criminal Code in 1969 granted the federal and provincial governments permission to manage and conduct provincial lottery schemes (i.e., ticket lotteries, bingo, sports betting, casino-style card games). Finally, an amendment was introduced in 1985 that provided provincial and territorial governments with exclusive authority over gambling, and legalized games of chance conducted via computer, video device, or slot machine. Taken

together, these revisions allowed for the growth and expansion of gambling, thus bringing about the third period of regulated gambling in Canada (Barmaki & Zangeneh, 2007; Yorke, 2003).

Current Legislation and Policies for Lottery Gambling: Restricting Youth Access

Lotteries today continue to be regulated under federal law. Section 207(1) of the Criminal Code of Canada outlines the terms and conditions for creating and operating lotteries. It is under this section that permission is granted to provincial and territorial governments to "conduct and manage" lotteries in accordance with their respective legislature (Bourgeois, 1989). Provincial and territorial governments are also awarded the power to authorize, license, and control all other lotteries sanctioned in the Code (Osborne & Campbell, 1989). Simply put, Canadian federal law delegates the provinces and territories with exclusive authority over the operation and management of lotteries; it in no way dictates *how* these lotteries are to be conducted or controlled. Each provincial jurisdiction therefore retains its own statutes and policies for lottery administration and, more specifically, for restricting youth access to lottery products.

In Québec, the *Act Respecting the Société des Loteries du Québec* (1999) delineates the current provisos for the operation and management of lotteries. Although it is beyond the scope of this discussion to provide a detailed description of every provision, most germane to an understanding of Québec's statutes for restricting youth access to lottery products is Division V. Division V, commonly referred to as the "law prohibiting the sale of lottery products to minors", was first introduced in 1999 as a bill to amend pre-existing legislation. Ratification of this bill in February 2000 was likely in response to growing empirical evidence that gambling constitutes a popular pastime for youth (Gupta & Derevensky, 1998), that lottery products rank high amongst favourite gambling activities (Chevalier et al., 2005; Felsher et al., 2004), and that a small but significant proportion of youth have experienced serious gambling-related problems (Gupta &

Derevensky, 1998; Ladouceur et al., 1999; Ladouceur & Mireault, 1988). The general aim of Division V is to prohibit the sale of tickets for lottery schemes conducted and administered by *Loto-Québec* (the provincial crown corporation mandated to operate and regulate gaming activities in the region) to minors under the age of 18 years. This section also provides a list of punitive measures that may be enforced by local municipalities for violation of this prohibition. To be exact, a fine of $300 to $2,000 may be imposed as a penalty for a first contravention, and a fine of $600 to $6,000 may be allocated for subsequent contraventions. Finally, Division V presents two important stipulations regarding proof of age. Specifically, any person is liable to supply proof of age when purchasing lottery tickets, and "reasonable efforts" must be made by retailers to verify the age of ticket purchasers.

The enactment of legal prohibitions similar to Division V is necessary in the prevention of youth gambling participation; however, their effectiveness in reducing youth access to lottery products is limited (Derevensky, Gupta, Messerlian, & Gillespie, 2004). The institution of youth access policies is needed to further restrict the commercial availability of high-risk products such as lottery tickets to children and adolescents (Forster & Wolfson, 1998). In Québec, like elsewhere in Canada and the United States, youth access policies include a combination of administrative guidelines, merchant education and training programs, and tentative enforcement through compliance checks (Levy & Friend, 2000). For this reason, Loto-Québec has implemented several administrative guidelines and measures. One such measure is the *Here, we card/Ici, on carte* program (Loto-Québec, 2005). The program consists of supervised compliance checks at various retail outlets. The principal objective of these checks is to ascertain whether or not vendors are indeed abiding by the corporation's guidelines for requesting identification from consumers appearing 25 years of age or younger. Any retailer found to be in contravention of

youth access laws and/or Loto-Québec's guidelines is subject to a penalty. Penalties are as follows:

1. Formal warning for a first infraction
2. Sales suspended for 15 days for a second infraction
3. Sales suspended for 30 days for a third infraction
4. Sales suspended for 1 year for a fourth infraction

Other administrative measures and guidelines instituted by Loto-Québec include: (a) transmission of information via print material and on point-of-sale terminals to remind vendors that the sale of lottery tickets to minors is prohibited by law, and b) display of the "18+" logo at all retail outlets, on ticket display stands, and on all lottery products.

In 2007, several chain/franchise retailers responded to the implementation of Loto-Québec's administrative measures, instituting their own internal policies and guidelines regarding the sale of age-restricted products to minors. Most notably, retailers posted signs warning all customers under the age of 25 that they will be asked for proof of age when purchasing any tobacco, alcohol, or lottery product. For example, Alimentation Couche-Tard Inc., Canada's largest convenience store chain (Covell, 2006), displays notices at all service counters stating that alcohol, lottery tickets, and tobacco products cannot be sold to minors by law, and that all store personnel are required to ask for photo identification from any customer believed to be under 25 years of age. Similar notices have been posted in the province's major service station convenience stores, including Marché Express, Dépanneur Select, Dépanneur du Coin, and Dépanneur Super Relais. Although several of Québec's chain and franchise retailers have recently implemented internal policies for the sale of age-restricted products to customers

appearing under 25 years of age, it is important to note that these policies are not mandated by the province's current legislature.

Compliance with Youth Access Regulations and Policies for Lottery Gambling

Since the implementation of legal prohibitions and policies to prevent the sale of lottery products to minors in Québec and other Canadian provinces, prevalence studies continue to indicate that a significant proportion of youth participate in gambling activities, with lottery playing remaining a predominant activity (Chevalier et al., 2005; Martin et al., 2007). Similarly, adolescents report minimal difficulties in purchasing lottery tickets from retail outlets (Felsher et al., 2004). This high prevalence of participation in and ease of access to lottery playing amongst adolescents may be partly explained by a prevailing perception of the lottery as a relatively innocuous activity, in comparison to smoking or drinking alcohol. Although no specific study has addressed vendors' attitudes and beliefs about youth participation in lottery gambling, Felsher and colleagues (2003) found that of a sample of adolescents from the greater Montreal and greater Toronto areas who indicated playing the lottery, 76.7% reported that their parents had purchased a lottery product for them at one point, and 70% disclosed that they had received a lottery ticket as a gift. As well, Chevalier and colleagues (2005) indicated that of a representative sample of high school students in the province of Québec, approximately 30% of adolescents reported receiving lottery tickets as gifts. Felsher and colleagues (2003, p. 374) suggested that parents' failure to "view lottery playing as gambling or potentially addictive" might explain this pattern of results. Ladouceur, Vitaro, and Côté (2001) attempted to test this hypothesis directly by assessing parents' attitudes, knowledge, and behaviour towards youth gambling. They found that of the parents who stated having been asked to purchase lottery tickets by their child, 59% reported complying with this request occasionally. This is particularly surprising considering

85% of parents surveyed in this study recognized that a law restricting the age of purchase of lottery tickets existed. It then follows that, given this predominant attitude of lottery playing as harmless, retailers would be no more likely to uphold the law than parents, especially if there is no fear of penalty.

To date, no empirical study has focused strictly on retailer compliance with youth access to lottery ticket laws and policies. While not scientific, findings from "sting operations" sponsored by the Viva Consulting firm in Montreal suggest that few retailers comply with Québec's youth access laws and policies (Moore, 2000, 2001). For the first survey, completed in May 2000, one male and one female minor, both 16 years of age, visited 31 retail outlets in the west end of Montreal. Of the 31 outlets surveyed, only 6 retailers refused to sell lottery tickets to the two minors. Similar findings were reported in the August 2001 survey; a 15-year-old female successfully purchased lottery tickets at 31 of 33 outlets visited. These findings are in line with figures released by Loto-Québec. In its review of social responsibility policy initiatives, Loto-Québec (2005) maintained that only 23 of its retailers were penalized with a formal warning for violation of the prohibition between February 2000 and March 2005, and that no vendors have had their licenses temporarily revoked. Based on these results, it appears that several retailers are still adjusting to recent regulations and policies, and have difficulty understanding the importance of complying. Empirically controlled research examining vendor compliance with youth access to lottery products laws or age identification policies is therefore needed.

Factors Associated with Illegal Sales of Restricted Products

Much like gambling participation, early onset of alcohol consumption and smoking is consistently reported as a predictor of maladaptive behaviours and/or long-term addiction (Forster, McGovern, Wagenaar, Wolfson, Perry, & Anstine, 1994; O'Grady, Asbridge, &

Abernathy, 1999, 2000; Resnick, Bearman, Blum, Bauman, Haris, Jones, et al., 1997). As a result, over the last two decades, a number of provincial and federal policies have been instituted to further restrict the commercial availability of these high-risk substances to children and adolescents (Derevensky, Gupta, Messerlian, et al., 2004; Forster & Wolfson, 1998). Given the similarities between alcohol or tobacco consumption and gambling participation, an examination of the literature on retailer compliance with youth access legislation for these other high-risk substances may prove to be useful in better understanding why youth continue to gain access to lottery products.

Several studies in Canada and in the United States have identified factors that mediate tobacco and alcohol sales rates to minors. These can be classified into three general domains: (a) situational factors; (b) purchaser factors; and (c) vendor factors. Situational factors pertain to the purchase itself, such as the store location (rural areas vs. urban or suburban areas), the store ownership category (chain or franchised businesses vs. independently owned outlets), and the time of day in which the purchase attempt takes place (morning vs. afternoon vs. evening). Purchaser factors, conversely, refer to characteristics of the minors attempting to purchase restricted products. These include gender, physical attractiveness, age, ethnicity and behaviour (e.g., lying about age, buying additional items to increase probability of being sold restricted product). Finally, vendor factors signify characteristics of the clerks selling restricted products, and also include gender, age, ethnicity, and behaviour (e.g., inquiring about customer's age, probing for identification).

Situational Factors

Category of store ownership has been found to have a significant impact on illegal sales. In general, chains are stores owned and operated exclusively by a corporation, whereas

franchises are locally owned businesses with basic requirements set by a parent corporation but have some flexibility in how they are operated (Schmitt, 2002). Independently owned outlets, on the other hand, are stores entirely owned and operated by an autonomous proprietor. Studies by Hanson, Hatsukami, Boyle, and Brown (2000), and Weinbaum, Quinn, Rogers, and Roeseler, (1999) recently compared the rate of illegal sales of tobacco products (cigarettes, smokeless tobacco) between store ownership types. Both reported that independently owned outlets have lower rates of compliance with youth-access-to-tobacco laws than larger chains or franchises. This pattern of results is not surprising since larger chains and franchises are more likely to have formal policies, training programs, and internal incentives to prevent sales to minors than are independently owned outlets (Altman, Linzer, Kropp, Descheemaeker, Feighery, & Fortmann, 1992).

Sales of restricted substances have also been found to vary by geographic area. Specifically, stores located in rural areas are more likely to sell restricted products to minors than stores situated in urban centers (Clark, Natanblut, Schmitt, Wolters, & Iachan, 2000). This finding may be explained by the familiarity of the clerk with the minor. Because the population size in rural communities is smaller, it is expected that clerks in rural areas are more familiar with community members than clerks in urban districts. Landrine, Klonoff, and Fritz (1994, p. 325) suppose that familiarity with the minor "increases liking and so increases the need to satisfy the customer ... irrespective of the minor's age".

Purchaser Factors

In conjunction with situational variables, several studies have examined the function of the purchaser's individual characteristics on tobacco and alcohol sales rates. The purchaser's

gender, the purchaser's chronological age or apparent age, and the purchaser's ethnicity, for their part, appear to be somewhat influential variables in retailer compliance with youth access laws.

For the purchaser's gender, researchers have reported conflicting findings; some suggest that girls are more successful in purchasing restricted products from vendors (Clark et al., 2000; Forster, Hourigan, & McGovern, 1992; O'Grady et al., 1999, 2000), while others indicate no gender differences in rates of purchase success (Klonoff & Landrine, 2004; Landrine, Klonoff, & Alcaraz, 1997). Conversely, the effect of the purchaser's age is quite robust, with older adolescents (while still underage) being more successful than younger adolescents at purchasing alcohol and tobacco (DiFranza, Savageau, & Aisquith, 1996; Forster et al., 1994; Health Canada Tobacco Control Program, 2006). Although few studies have examined the effects of the purchaser's ethnicity on vendor compliance with youth access legislation, preliminary results suggest that ethnic minority youths (especially Black youths) are more likely to be sold restricted products than are Caucasian minors (Klonoff, Landrine, & Alcaraz, 1997; Landrine, Klonoff, Campbell, & Reina-Patton, 2000).

Vendor Factors

Unlike for situational and purchaser factors, it is difficult to reliably assess the influence of vendor characteristics on the sale of restricted products. This is because certain vendor characteristics cannot be determined without the vendor's explicit knowledge (Schmitt, 2002). Nevertheless, the vendor's gender, the vendor's age, and the vendor's ethnicity constitute the most important clerk variables that impact illegal sales.

Similar to the purchaser's gender, the vendor's gender has had mixed effects on retailer compliance rates. Certain studies report that male vendors are significantly more compliant than female vendors (Clark et al., 2000), whereas others report no differences between male and

female vendors (Forster et al., 1992; Klonoff & Landrine, 2004). A small number of studies have also attempted to establish the effects of the vendor's age on rates of compliance. From those available in the extant literature, it is suggested that vendors of similar age as the purchaser are the most likely to sell restricted products to minors (Health Canada Tobacco Control Program, 2006; McDermott, Scott, & Frintner, 1998). As for the vendor's ethnicity, research findings are divided, with a few studies indicating that non-Black vendors (particularly of Asian descent) are the least compliant with youth access laws (Klonoff et al., 1997; Landrine et al., 1997), and additional studies reporting no significant differences in rates of compliance between vendor ethnicities (Landrine et al., 2000; Voorhees, Swank, Stillman, Harris, Watson, & Becker, 1997).

Theoretical Models Explaining Illegal Sales of Restricted Products

Research on vendor compliance with youth access legislation demonstrates the importance of particular situational and individual-level variables on the sale of alcohol and tobacco to minors. The process by which situational, purchaser, and vendor factors influence retailers' decision to accept or decline sales of restricted products to children and minors still remains unclear from these studies. To address this limitation, three main theoretical perspectives explaining merchant sales of prohibited products to minors have been proposed within the extant literature: (a) the economic or rational choice model; (b) the sociocultural model; and (c) the decision-heuristics model.

Rational Choice Model

According to O'Grady and colleagues (2000), the basic premise behind the rational choice model is that merchants evaluate the relative economic benefit (the revenue generated) against the perceived costs (license suspension and/or fine) of a sale during the purchasing attempt. This assessment, in turn, determines the merchant's decision to accept or refuse an

illegal sale to minors. Within the rational choice framework, it is predicted that a higher cost-to-benefit ratio will deter merchants from making an illegal sale. This prediction is proposed to be most accurate when enforcement of legislation is active, because active enforcement increases retailers' perceived risk of being cited for an offence. Similar to O'Grady et al., Levy and Friend (2000) suggest that retailer compliance with youth access laws is largely determined by an interaction between the number of enforcement checks conducted in a given community, the level or severity of sanctions against retailers in legal violation, and the vendor's perceived costs for contravention of youth access laws. The difficulty with the rational choice model, however, is that in several instances the economic benefit derived from an illegal sale is not immediate or direct (Schmitt, 2002). That is, unless the clerk is actually the storeowner himself or herself, the clerk will likely not profit from completing the illegal transaction. What's more, the actual financial gain on a sale-by-sale basis remains minimal at best, making it unlikely that profit motive is the only factor to predict a retailer's decision to accept or refuse the illegal transaction (Landrine et al., 1994). Thus, while the rational choice theory provides a logical starting point for understanding the economics behind illegal sales to minors, it falls short of explaining why some clerks, but not others, make the decision to accept sales of prohibited products to minors.

Sociocultural Model

Landrine and colleagues (1994) provide a sociocultural explanation for retailer compliance with youth access laws. Conceptually, the decision to sell prohibited products to minors involves an approach-avoidance conflict for the seller, where the desire to satisfy the customer represents the approach side of the conflict, and the perceived illegality of the sale comprises the avoidance aspect (Schmitt, 2002). Landrine and colleagues suggest that the level of desire to please the customer and the perceived illegality of the sale is determined by specific

sociodemographic variables. They consider the minor's gender, the minor's ethnicity, the minor's age, the ethnic similarity between the clerk and the minor, the presence of other adult customers during the purchase attempt, and the familiarity with the minor to be the most influential. For example, the need to satisfy the customer is believed to increase when the minor is Caucasian because of the higher social evaluation of Caucasians, whereas the perceived illegality of the sale is thought to decrease when a female minor makes the purchase attempt because society values the health of boys more than girls. Landrine et al. predict that illegal sales to minors will be greatest when the desire to satisfy the customer is high and the perceived illegality of the transaction is low, and that refusal of sales will be greatest when the desire to satisfy the customer is minimal and the perceived illegality of the sale is elevated. Although this model does offer an explanation for how certain contextual factors reported in the compliance literature influence the clerk's decision to accept or refuse an illegal sale, it makes the assumption that all clerks hold similar social attitudes and beliefs which govern specific vending behaviour (Schmitt, 2002).

Decision-Heuristics Model

The decision-heuristics model, originating from social psychology theory, was adapted by McCall (1994) to specifically address retailer compliance with youth access legislation. The basic premise behind this model is that the decision to request age identification serves as the principle vehicle for restricting youth access to prohibited products. However, this decision requires the vendor to process complex and substantial amounts of information simultaneously (e.g., purchaser's ethnicity, gender, dress, pitch and tone of voice). Moreover, the demands of the job frequently place store clerks under considerable time pressure (McCall, Trombetta, & Nattrass, 2002). Decision heuristics permit the vendor to reduce the complex decision of asking

for identification into a simple choice that can be made rapidly and efficiently. One of the principle heuristics proposed to influence retailer's decision to ask for age identification is the representativeness heuristic. The representativeness heuristic is a strategy used to make probabilistic judgments that an individual, object and/or element "belongs to" or "fits within" a specific category. For example, a vendor may hold the stereotype that adolescent boys tend to wear "baggy" or loose-fitting jeans; when confronted with a customer wearing loose-fitting jeans, the salesperson is more likely to categorize the individual as a minor (whether or not this is actually the case), and request age identification for the sale of restricted products. If the strategy used proves to be successful in estimating the age of the purchaser, the vendor is expected to use this same technique when faced with a similar decision. The difficulty with this and other strategies, however, is that while they tend to be rather effective for making quick decisions about requesting identification or not, they are not infallible, and may in some instances lead to incorrect choices. The fallibility of heuristics in the decision to request age identification may therefore explain why youth continue to gain access to restricted products in spite of legal prohibitions. All in all, the decision heuristics model provides a reasonable account for how certain contextual variables reported in the compliance literature influence a clerk's decision to demand age identification, and that the outcome of this decision in turn predicts illegal sales to minors.

Research Goals and Hypotheses

The purpose of the current study is to examine the rate of vendor compliance with age identification policies restricting youth access to prohibited products. More specifically, this study seeks to ascertain if vendors are equally likely to request age identification from young-looking customers attempting to purchase lottery tickets as when purchasing alcohol products or

both combined. In addition to providing new information about the rate of retailer compliance, this study seeks to identify the role of gender and apparent age in vendors' decision to request age identification during the sale of a restricted product.

The precise aims of this study are: (a) to compare the rate of vendor compliance with age identification policies between selling lottery tickets, alcohol products, and the two combined; (b) to understand the role of the purchaser's and the vendor's gender (male or female) on vendor compliance; (c) to examine the interaction between vendor and purchaser gender on vendor compliance; and (d) to understand the role of the vendor's apparent age on vendor compliance.

Since the act of purchasing lottery products by minors is viewed as more socially acceptable (Felsher et al., 2003; Ladouceur et al., 2001) and does not constitute a punishable offense for the purchaser, whereas the purchase of alcohol does in fact represent a contravention of the statute respecting offenses relating to alcoholic beverages (i.e., purchaser may be fined), it is anticipated that vendors will be less likely to request age identification for the purchase of lottery products by young-looking customers than for alcohol products, or a combination of the two. This pattern of results is also expected due to the relative recency of the law prohibiting the sale of lottery products to youth.

Drawing from the theoretical and empirical literature on retailer compliance with youth access laws for tobacco and alcohol (i.e., Klonoff et al., 1997; Landrine et al., 1994; O'Grady et al., 1999), it is also anticipated that, overall, male buyers will likely be solicited for age identification more frequently than female buyers, but particularly for the purchase of alcohol, and alcohol in combination with lottery tickets. Furthermore, it is hypothesized that there will be no differences in the likeliness of requesting identification from young-looking clients between male and female vendors. However, it is expected that male vendors will be more likely to verify

the identification of male underage purchasers, and that female vendors will be more likely to request identification from female underage purchasers.

Finally, it is anticipated that young vendors (under the age of 30) will be less likely to solicit age identification from young-looking customers than older vendors (30 years of age and above). An interaction between the age of the vendor and the gender of the purchaser is also expected, such that younger vendors will be less likely to ask for age identification from a purchaser of the opposite sex than will older vendors.

CHAPTER III

Method

Participants

In total, 307 retail outlets in the Montreal area were selected to participate. This purposive stratified sample, based on municipality, was drawn from a list of 1,180 outlets obtained in the spring of 2007 via an independent web search (see Table 1 for the distribution). Since the focus of the current study is to compare retailer compliance with age identification policies for alcohol versus lottery products, the sample population was limited to retailers licensed to offer both products, specifically convenience stores and services stations with convenience stores. Of these 307 stores, 13 had moved or were no longer in business, and 14 were unable to be located. Thirty-three additional stores, identified in the same geographic region during data collection, were included in the sample to ensure representativeness.

The final sample of 313 retail outlets comprised 184 chain and/or franchise outlets and 129 independently-owned stores. Of the chain and/or franchise outlets, 37 were service station convenience stores, and the remaining 147 were standard convenience stores (see Table 2 for the distribution of banners). Every sampled outlet was visited a minimum of one and a maximum of six separate occasions ($M = 3.98$, $SD = 1.83$); no store was ever visited twice by the same purchaser and, in the majority of cases, each purchaser was served by a different vendor. Consequently, a total of 1,219 compliance checks were successfully completed. An additional 19 compliance checks were eliminated from the final analysis as pilot data ($n = 16$) or because the purchaser was familiar with the store clerk ($n = 3$). As shown in Table 3, attempts were made to balance compliance checks across purchase product type (lottery ticket, beer, lottery ticket and

beer combined), gender of the purchaser (male, female), gender of the vendor (male, female), and vendor apparent age (younger [< 30 years of age], older [≥ 30 years of age]).

Table 1

Sample Distribution by Municipality

	Sample Distribution	
Municipality	*n*	%
Mercier/Hochelaga-Maisonneuve	39	12.5
Rosemont/Petite-Patrie	38	12.1
Ville-Marie	30	9.6
Ahuntsic/Cartierville	26	8.3
Verdun	26	8.3
Sud-Ouest	23	7.3
Côte-des-Neiges/Nôtre-Dame-de-Grace	22	7.0
Plateau Mont-Royal	21	6.7
Lachine	17	5.4
Montréal-Nord	13	4.2
Pierrefonds/Roxboro	13	4.2
Lasalle	12	3.8
Dollard-des-Ormeaux	10	3.2
Dorval	9	2.9
Pointe-Claire	8	2.6
Villeray/St-Michel/Park Extension	5	1.6
Ste-Geneviève/Ile-Bizard	1	.3
Total	313	100.0

Table 2

Sample Distribution by Banner

Banner	Sample Distribution	
	n	%
Couche-Tard	82	44.6
Dépanneur 7 Jours	37	20.1
Ultramar Dépanneur du Coin	14	7.6
Dépanneur Beau-Soir	13	7.1
Esso Marché Express	10	5.4
Petro-Canada SuperRelais Dépanneur	7	3.8
Les Dépanneurs Boni-Soir	6	3.3
Shell Dépanneurs Sélect	6	3.3
Dépanneur Proprio	2	1.1
Visez Juste	2	1.1
AM-PM	1	.5
Dépanneur 4 Saisons	1	.5
Dépanneur Ultra	1	.5
Le Dépanneur	1	.5
Point-D'Aide	1	.5
Total	184	100.0

Table 3

Sample Distribution by Product Type, Gender, and Vendor Age Group

Purchaser Gender	Vendor Characteristics: Male, Younger[a]	Male, Older[b]	Female, Younger[a]	Female, Older[b]
		Lottery Ticket		
Male	29.0% (58)	28.0% (56)	21.0% (42)	22.0% (44)
Female	29.1% (60)	27.7% (57)	20.4% (42)	22.8% (47)
		Beer		
Male	28.5% (57)	27.5% (55)	20.0% (40)	24.0% (48)
Female	29.6% (61)	26.7% (55)	21.4% (44)	22.3% (46)
		Lottery Ticket and Beer Combined		
Male	28.4% (57)	29.4% (59)	19.9% (40)	22.4% (45)
Female	20.4% (59)	22.8% (58)	20.4% (42)	22.8% (47)

Note. Values in parentheses represent observed frequencies.
[a]Younger vendors were judged to be less than 30 years of age. [b]Older vendors were judged to be 30 years of age or greater.

Purchasers and Materials

Purchasers. Three male and three female underage purchasers were recruited through local youth employment centers and hired as casual employees. For the three male purchasers, one was 15 years of age and the two others were 16 years old. For the three female purchasers, one was 15 years of age, one was 16 years old, and one was 17 years of age. All purchasers were bilingual (English and French), and five of the six purchasers (two male, three female) indicated "Caucasian/White" as their ethnicity. The remaining male purchaser designated

"Hispanic/Latino" as his ethnicity; nevertheless, when matching for purchaser age and purchaser gender, no statistically significant effect of purchaser ethnicity was observed for vendor compliance with age identification policies, $\chi^2[(1, N = 375) = 1.39, p = n.s.]$.

In order to be included in the study, purchasers were required to participate in a one-hour training program. The first five minutes of the training session covered the study's principle objectives, its perceived benefits, and the possible risks of participation. The next 20 minutes introduced the purchasers to the study's protocol and rules of conduct. In this segment, purchasers were provided with step-by-step instructions for completing a purchase attempt, as well as standard verbal responses (e.g., "I'm sorry, I don't have my ID with me" when a purchaser is asked for age identification). Purchasers were also given explicit rules of conduct, including: (a) wearing age-appropriate clothing (e.g., jeans, khakis, knee-length skirts, shirts or t-shirts with no visible logos); (b) removing all piercings prior to data collection; (c) abstaining from coaxing or persuading the vendor into selling a product; (d) remaining calm and confident at all times in the store; and (e) using courteous and respectful language with vendors, managers, or other store employees. The remainder of the session was spent teaching purchasers to estimate a target person's age and ethnicity, and role-playing purchase attempts; this activity continued until the trainer was confident that all purchasers could estimate an individual's age and ethnicity with reasonable accuracy, as well as follow the protocol satisfactorily.

A panel of six males and seven females (mean age = 32.38 years, range = 20 – 57 years), blind to the aims of the study, was used to estimate the age of the youth who worked as purchasers. Panel members were recruited via an electronic mail message sent through the McGill University Faculty of Education listserv. Each panel member rated one 8.5 in. (21.59 cm) x 11 in. (27.94 cm) photograph of the head and shoulders for each of the six purchasers. The

overall mean age rating for the six purchasers was 16.86 years (SD = 2.02, range = 14 – 24 years). There was a tendency for respondents to overestimate the ages of some of the purchasers; however, none of the purchasers had a mean estimated age that exceeded 18.54 years. Age estimations for female purchasers (M = 17.15 years, SD = 2.32) were slightly older than male purchasers (M = 16.56 years, SD = 1.65), but the magnitude of this discrepancy undermined the probability that this finding was significant. The panel was also asked to rate the physical attractiveness of the purchaser since physical attractiveness has been reported to influence the decision to request identification (McCall, 1997a, 1997b). Attractiveness ratings were on a 7-point Likert scale, ranging from 1 (very unattractive) to 7 (very attractive). Although the sample size was too restrictive to perform any statistical tests, both male and female purchasers had a median attractiveness rating of 4 (neither attractive nor unattractive) (SD = 1.29 and SD = 0.97, respectively).

Purchase Attempt Survey. This instrument, developed for the purposes of a larger research project on vendor compliance with youth access policies, was used to collect relevant descriptive information. Descriptive information was divided across four broad domains: (a) purchaser characteristics; (b) store characteristics; (c) clerk characteristics; and (d) purchase characteristics. A copy of the survey form is included in Appendix A.

The first portion of the survey dealt with the purchaser characteristics. In this section, respondents were asked to indicate their gender, age (15 years old, 16 years old, or 17 years old), and ethnicity. Purchaser ethnicity was categorized as follows: (a) Caucasian or White; (b) Black; (c) Native or Inuit; (d) Hispanic or Latino; (e) East Indian or Pakistani; (f) Asian; (g) Arabic or Middle Eastern; and (h) other (specified).

In the next section, covering the store characteristics, respondents were required to indicate the store ownership category based on certain specifications. Chain and/or franchise outlets were defined as stores with an easily identifiable banner, whereas independently-owned outlets were defined as stores without a discernable banner. A list of recognized banners was provided at training. Respondents were also required to record the number of cash registers in the store, the number of customers in line when the purchase was attempted, and the presence of other employee or managerial witnesses. Furthermore, whenever purchasing beer, respondents were expected to identify the service type: (a) *self-service* if the purchaser was able to access the product without assistance, or (b) *clerk-assisted* if the purchaser necessitated assistance from an employee to access the product (i.e., refrigerator locked).

Subsequently, for the clerk characteristics, respondents were required to identify the gender and the apparent age of the vendor. As part of a larger research project, respondents were also instructed to identify the ethnicity of the clerk. Just like purchaser ethnicity, clerk ethnicity was categorized as follows: (a) Caucasian or White; (b) Black; (c) Native or Inuit; (d) Hispanic or Latino; (e) East Indian or Pakistani; (f) Asian; (g) Arabic or Middle Eastern; and (h) other (specified).

Finally, for the purchase characteristics, respondents were expected to indicate the purchase type (instant lottery ticket, beer, combination of both). Descriptive information regarding the date of purchase, the day of the week, and the time of day was also collected as part of a larger research project. Time of day was categorized as: (a) morning (9:00 to 12:00); (b) noon or lunch (12:00 to 13:00); (c) afternoon (13:00 to 18:00); and (d) evening (after 18:00).

In addition to reporting any relevant descriptive information, respondents were required to record whether age identification was requested (primary outcome measure), as well as

whether the purchase was permitted to take place (secondary outcome measure). A sale was considered complete when the clerk entered the purchase on the cash register, took the purchaser's money, and allowed the purchaser to leave the premises with the product.

Procedure

Checks for retailer compliance with age identification regulatory policies for alcohol and lottery products followed a similar standardized protocol as outlined in Schmitt (2002). Purchasers first signed in with their respective team leader. At sign-in, purchasers would collect their personal list of products to purchase over the course of the data collection period. This list was devised to ensure all purchasers attempted to buy equal quantities of lottery tickets alone, beer alone, and a combination of both products. The lottery products consisted of any available one-dollar instant scratch card (*Les Sept Chanceux*, *Triple 8, Pesant d'Or*, *Mr. Corbeil*), and if unavailable, any two-dollar instant scratch ticket. The beer product consisted of a large can (950 ml.) of domestic beer.

Equipped with a directory of retail outlet names and addresses, the team leader subsequently drove purchasers to the first retail outlet and parked the vehicle. Whenever possible, the vehicle would be parked in a location out of sight of store personnel, but where the team leader could still monitor the purchaser inside the outlet. The team leader inspected the store from inside the vehicle, to ensure that it appeared secure. If, for any reason, the store appeared unsafe or closed, the purchaser was not permitted to leave the vehicle and the team leader escorted the purchaser to the next selected location.

Prior to entering the outlet, the purchaser consulted his/her personal product list to determine which product was to be purchased at this location. Then, under the distant supervision of the team leader, the purchaser entered the store and proceeded to the location

where he/she could collect the assigned product (i.e., refrigerator for beer, service counter for lottery tickets). Purchasers buying both products simultaneously collected the beer from the fridge before proceeding to the service counter for lottery tickets. If asked to state his/her age during the transaction, the purchaser lied and responded with, "I am 18 years old". Likewise, if asked for age identification, the purchaser indicated that he/she did not have ID with him/her. Purchasers permitted to buy the products did so and requested a receipt. However, if they were refused, purchasers politely left the establishment without protest.

Once the purchase attempt was complete, the purchaser exited the establishment, returned to the vehicle, and recorded all observations onto the survey form. Completed survey forms and the purchased products were then remitted to the team leader. The team leader reviewed completed survey forms individually to ensure that all items were answered correctly, and placed all purchased products into a common container, which was later returned to the laboratory for inventory.

The team leader subsequently escorted the next purchaser to a selected outlet. The same procedure was repeated until all purchasers had visited an outlet. Frequently, the team leader returned to the first outlet and instructed a new purchaser to complete a compliance check. However, no purchaser entered any given establishment more than once, and visits to the same outlet were dispersed over time to ensure purchasers were served by different vendors. Furthermore, whenever possible, the order of the product purchase and the purchaser gender was randomized from store to store.

Data was collected over a five-month period beginning in June 2007 and ending in December 2007. Ethical approval for the study was obtained from McGill University's Faculty of Education Ethics Review Committee (see Appendix B). Compliant with the committee's

regulations, all purchasers were obliged to obtain parental consent and provide assent for participation (see Appendix C). All purchasers were assured that their participation was voluntary and that they were free to withdraw from the study at any point without penalty. Purchasers were also guaranteed that survey responses would be kept strictly confidential. Furthermore, since there is no intention of assigning blame or of requiring any establishment to accept accountability for non-compliance with the law, the identities of the establishments or vendors were kept confidential. As a compensation for participating in this study, purchasers were paid an hourly wage ($10/hour) that was not dependent upon the outcome of their purchase attempts.

Data Entry

To ensure confidentiality, each survey was assigned an identification number. Surveys were scanned using a Fujitsu scanner (Fi-5220C) and an Optical Mark Recognition software (Remark Office OMR 5.5). Each survey was scanned and then verified manually to ensure no scanning errors had occurred. The survey data was then converted to SPSS 11.0 for Windows for descriptive statistics analyses, and appropriate variable names and value labels were added to the file. The variable names, labels, and definitions are summarized in Appendix D. The survey data was also converted to SAS 9.1 for Windows for logit-model analyses.

Data Coding and Analyses

For the purposes of this study, two measures of vendor compliance with age identification policies were used. The first measure, request for age identification, was defined as the frequency that proof-of-age was requested during the attempted purchase of age-restricted products. The second measure, purchase outcome, was operationalized as the frequency that a sale of an age-restricted product was refused, regardless of whether proof-of-age was requested.

For the measure of request for age identification, responses were coded as "1" if, at any time during a purchase attempt, the vendor requested a valid piece of identification, and "0" if the vendor failed to ask for a piece of identification. Similarly, for the measure of purchase outcome, responses were coded as "0" if a sale of an age-restricted product to an underage buyer was permitted to take place, and "1" if no sale was permitted to take place. A sale was considered complete only when the clerk had entered the purchase on the cash register, took the purchaser's money, and allowed the purchaser to leave the premises with the product.

The effects of four explanatory variables on vendor compliance were addressed: product type, purchaser gender, vendor gender, and vendor age group (estimated). Product type is based on the product selected for a purchase attempt, and was coded as "0" if the product was a beer, "1" if the product was an instant lottery ticket, and "2" if the product was an instant lottery ticket and a beer combined". The "combined" product type was used as a referent because it was hypothesized to elicit the most vigilance from vendors. Purchaser gender was coded as "0" for male, and "1" for female. Conversely, vendor gender was coded as "0" for female and "1" for male. Finally, vendor age group is based on a purchaser's estimation of a vendor's age, and was coded as "0" if the vendor appeared to be less than 30 years of age, and "1" if the vendor appeared to be 30 years of age or greater.

Vendor compliance with age identification policies was first analyzed using descriptive statistics, including frequency counts, cross-tabulations, and chi-square tests of significance. To address hypotheses regarding the rate of vendor compliance between purchase type, purchaser gender, vendor gender, and vendor age group, pair-wise chi-square analyses were used. In addition, chi-square analyses stratified by purchaser gender and vendor gender were conducted to establish what role purchaser gender plays in the decision to adhere or not to age identification

policies. Finally, chi-square analyses stratified by purchaser gender, by vendor gender, and by vendor age group were performed to determine how these variables interact in the decision to adhere or not to age identification policies for the sale of lottery tickets, beer, and a combination of both products.

Since a variety of omnibus tests are not available in the standard cross-tabulation approach (DeMaris, 1992), logit-model analyses were also executed. Logit-model analysis is used when the dependent (or response) measure is dichotomous and the independent (or explanatory) variables are all categorical. Logit-model analysis was selected as the general technique for analysis because the dependent variable in this study (vendor compliance with age identification policies) is non-interval, and the distributions of the independent variables (purchase attempt product type, purchaser gender, vendor gender, and vendor age group) are unlikely to satisfy the assumptions of normality and homoscedasticity. Also known as logistic regression analyses, the overall goal of logit-model analysis is to identify the explanatory variable or variables that best predict the value of a dichotomous response variable (Kennedy, 1992).

Separate logit-model analyses were performed for each measure of vendor compliance. In the first analysis, request for age identification was entered as the response variable while product type, purchaser gender, vendor gender, vendor age group, as well as all two-way interactions were used as the predictor variables. For the second analysis, purchase outcome was entered as the response variable, with product type, purchaser gender, vendor gender, vendor age group, and all two-way interactions used once again as the predictor variables.

Explanatory variables were entered using the *backward stepwise likelihood ratio* (backward LR) method, where all explanatory variables are initially included in the model and those variables determined insignificant (based on the probability level of the likelihood ratio

statistic or L^2) are eliminated until the remaining variables are deemed important. A change in the -2 log likelihood value (a measure of how well the model fits the data, also called the deviance) tests the null hypothesis that the coefficients of the terms removed from the model are simultaneously equal to "0" (Liao, 1994). Thus, the smaller the likelihood value, the better the model fits the data. Backward LR is often considered the preferred method for exploratory analyses because it assess the overall predictive capability of the model rather than the significance of each explanatory variable (Tabachnick & Fidell, 2001) and has the advantage of identifying variables that may only appear significant when another variable is controlled or held constant (Menard, 1995).

CHAPTER IV

Results

Vendor Compliance with Age Identification Policies

Product Type

Results revealed that of the total sample of completed purchase attempts, proof-of-age was requested 62.0% (n = 756) of the time (see Table 4). Contrary to the proposed hypothesis, no significant effect of purchase type was found for request of age identification, χ^2 (2, N = 1219) = 3.46, p = .177. That is, proof-of-age was no more likely to be requested during the attempted purchase of a lottery ticket (59.6%), a beer (60.8%), or a combination of both products (65.6%).

Table 4

Observed Frequencies of Request for Age Identification Categorized by Product Type

	Request for Age Identification	
Purchase Type	No	Yes
Lottery Ticket	164 (40.4)	242 (59.6)
Beer	159 (39.2)	247 (60.8)
Lottery Ticket and Beer Combined	140 (34.4)	267 (65.6)
Total	463 (38.0)	756 (62.0)

Note. The values in parentheses represent percentages.

Results also revealed that of the total sample of completed purchase attempts, 58.7% (n = 715) of the purchase attempts did not result in a sale (see Table 5). Although no significant effect of purchase type for purchase outcome emerged, there was a trend where purchase attempts resulted in a sale refusal more frequently for the purchase of a lottery ticket and beer combined (63.1%) than for the purchase of either a lottery ticket (57.9%) or a beer (54.9%) alone, χ^2 (2, N = 1219) = 5.81, p = .055.

Table 5

Observed Frequencies of Purchase Outcome Categorized by Product Type

	Purchase Outcome	
Purchase Type	No Sale	Sale
Lottery Ticket	235 (57.9)	171 (42.1)
Beer	223 (54.9)	183 (45.1)
Lottery Ticket and Beer Combined	257 (63.1)	150 (36.9)
Total	715 (58.7)	504 (41.3)

Note. The values in parentheses represent percentages.

Interestingly, the proportion of purchase attempts resulting in a sale refusal was comparable to the percentage of purchase attempts resulting in a request for age identification. Thus, sales of age-restricted products were extremely low (3.3%) when age identification was requested but not produced.

Gender

With respect to gender differences in requests for age identification, an effect of purchaser gender was observed, χ^2 (1, N = 1219) = 21.49, $p < .001$. As can be seen in Table 6, significantly more male purchasers (68.6%) were asked to provide proof-of-age than were female purchasers (55.7%). The frequency of requests for age identification also varied by the gender of the vendor, χ^2 (1, N = 1219) = 6.97, $p < .01$; female vendors (66.2%) were significantly more likely to ask underage purchasers to provide proof-of-age than were male vendors (58.8%) (see Table 6).

Much like the requests for age identification, purchase outcome varied considerably by the gender of the purchaser, χ^2 (1, N = 1219) = 26.78, $p < .001$, such that purchase attempts failed to

Table 6

Observed Frequencies of Request for Age Identification Categorized by Gender

	Request for Age Identification	
Gender	No	Yes
	Purchaser Gender***	
Male	189 (31.4)	412 (68.4)
Female	274 (44.3)	344 (55.7)
	Vendor Gender**	
Male	285 (41.2)	407 (58.8)
Female	178 (33.8)	349 (66.2)

Note. The values in parentheses represent percentages.
** $p < .01$. *** $p < .001$.

result in a sale more often for male purchasers (66.1%) than for female purchasers (51.5%) (see Table 7). An effect of the gender of the vendor was also observed for purchase outcome, χ^2 (1, N = 1219) = 3.93, $p < .05$. As can be seen in Table 7, purchase attempts were more likely to result in a sale refusal when the vendor was a female (61.9%) than when the vendor was a male (56.2%).

Vendor Age Group

Although the vendor's exact age cannot be determined without his or her explicit knowledge, purchasers were trained to estimate a vendor's age with reasonable accuracy. Using these estimations, vendors were classified into one of two age groups: (a) younger vendors (less than 30 years of age), and (b) older vendors (vendors 30 years of age or greater). The distribution of younger vendors and older vendors in the total sample was roughly equivalent (n = 602 vs. n = 617).

Table 7

Observed Frequencies of Purchase Outcome Categorized by Gender

	Purchase Outcome	
Gender	No Sale	Sale
	Purchaser Gender***	
Male	397 (66.1)	204 (33.9)
Female	318 (51.5)	300 (48.5)
	Vendor Gender*	
Male	389 (56.2)	303 (43.8)
Female	326 (61.9)	201 (39.9)

Note. The values in parentheses represent percentages.
* $p < .05$. *** $p < .001$.

No significant effect of the vendor's age group on requests for age identification was found, χ^2 (1, N = 1219) = 2.60, p = .107; younger vendors and older vendors were equally likely to ask for a valid piece of identification from underage purchasers (64.3 % and 59.8%). While no effect of the vendor's age group on requests for age identification was observed, there was a marginally significant difference in purchase outcome between the vendor age groups, χ^2 (1, N = 1219) = 3.87, p = .049. Contrary to results reported in studies of vendor compliance with youth-access-to-tobacco laws, purchase attempts resulted in a sale refusal more frequently when the vendor was estimated to be younger (61.5%) than when estimated to be older (55.9%) (see Table 8).

Category of Store Ownership

Past research indicates that category of store ownership is an important mediating factor in illegal sales to minors, with independently-owned outlets reported to have lower rates of

Table 8

Observed Frequencies of Purchase Outcome Categorized by Vendor Age Group (Estimated)

	Purchase Outcome	
Vendor Age Group (Estimated)*	No Sale	Sale
Younger[a]	370 (61.5)	232 (38.5)
Older[b]	345 (55.9)	272 (44.1)

Note. The values in parentheses represent percentages.
[a]Younger vendors were judged to be less than 30 years of age. [b]Older vendors were judged to be 30 years of age or greater.
* $p < .05$.

compliance with youth access statutes than larger chains or franchises. While the purpose of the present study was to examine the effects of purchaser and vendor characteristics on vendor compliance with age identification policies, the fact that 80.2% of the total sample of younger vendors ($n = 602$) were surveyed at chain/franchise outlets suggests a need to investigate the impact of this factor on requests for age identification and sales refusal.

Of the total sample of purchase attempts completed, 60.4% ($n = 736$) were in chain/franchise outlets and the remaining 39.6% ($n = 483$) were in independently-owned stores. A significant effect of category of store ownership emerged for request for age identification, $\chi^2 (1, N = 1219) = 25.13, p < .001$. Specifically, proof-of-age was requested 67.7% of the time for attempted purchases at a chain/franchise outlet compared to 53.4% of the time for attempted purchases at independently-owned stores (see Table 9). The frequency of sales refusal also varied by category of store ownership, $\chi^2 (1, N = 1219) = 29.02, p < .001$; as can be observed in Table 10, purchase attempts resulted in a sale refusal more frequently when completed at a chain/franchise store (64.8%) than at an independently-owned outlet (49.3%).

Table 9

Observed Frequencies of Request for Age Identification Categorized by Category of Store Ownership

	Request for Age Identification	
Category of Store Ownership***	No	Yes
Chain/Franchise	238 (32.3)	498 (67.7)
Independently-Owned	225 (46.6)	258 (53.4)

Note. The values in parentheses represent percentages.
*** $p < .001$.

Table 10

Observed Frequencies of Purchase Outcome Categorized by Category of Store Ownership

	Purchase Outcome	
Category of Store Ownership***	No Sale	Sale
Chain/Franchise	477 (64.8)	259 (35.2)
Independently-Owned	238 (49.3)	245 (50.7)

Note. The values in parentheses represent percentages.
*** $p < .001$.

Not surprisingly, the results revealed that the proportion of requests for age identification was virtually identical to the proportion of sales refusal, irrespective of the type of store surveyed. For chain/franchise outlets, the frequency of requests for age identification (67.7%) corresponded with the frequency of sales refusal (64.8%). Similarly, for independently-owned store, the frequency of request for proof-of-age (53.4%) was comparable to the frequency of sales refusal (49.3%). Thus, sales of age-restricted products were extremely low at both

chain/franchise outlets (2.9%) and at independently-owned stores (4.1%) when age identification was required but not presented.

Finally, since the effect of the product type selected for a purchase is of particular interest in this study, differences in vendor compliance between chain/franchise and independently-owned outlets were examined for each product type (lottery ticket, beer, both products combined). No statistically significant differences were found between category of store ownership and product type. That is, purchase attempts for a lottery ticket, beer, or both products together were equally likely to result in a request for proof-of-age or a sale refusal at chain/franchise and independently-owned stores.

Purchaser Gender and Vendor Gender

Differences in vendor compliance between male and female vendors were examined by each gender of the purchaser. Of the total sample of male purchasers ($n = 601$), 56.9% were served by a male vendor, and 43.1% were served by a female vendor. With respect to requests for age identification, a significant association between purchaser gender and vendor gender was observed for male purchasers, $\chi^2 (1, N = 601) = 9.58, p < .01$. However, contrary to the proposed hypothesis, male underage purchasers were asked to provide proof-of-age more often by female vendors (75.3%) than by male vendors (63.5%) (see Table 11). A significant association between purchaser gender and vendor gender was also found for purchase outcome when the purchaser was male, $\chi^2 (1, N = 601) = 5.05, p < .05$. As can be seen in Table 12, for male purchasers, a purchase attempt resulted in a sale refusal more often when the vendor was female (71.0%) than when the vendor was male (62.3%).

Approximately the same distribution between male and female vendors was observed for female purchasers. That is, of the total sample of female purchasers ($n = 618$), 56.6% were

Table 11

Observed Frequencies of Request for Age Identification (ID) by Purchaser and Vendor Gender

	Vendor Gender			
	Male		Female	
Purchaser Gender	Age ID Not Requested	Age ID Requested	Age ID Not Requested	Age ID Requested
Male**	125 (36.5)	217 (63.5)	64 (24.7)	195 (75.3)
Female	160 (45.7)	190 (55.2)	114 (42.5)	154 (57.5)

Note. The values in parentheses represent percentages.
** $p < .01$.

Table 12

Observed Frequencies of Purchase Outcome by Purchaser and Vendor Gender

	Vendor Gender			
	Male		Female	
Purchaser Gender	No Sale	Sale	No Sale	Sale
Male*	213 (62.3)	129 (37.7)	184 (71.0)	75 (29.0)
Female	176 (50.3)	174 (49.7)	142 (53.0)	126 (47.0)

Note. The values in parentheses represent percentages.
* $p < .05$.

served by a male vendor, and 43.4% were served by a female vendor. Contrary to the proposed hypothesis, no statistically significant effect of purchaser gender and vendor gender was found for female purchasers with respect to requests for age identification, χ^2 (1, N = 618) = 0.62, p =

.431. Similarly, no significant relation between purchaser and vendor gender was observed for purchase outcome when the purchaser was female, χ^2 (1, N = 618) = 0.44, p = .506.

Purchaser Gender and Vendor Age Group

Differences in vendor compliance between younger and older vendors were also examined by each gender of the purchaser. Among the male purchasers (n = 601), 48.9% were served by younger vendors, and 51.1% were served by older vendors. With respect to requests for age identification, no statistically significant association between purchaser gender and vendor age group was found for male purchasers, χ^2 (1, N = 601) = 0.92, p = .338. As can be seen in Table 13, male underage purchasers were as equally likely to be asked for proof-of-age by younger vendors (50.2%) as by older vendors (49.8%). Similarly, no significant relationship between purchaser gender and vendor age group was observed for purchase outcome when the purchaser was male, χ^2 (1, N = 601) = 0.68, p = .409.

Table 13

Observed Frequencies of Request for Age Identification (ID) by Purchaser Gender and Vendor Age Group (Estimated)

	Vendor Age Group (Estimated)			
	Younger[a]		Older[b]	
Purchaser Gender	Age ID Not Requested	Age ID Requested	Age ID Not Requested	Age ID Requested
Male	125 (36.5)	217 (63.5)	64 (24.7)	195 (75.3)
Female	160 (45.7)	190 (55.2)	114 (42.5)	154 (57.5)

Note. The values in parentheses represent percentages.
[a]Younger vendors were judged to be less than 30 years of age. [b]Older vendors were judged to be 30 years of age or greater.

Of the total sample of female purchasers ($n = 618$), 49.8% were served by younger vendors, and 50.2% were served by older vendors. Results revealed no statistically significant association between purchaser gender and vendor age group for female purchasers with respect to requests for age identification, χ^2 (1, $N = 618$) = 1.92, $p = .166$. Interestingly, a significant effect of purchaser gender and vendor age group was observed for purchase outcome, χ^2 (1, $N = 618$) = 4.06, $p < .05$. For female purchasers, a purchase attempt resulted in a sale refusal more frequently when the vendor was estimated to be younger (55.5 %) than older (47.4%) (see Table 14).

Table 14

Observed Frequencies of Purchase Outcome by Purchaser Gender and Vendor Age Group (Estimated)

	Vendor Age Group (Estimated)			
	Younger[a]		Older[b]	
Purchaser Gender	No Sale	Sale	No Sale	Sale
Male	199 (67.7)	95 (32.3)	198 (64.5)	109 (35.5)
Female*	171 (55.5)	137 (44.5)	147 (47.4)	163 (52.6)

Note. The values in parentheses represent percentages.
[a]Younger vendors were judged to be less than 30 years of age. [b]Older vendors were judged to be 30 years of age or greater.
* $p < .05$.

Vendor Gender and Vendor Age Group

Given significant discrepancies in vendor compliance with age identification policies for vendor gender and for vendor age group, differences in requests for age identification and for purchase outcome between younger and older vendors were examined by each gender of the

vendor. Of the total sample of male vendors (n = 692), 50.9 % were judged to be younger vendors, compared to 49.1% who were viewed as older vendors. With respect to requests for age identification, no statistically significant relationship between gender of the vendor gender and vendor age group was found for male vendors, χ^2 (1, N = 692) = 0.03, p = .874. Likewise, results revealed no significant association between gender of the vendor and vendor age group for purchase outcome, χ^2 (1, N = 692) = 0.03, p = .863.

Conversely, among the total sample of female vendors (n = 527), 47.4 % were judged to be younger, and to 52.6% were perceived to be older. This time, a significant effect of gender of the vendor and vendor age group emerged for requests for age identification when the vendor was female, χ^2 (1, N = 527) = 8.11, p < .01. As can be seen in Table 15, younger female vendors (72.4%) were more likely to request proof-of-age from underage purchasers than were older female vendors (60.6%). An association between gender of the vendor and vendor age group was also observed for purchase outcome when the vendor was female, χ^2 (1, N = 527) = 8.62, p < .01. Specifically, a purchase attempt resulted in a sale refusal more frequently when the female vendor was younger (68.4 %) than older (56.0%) (see Table 16).

Gender and Product Type

To reiterate, the effect of the product type selected for a purchase is of interest in this study. Despite no significant effects of product type, differences in vendor compliance with age identification policies between purchase attempts for a lottery ticket, a beer, and both products combined were examined by each gender of the purchaser. Of the total sample of purchase attempts by males (n = 601), 33.3% were for a lottery ticket, another 33.3% were for a beer, and a final 33.4% were for both products combined. With respect to requests for age identification, no statistically significant differences between gender of the purchaser and product type was

Table 15

Observed Frequencies of Request for Age Identification (ID) by Vendor Gender and Age Group (Estimated)

	Vendor Age Group (Estimated)			
	Younger[a]		Older[b]	
Vendor Gender	Age ID Not Requested	Age ID Requested	Age ID Not Requested	Age ID Requested
Male	146 (41.5)	206 (58.5)	139 (40.9)	201 (59.1)
Female**	69 (27.6)	181 (72.4)	109 (39.4)	168 (60.6)

Note. The values in parentheses represent percentages.
[a]Younger vendors were judged to be less than 30 years of age. [b]Older vendors were judged to be 30 years of age or greater.
** $p < .01$.

Table 16

Observed Frequencies of Purchase Outcome by Vendor Gender and Age Group (Estimated)

	Vendor Age Group (Estimated)			
	Younger[a]		Older[b]	
Vendor Gender	No Sale	Sale	No Sale	Sale
Male	199 (56.5)	153 (43.5)	190 (55.9)	150 (44.1)
Female**	171 (68.4)	79 (31.6)	155 (56.0)	122 (44.0)

Note. The values in parentheses represent percentages.
[a]Younger vendors were judged to be less than 30 years of age. [b]Older vendors were judged to be 30 years of age or greater.
** $p < .01$.

found for male purchasers, χ^2 (2, N = 601) = 1.23, p = .540. Similarly, the results revealed no significant differences between gender of the purchaser and product type for purchase outcome, χ^2 (2, N = 601) = 0.77, p = .679.

Approximately the same distribution of product types was observed for female purchasers. That is, among the total sample of purchase attempts by females (n = 618), 33.3% were for a lottery ticket, another 33.3% were for a beer, and a final 33.3% were for a lottery ticket and a beer in combination. Results revealed no statistically significant association between gender of the purchaser and product type for female purchasers with respect to requests for age identification, χ^2 (2, N = 618) = 2.57, p = .277. Interestingly, a significant relationship between gender of the purchaser and product type was observed for the purchase outcome, χ^2 (2, N = 618) = 6.34, $p < .05$. Specifically, for females, purchase attempts resulted in a sale refusal more frequently for the purchase of a lottery ticket and beer combined (58.3%) than for either a lottery ticket (50.0%) or beer (46.1%) alone (see Table 17).

Table 17

Observed Frequencies of Purchase Outcome by Product Type and Purchaser Gender

	Purchaser Gender			
	Male		Female	
Product Type	No Sale	Sale	No Sale	Sale
Lottery Ticket	132 (66.0)	68 (34.0)	103 (50.0)	103 (50.0)
Beer	128 (64.0)	72 (36.0)	95 (46.1)	111 (53.9)
Combined[a]*	137(68.2)	64 (31.8)	120 (58.3)	86 (41.7)

Note. The values in parentheses represent percentages.
[a]Combined is a purchase attempt of a lottery ticket and a beer in combination.
* $p < .05$.

Differences in vendor compliance with age identification policies between purchase attempts for a lottery ticket, a beer, and both products combined were also examined by each gender of the vendor. No statistically significant differences between gender of the vendor and product type were found with respect to requests for age identification. More specifically, male vendors were equally likely to request proof-of-age from underage purchasers attempting to buy a lottery ticket (56.7%), beer (57.5%), or both products combined (62.2%), χ^2 (2, N = 692) = 1.72, p = .423. Similarly, female vendors were equally likely to ask for a valid piece of identification from underage purchasers attempting to buy a lottery ticket (63.4%), beer (65.2%), or both products combined (70.1%), χ^2 (2, N = 527) = 1.88, p = .391. No significant relationship between gender of the vendor and product type were found for purchase outcome; a purchase attempt of a lottery ticket (55.8%), beer (51.8%), or a lottery ticket and beer combined (60.9%) was equally likely to result in a sale refusal for male vendors, χ^2 (2, N = 692) = 3.97, p = .137. The same finding was true for female vendors; purchase attempts of a lottery ticket (60.6%), beer (59.0%), or both products combined (66.1%) resulted in a sale refusal equally often, χ^2 (2, N = 527) = 2.07, p = .356.

Vendor Age Group and Product Type

Given significant discrepancies in purchase outcomes for vendor age groupings, and the underlying interest in the effect of the product type, differences in vendor compliance between purchase attempts for a lottery ticket, beer, and both products combined were examined by each vendor age group. Of the total sample of vendors judged to be younger (n = 602), 33.6% served an underage customer attempting to purchase a lottery ticket, 33.6% served an underage customer attempting to purchase a beer, and the remaining 32.9% served an underage customer attempting to purchase both a lottery ticket and beer. With respect to requests for age

identification, no statistically significant differences between vendor age group and product type was found, χ^2 (2, N = 602) = 2.12, p = .346. Also, no significant association between vendor age group and product type was observed for purchase outcome, χ^2 (2, N = 602) = 2.76, p = .251.

Among the vendors perceived to be older (n = 617), 33.1% served an underage customer attempting to purchase a lottery ticket, 33.1% served an underage customer attempting to purchase a beer, and the remaining 33.9% served an underage customer attempting to purchase both products. Once again, no statistically significant relationship between vendor age group and product type emerged with respect to requests for age identification, χ^2 (2, N = 617) = 1.49, p = .475. Likewise, no significant differences between vendor age group and product type was found for purchase outcome, χ^2 (2, N = 617) = 4.13, p = .127.

Logit-Model Analysis

In addition to conducting descriptive analyses to compare rates of vendor compliance by specific contextual variables, a large body of empirical studies test predictive associations between contextual variables and vendor compliance in regression models. Logit-model analyses were used to identify factors that together provided the best (non-redundant) prediction of retailer compliance with age identification policies. Separate logit-model analyses were performed for requests for age identification and purchase outcome. Explanatory variables were entered using the backward stepwise likelihood ratio (backward LR) method, wherein all explanatory variable are initially entered in the model, and those variables determined to be insignificant were removed (on condition that their exclusion didn't significantly weaken the model's fit). Analyses were conducted with SAS 9.1 software using the GENMOD procedure.

Factors Associated with Requests for Age Identification

An initial logit-model analysis was performed with entering all contextual factors (product type, gender of the purchaser, gender of the vendor, vendor age group) and all two-way interactions (product type x gender of the purchaser, product type x gender of the vendor, product type x vendor age group, gender of the purchaser x gender vendor, gender of the purchaser x vendor age group, gender of the vendor x vendor age group) as the covariates. Requests for age identification was entered as the dichotomous dependent variable, with "yes" receiving a value of 1, and "no" receiving a value of 0.

As observed in Table 18, the variables to be retained included gender of the purchaser, gender of the vendor, vendor age group, and the interaction between vendor gender and vendor age grouping. The strength of association between each factor and the outcome of request for age identification was estimated by an odds ratio (OR); the value indicates the change in odds of the occurrence of an event with a one-unit increase in the independent variable (β), holding the contribution of the other variables constant. If the odds ratio deviates sufficiently from 1, the factor and the outcome of requesting age identification are considered to be associated. All odds ratios were reported with a 95% confidence interval (CI). It is important to bear in mind that main effects for variables included in two-way interactions are interpreted as the effects of that variable when the effect of the other variable is "0" (Allison, 1999).

The final model suggested that the odds of being asked to provide proof-of-age was approximately 1.8 times greater (CI = 1.39, 2.22) for male purchasers. The influence of the gender of the vendor on requests for age identification was indirect, mediated by the vendor's age grouping. Specifically, among younger vendors, the odds of requesting valid identification from underage purchasers was nearly 2 times greater (CI = 1.36, 2.61) for females. Much like for

Table 18

Logit Model Analysis Predicting Request for Age Identification

Source	ß	S.E.	Wald χ^2	*df*	*p*	OR	95% CI
Male Purchaser	0.56	0.12	21.79	1	<.001	1.75	1.39 – 2.22
Female Vendor, given Vendor Age Group	0.63	0.17	8.22	1	.004	1.88	1.36 – 2.61
Younger Vendor, given Vendor Gender	0.55	0.16	4.70	1	.03	1.73	1.27 – 2.35
Female Vendor x Younger Vendor	0.56	0.25	5.26	1	.02	1.76	1.09 – 2.84

Note. ß is the parameter estimates. OR is the odds ratio. CI is the confidence interval.

the gender of the vendor, the influence of the vendor's age group on requests for age identification was indirect, mediated by the gender of the vendor. As such, among females, the odds of requesting age identification was approximately 1.7 times greater (CI = 1.27, 2.35) for younger vendors. Not surprisingly, the interaction between vendor gender and vendor age group was also found to substantially increase the odds of requesting age identification, with young female vendors approximately 1.8 times (CI = 1.09, 2.84) more likely to request age identification from young-looking purchasers.

Factors Associated with Purchase Outcome

A second logit-model analysis was performed entering all the same covariates as the initial logit model for request for age identification. Purchase outcome was then entered as the dichotomous dependent variable, with "no sale" (sale refusal) receiving a value of 1, and "sale" receiving a value of 0. As can be observed in Table 19, the variables to be retained once again included gender of the purchaser, gender of the vendor, vendor age group, and the interaction between vendor gender and vendor age group. This time, however, the product type variable was retained.

Table 19

Logit Model Analysis Predicting Sale Refusal (Purchase Outcome)

Source	ß	S.E.	Wald χ^2	*df*	*p*	OR	95% CI
Product Type[a]							
Beer	-0.35	0.15	5.94	1	.015	0.70	0.53 – 0.93
Lottery Ticket	-0.23	0.15	2.48	1	.116	0.79	0.60 – 1.06
Male Purchaser	0.62	0.12	27.13	1	<.001	1.86	1.47 – 2.34
Female Vendor, given Vendor Age Group	0.52	0.17	4.92	1	.027	1.68	1.22 – 2.61
Younger Vendor, given Vendor Gender	0.55	0.16	6.00	1	.014	1.74	1.28 – 2.36
Female Vendor x Younger Vendor	0.56	0.24	4.52	1	.034	1.67	1.31 – 2.12

Note. ß is the parameter estimates. OR is the odds ratio. CI is the confidence interval.
[a]Lottery ticket and beer in combination is the referent product type.

The final model suggested that the odds of having the sale of an age-restricted product refused was approximately 1.9 times greater (CI = 1.47, 2.34) for male purchasers. The influence of the gender of the vendor on requests for age identification was indirect, mediated by the vendor's age grouping. Specifically, among younger vendors, the odds of requesting valid identification from underage purchasers was 1.7 times greater (CI = 1.22, 2.61) for females. Although the magnitude of this deviation is not *sizeable*, it is nevertheless significant. The influence of the vendor's age group on requests for age identification was equally indirect, mediated by the gender of the vendor. Thus, among females, the odds of requiring underage purchasers to show age identification was approximately 1.7 times greater (CI = 1.28, 2.36) for younger vendors. Furthermore, the interaction between vendor gender and vendor age group was found to substantially increase the odds of requesting age identification, with young female vendors approximately 1.7 times (CI = 1.31, 2.12) more likely to request age identification from

young purchasers. Finally, the likelihood of a sale refusal was not significantly different for the attempted purchase of a lottery ticket relative to the attempted purchase of a beer and lottery ticket in combination, but it was significantly less likely for the attempted purchase of a beer (OR = 0.70, CI = 0.53, 0.93).

CHAPTER V

Discussion

The present study examined the influence of particular purchaser and vendor characteristics on the rate of vendor compliance with age identification policies restricting youth access to prohibited products. Specifically, the role of gender and vendor age in vendors' decision to request age identification from an underage purchaser and/or permit the sale of regulated goods was investigated. To provide perspective, youth access to lottery products, alcohol products (beer), and the combination of both products together was compared. The selection of these variables was predicated upon our current state of knowledge of factors that mediate tobacco and alcohol sales to minors.

Vendor Compliance with Age Identification Policies

Vendor compliance with age identification policies was conceptualized as two distinct but related merchant behaviours: (a) requesting proof-of-age, in the form of a valid piece of identification, from young customers attempting to purchase age-restricted products; and (b) refusing to sell age-restricted products to underage customers. McCall (1993, 1994) posits that the decision to request age identification is an important "gate-keeping mechanism" for restricting youth access to prohibited products, because it allows vendors to identify underage youth and subsequently turn them away. By the same token, refusing to sell age-restricted merchandise to young customers is a direct means for limiting youth access, but this behaviour may occur independently of asking for proof-of-age. For this reason, requesting age identification and subsequently refusing to sell regulated merchandise was examined independently.

With respect to requesting age identification, a moderate proportion of vendors surveyed in this study were compliant with the province's age identification policies for lottery products and alcohol. Overall, vendors requested proof-of-age for 62.0% of the purchase attempts completed. This figure is in sharp contrast to findings from earlier studies of vendor compliance with youth access legislation. Past research suggests that between 4% and 28% of retailers solicit proof-of-age from minors during an attempted purchase of cigarettes or alcohol (DiFranza et al., 1996; Erickson, Woodruff, Wildey, & Kenney, 1993; Landrine, Klonoff, & Alcaraz, 1996; Scribner & Cohen, 2001; Willner, Hart, Binmore, Cavendish, & Dunphy, 2000).

Discrepancies in the rate of requests for age identification may perhaps be an artifact of regional differences in enforcement efforts (i.e., no active enforcement vs. publicized compliance checks). In fact, increases in retailer compliance with age identification policies for both tobacco and alcohol have been documented immediately following publicized enforcement activities (Cummings, Hyland, Saunders-Martin, Perla, Coppola, & Pechacek, 1998; Rigotti, DiFranza, Chang, Tisdale, Kemp, & Singer, 1997; Scribner & Cohen, 2001; Wagenaar, Toomey, & Erickson, 2005). Given the media coverage of Loto-Québec's increased enforcement efforts at the time of data collection (Fauteux, 2007; Lacoursière, 2007), it is not surprising that a higher proportion of vendors were requesting age identification from the young-looking customers in this study than previously reported in the compliance literature. Nevertheless, while a larger proportion of vendors do indeed request proof-of-age from young-looking customers during a sales transaction, a significant number (38.0%) of them fail to do so, which is disconcerting since it has been shown that estimating the age of customers with reasonable accuracy is problematic for vendors (McCall, 1993; McCall et al., 2002; Merrill, Stanford, Lindsay, & Neiger, 2000). This finding is equally alarming considering the results from this study as well as from past

research (Clark et al., 2000; Klonoff & Landrine, 2004; Landrine et al., 1996) suggest that asking for proof-of-age is linked to decreased sales of prohibited products to minors. In fact, of the vendors who do request proof-of-age from young customers, only a small minority (2 – 4%) accept to sell an age-restricted product when no identification is produced.

Similar to requests for age identification, a moderate proportion of vendors surveyed refused to sell lottery tickets and beer to the underage purchasers in this study. Specifically, vendors declined the sale of an age-restricted product for 58.7% of the purchase attempts. This rate of refusal is also somewhat higher than figures reported in earlier vendor compliance studies for tobacco and alcohol products (Erickson et al., 1993; Forster et al., 1992; Forster et al., 1994; Forster, Murray, Wolfson, & Wagenaar, 1995; Preusser, Williams, & Weinstein, 1994), but is considerably lower than the rates reported in more recent surveys (Clark et al., 2000; Landrine et al., 2000; O'Grady et al., 1999).

The rate of refusal for the sale of age-restricted products may vary for several reasons. For one, variability in the rates is likely to be a function of regional differences. Reported levels of retailer compliance with youth access regulations for tobacco products in the Montreal region have been consistently lower than those for other major Canadian cities, such as Toronto, Vancouver, and Calgary (Health Canada Tobacco Control Program, 2004, 2005, 2006). Since Montreal was the geographic area surveyed in this study, it is plausible that levels of retailer compliance with regulations prohibiting the sale of lottery products and alcohol to minors are lower than those reported in other recent compliance studies. Alternatively, rates can differ depending on the type of outlet surveyed. The sample population in this study consisted of convenience stores only, whereas the majority of recent compliance surveys included pharmacies/drugstores or liquor stores in their sample population. Interestingly, sales to underage

patrons are reported to be highest at local convenience stores and lowest at drugstores and liquor stores (Paschall, Grube, Black, Flewelling, Ringwalt, & Biglan, 2007; Radecki & Zdunich, 1993). A final possible explanation for divergence in the rates is that most recent studies have focused exclusively on vendor compliance with tobacco laws. Systematic federal programs, such as Canada's Federal Tobacco Control Strategy (FTCS), have allocated considerable resources to maintain a minimum threshold level of retailer compliance with youth-access-to-tobacco regulations (i.e., 80% retailer compliance). However, no comparable federal programs for alcohol or lottery products exist in Canada, largely because provincial governments are awarded exclusive authority over alcohol and gambling activities. What's more, only until recently have Loto-Québec and the Régie des Alcools, des Courses, et des Jeux (the governmental board that is responsible for enforcing the conditions of alcohol licenses) implemented recommendations or guidelines to further restrict youth access to lottery products and alcohol from commercial sources (cf. Côté, 2004; Loto-Québec, 2005). A lack of stringent, systematic enforcement programs to enhance vendor compliance for alcohol and lottery products may thus account for this study's lower rate of refusal for the sale of age-restricted products. Irrespective of why this study's rate of refusal is inconsistent with rates reported in other compliance studies, the finding that little more than half of the attempts to purchase age-restricted merchandise resulted in the vendor refusing the sale suggests that a sizeable number of minors nevertheless have access to alcohol and lottery products from commercial sources.

Vendor Compliance with Policies for Lottery vs. Alcohol Products

Although a number of studies have investigated retailer compliance with youth access laws and policies for tobacco and alcohol, no empirically-controlled research has examined vendor compliance with age identification policies and youth access legislation for lottery products. A

principal goal of this study was to ascertain whether the rate of vendor compliance with youth access policies for alcohol was equal or superior to the rate of vendor compliance with youth access policies for lottery products. This study failed to reveal differences in the rate of vendor compliance between lottery and alcohol products. Specifically, vendors were equally likely to request age identification from young-looking customers attempting to purchase an instant lottery ticket, a beer, or a combination of the two. Vendors were also just as likely to refuse the sale of a lottery ticket (57.9%) or a beer (54.9%) to underage purchasers. Remarkably, however, vendors refused a sale significantly more often when a young-looking customer attempted to purchase both products combined (63.1%) than when the customer attempted to purchase a beer alone.

It is unclear whether Loto-Québec's widely publicized compliance checks at retail outlets across the province are responsible for these findings. Levy and Friend (2000) suggested that retailer compliance is likely determined by a synergy between the number of compliance checks conducted in a given community, the level or severity of sanctions against retailers in violation, and the vendor's perceived costs for contravention of youth access laws or policies. As such, a rise in the number of compliance checks performed in a given community enhances vendor compliance. Following this line of reasoning, it is possible that Loto-Québec's enforcement activities, carried out during the data collection period for this study, may have incited greater vendor compliance with the province's age identification policies for lottery tickets, resulting in comparable levels of compliance for alcohol and lottery products. Despite this unknown, which would be better clarified with time-series research, the results suggest that approximately 40% of vendors fail to comply with Québec's age identification policies for lottery products, and this represents a serious public policy concern.

Gender and Age Differences in Vendor Compliance

The decision to ask for age identification from and/or decline the sale of an age-restricted product to underage consumers is a complex process that requires the vendor to process substantial amounts of information simultaneously (e.g., purchaser's dress, pitch, tone of voice, etc.). While self-report data indicate that vendors are motivated to limit youth access to regulated products (Dovell, Mowat, Dorland, & Lam, 1998; McCall, 1993), their decisions are not always impartial. Indeed, certain contextual variables have been shown to influence the vendors' decision to comply with youth access legislation or policies (McCall et al., 2002). This study sought to identify the role of gender and age in retailer compliance with age identification policies for regulated products.

The importance of the purchaser's gender in vendor compliance was clearly established. The results revealed that the gender of the purchaser had the strongest independent effect, with male purchasers most likely to be required to produce age identification and more often declined the purchase of age-restricted merchandise. Although this finding is consistent with previously published research (Clark et al., 2000; DiFranza et al., 1996; O'Grady et al., 1999; Ma, Shive, & Tracy, 2001), it could be argued that female's greater access to regulated products is an artifact of differences in the apparent age of the minors. In general, female minors tend to be perceived as older than male minors of the same chronological age (DiFranza et al., 1996; McCall et al., 2002; Willner & Rowe, 2001), and the female purchasers in this study, on average, were rated as slightly older than the male purchasers. However, when interpreting these results related to the gender of the purchaser and retailer compliance, one should bear in mind that Québec's present guidelines and/or recommendations for the sale of alcohol and lottery products petition retailers to request identification from consumers appearing 25 years old or younger, and none of the

purchasers in this study were rated above 24 years of age. Moreover, when the effects of apparent age are indeed controlled for (e.g., Clark et al., 2000; DiFranza et al., 1996), female minors continue to be more successful at purchasing age-restricted merchandise than male minors.

An unexpected finding was the robust association between the gender of the vendor and vendor compliance with age identification policies. Female vendors were more likely to request age identification from and decline the sale of age-restricted merchandise to young-looking customers than male vendors. The influence of the vendor's gender on retailer compliance was nevertheless indirect, mediated by the vendor's age. Accordingly, among younger vendors, females were found to have a significantly greater likelihood of requesting valid identification from underage customers, as well as a greater likelihood of refusing the sale of age-restricted goods to underage customers. Conversely, gender made little difference in retailer compliance for older vendors.

Not surprising then was the finding of an indirect relationship between the age of the vendor and compliance with age identification policies, holding only for female vendors. Specifically, among female vendors, those identified as younger were nearly twice as likely to ask underage purchasers for proof-of-age during a transaction, as well as nearly twice as likely to refuse the sale of regulated merchandise to underage purchasers. The age of the male vendor, on the other hand, made no significant difference in the likelihood of requesting age identification from underage customers attempting to purchase age-restricted products. Likewise, no differences in the likelihood of refusing a sale to underage purchasers were found for younger versus older male vendors.

It seems unintuitive that younger female vendors would be more compliant with age identification policies given that, within the extant literature, it has been suggested that vendors of similar age as the purchaser are more likely to sell restricted products to minors (Forster et al., 1995; Levinson, Hendershott, & Byers, 2002; McDermott et al., 1998). However, a larger proportion of the young female vendors surveyed in this study were employed at chain and/or franchise outlets (83.2%) than at independently-owned stores (16.8%), and are therefore more likely to have received formal training to prevent sales to minors (Altman et al., 1992). Additionally, there is no real financial incentive for vendors employed at chain and/or franchise stores to sell age-restricted products. That is, unless the vendor is actually the storeowner himself or herself, the vendor will unlikely profit from completing the illegal transaction (Schmitt, 2002), and the probability that the young female vendors in this study were the business owners themselves was negligible. It is possible then that the association between the gender and age of the vendor with retailer compliance is actually an artifact of young females' place of employment. The contribution of the category of store ownership to the interaction between vendor gender and vendor age group needs to be examined in the future.

Factors Mediating Compliance with Policies for Lottery vs. Alcohol Products

Despite obvious differences in the rate of retailer compliance for male and female purchasers, compliance levels were generally comparable across purchase product types. Purchase attempts of a lottery ticket, a beer, or both products were equally likely to result in a request for age identification for male or female purchasers. Similarly, when the effects of all other variables were controlled for, purchase attempts of a lottery ticket, a beer, or a lottery ticket and a beer combined were equally likely to result in a sales refusal for male or female purchasers.

Differences in levels of vendor compliance had also emerged between younger male and younger female vendors. Not surprisingly, however, the likelihood of soliciting underage purchasers for proof-of-age during attempted purchases of lottery tickets, beer, or a combination of the two were comparable for male or female vendors, as well as for younger or older vendors. Furthermore, purchase attempts for a lottery ticket, a beer, or both were equally likely to result in a sale refusal for male or female vendors, and for younger or older vendors. Although significance testing for the interactive relationship between vendor gender, vendor age, and purchase product type in retailer compliance was not conducted, given the previous results, it is estimated that the rates of requests for age identification and the rates of sales refusals for young female or young male vendors were not significantly different across purchase product types.

Taken together, these results extend previous research (Clark et al., 2000; DiFranza et al., 1996; Forster et al., 1995; O'Grady et al., 1999; Ma, et al., 2001), suggesting that the influence of gender and age in vendors' decision to request valid identification and vendors' decision to refuse a sale is consistent across different types of age-restricted products. This is not to say that gender and age are the only factors affecting this particular decision-making process; the purchaser's ethnicity, the vendor's ethnicity, the day of purchase, the time of day, and the number of customers in line at the time of purchase have all been reported as significant predictors of tobacco and alcohol sales to youth. The larger study of which this was a part of will assess the role of these other factors in retailer compliance with age identification policies. Additionally, the correlational nature of this study does not allow for firm conclusions that there is a causal relationship between these factors and retailer compliance with age identification policies. Nevertheless, the fact that particular groups of youth have greater access to age-restricted merchandise, and that particular groups of vendors are willing to sell to minors

represents a valuable concern for programs aimed at reducing the commercial availability of these age-restricted products.

Implications for Prevention and Awareness Initiatives

The present study contributed to knowledge about youth access to lottery products in important ways. It provides empirical evidence that, consistent with self-report data (Felsher et al., 2004), adolescents have reasonable access to lottery products from retail outlets. Also in line with self-report data and findings from recent prevalence studies (Chevalier et al., 2005; Martin et al., 2007), the results of this study confirm that young girls find it easier to purchase lottery tickets from retail outlets than boys, which *may* explain in part why lottery playing remains a preferred activity for female adolescents in spite of legal prohibitions. Furthermore, it is apparent from this study that youth access to high-risk products is not restricted to lottery tickets; minors also have reasonable access to alcohol from commercial sources. Finally, the findings from this study lend credence to the notion that requesting age identification from young customers is an effective instrument for limiting sales of prohibited merchandise to minors.

The results of the current study are particularly valuable because they provide concrete information on weaknesses in regulatory policies that facilitate easy access to lottery products and alcohol. One of the most obvious vulnerabilities is the lack of a uniform regulation with respect to requesting age identification, accompanied by fines for non-compliance. In 2002, Loto-Québec enacted a formal policy requiring all license holders to request a valid piece of identification from consumers appearing 25 years of age or younger. However, no comparable policies exist for alcohol licensees; to date, there is only a *recommendation* in place that alcohol vendors solicit consumers appearing less than 25 years old for proof-of-age (Côté, 2004). What's more, penalty for contravention of Loto-Québec's age identification policies is temporary license

suspension. Although license suspension is an undesirable consequence for most vendors, it *may* not be severe enough to encourage high levels of compliance. Findings from DiFranza's (2005) assessment of best practices lend support to this argument; in a comparison of annual merchant compliance efforts between the 10 highest and 10 lowest performing U.S. states, DiFranza found that no state reached an 80% compliance level without official prosecution of offenders, or without dispensing modest fines (e.g., $300) for contravention. Given the large body of evidence suggesting that requiring age identification is a strong predictor of merchant compliance for tobacco and alcohol (Clark et al., 2000; Health Canada Tobacco Control Program, 2004, 2005, 2006; Klonoff & Landrine, 2004; Landrine et al., 1996; Paschall et al., 2007), enactment of formal, explicit regulations compelling vendors to verify the age of *all* consumers appearing 25 years of age or younger, combined with modest fines for non-compliance, may be warranted to enhance vendor compliance.

The ratification of formal age identification policies is a necessary step in restricting youth access to alcohol and lottery products from commercial sources, but their effectiveness alone is restricted. Proper enforcement of these policies, via covert or publicized compliance checks combined with strict penalties for violators, has been shown to enhance vendor compliance (Cummings et al., 1998; Ma et al., 2001; Preusser et al., 1994; Rigotti et al, 1997; Scribner & Cohen, 2001). For example, enforcement activities by Canada's Federal Tobacco Control Strategy (FTCS) have resulted in the maintenance of a minimum (80%) threshold level of retailer compliance with youth-access-to-tobacco regulations for two consecutive years (Health Canada Tobacco Control Program, 2005, 2006). It is nevertheless noteworthy that the effects of enforcement checks are temporary, and the common practice of conducting enforcement checks annually or intermittently is not sufficient to decrease illegal sales of

restricted merchandise (Wagenaar et al., 2005). The results of this study lend support to this claim; even with the first wave of publicized enforcement activities coinciding with the data collection period, over one-third of the vendors surveyed did not comply with the province's youth access legislation and policies. A regular schedule of compliance checks, implemented by the provincial regulatory agencies, might further enhance vendor compliance with age identification policies for lottery and alcohol products.

A third component of a successful compliance program is merchant education and training. While Loto-Québec does distribute print material to all license holders outlining the corporation's guidelines and policies regarding the sale of lottery tickets to minors, no formal training program is offered; training of managers or employees is left up to the discretion of business owners or parent corporations, and the quality or content of this training is unknown. To improve vendor compliance with youth access legislation and policies, provincial regulatory agencies should consider implementing compulsory education and training programs for business owners, managers, and salesclerks at no cost (Paschall et al., 2007). At a minimum, education and training programs must cover the following topics: (a) consequences of problem gambling for youth; (b) current youth access statutes and regulations; (c) cues for identifying minors; and (d) guidelines for reliable checking of identification cards. A good example of a comprehensive training curriculum is the State of Vermont Department Of Liquor Control (2006) Training Program for Common Carriers. This compulsory training course informs licensees/permit holders and their employees about the state's alcohol and tobacco laws and regulations. It also teaches trainees techniques for detecting underage customers, such as monitoring suspicious behaviour (e.g., hiding or trying to act invisible, arguing about age) and analyzing word choice during the transaction (e.g., using "dude" to address the vendor). The

program also provides clear instructions for verifying the authenticity and ownership of identity cards. Some important suggestions include:

1. Checking the photograph to establish that the identity card belongs to the customer.
2. Checking the expiration date, and refusing an identity card if it is no longer valid.
3. Reading the identification card to verify the date of birth.
4. Watching the customer's facial expressions and eye movements when carding.
5. Asking questions about [postal] code or date of birth to determine if the customer is using a borrowed identification card.

Limitation and Future Directions

Although this study yielded some interesting findings regarding youth access to age-restricted products, these should be considered in light of certain limitations. First and foremost, the sample of convenience stores included in this study may not be representative of all licensed retail outlets in Québec, much less Canada or other jurisdictions. Reported levels of vendor compliance with youth access laws have been shown to vary widely by geographic region (Clark et al., 2000; Health Canada Tobacco Control Program, 2004, 2005, 2006). Differences in provincial and community enforcement activities likely account for some of this variability. Rates of vendor compliance also diverge significantly by the type of outlet surveyed; sales to underage purchasers are reported to be highest at convenience stores (Paschall et al., 2007; Radecki & Zdunich, 1993). Thus, the generalizability of this study's findings is restricted. If this study were to be replicated with a sample that included grocery stores, perhaps the rates of vendor compliance would be higher. Future studies might usefully include sampling from different regions of the province (e.g., Estrie, Lanaudière, Laurentides, Laval, Montérégie, Outaouais), as well as different outlet types.

A second limitation of the present study was the omission of the category of store ownership as an explanatory variable. A small number of studies in the compliance literature have reported that independently-owned ("mom-and-pop") stores have lower rates of compliance with youth-access-to-tobacco laws than larger chains or franchises (Hanson et al., 2000; Weinbaum et al., 1999). A significantly higher proportion of the younger female vendors surveyed in this study were employed at chain and/or franchise outlets, and significant effects of category of store ownership on vendor compliance emerged during preliminary cross-tabulation analyses. While it was beyond the scope of the current study, it would be important to know if the inclusion of a store ownership category variable in this study's predictive model would attenuate the association between the gender and age group of the vendor and retailer compliance.

Historically, compliance research has focused on what situational and individual-level factors play a role in vendor compliance with youth access statutes. However, compliance checks occur in the field rather than in a laboratory; it is therefore difficult to draw firm conclusions about causal relationships between these factors and vendors' decision to comply. In this study, gender and age group factors emerged as statistically significant predictors of requests for age identification and sale refusal. However, it may be that these variables have a small, indirect influence on vendor's actual decision-making process. Indeed, experimental studies have shown that time pressure, physical attractiveness of the purchaser, and age-cuing stimuli (purchaser's pitch and tone of voice, style, of dress, signs of nervousness) also play a role in vendors' decision to request proof-of-age from young-looking customers (McCall, 1993, 1994, 1997a, 1997b; McCall et al., 2002). Despite efforts to control for the physical attractiveness and style of dress of the purchasers, it is possible that these other extraneous variables may have confounded the

results of this study. More rigorous, experimental research is therefore needed to better understand the effects that individual level variables have upon vendor's decision to request age identification from or refuse the sale of an age restricted product to underage customers.

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Appendix A

Compliance Check Survey Form

Note. This study is part of a larger study funded by the Fonds québécois de la recherche sur la société et la culture (FQRSC). As such, the survey form includes other measures not analyzed in this research.

McGill

Youth Gambling International

YGI RETAILER COMPLIANCE CHECK FORM
(Please check answer to indicate response)

Purchaser ID no.: _____

Store name: _____

Banner (if applicable): _____

Store address: _____

_____

PURCHASER CHARACTERISTICS

Sex: 1) Male ❑
2) Female ❑

Age: 1) 15 years old ❑
2) 16 years old ❑
3) 17 years old ❑

Ethnicity: 1) Caucasian (White) ❑
2) Black ❑
3) Native/Inuit ❑
4) Hispanic/Latino ❑
5) East Indian/Pakistani ❑
6) Asian ❑
7) Arabic/Middle Eastern ❑
8) Other _____ (specify)

STORE CHARACTERISTICS

Store type: 1) Chain/Franchise ❑
2) Independently-owned ❑

Service type for ***beer*** purchase (if applicable): 1) Self-service ❑
2) Clerk-assisted (i.e., locked) ❑

Number of cash registers: 1) One ❑
2) Two ❑
3) Three ❑
4) Other _____ (specify)

Number of customers in line after purchaser (witnesses): _____

Other employees witnessed purchase attempt? 1) Yes ❑
2) No ❑

If yes, was it: *1) Another employee* ❑
2) A manager ❑
3) Don't know ❑

Warning signs posted: 1) None ❑
2) "We ask for ID here"/"Ici, on carte" ❑
3) "18 +"/"18 ans et plus" ❑
4) Other _____(specify)

CLERK CHARACTERISTICS

Sex: 1) Male ❑
2) Female ❑

Clerk's estimated age: _____ yrs. old ***Don't know:*** *1) < 20 yrs. old* ❑
2) 20 – 35 yrs. old ❑
3) > 35 yrs. old ❑

Ethnicity: 1) Caucasian ❑
2) Black ❑
3) Native/Inuit ❑
4) Hispanic/Latino ❑
5) East Indian/Pakistani ❑
6) Asian ❑
7) Arabic/Middle Eastern ❑
8) Don't know ❑
9) Other _____ (specify)

PURCHASE CHARACTERISTICS

Date of purchase: _____

Time of day:
- 1) Morning (9am – 12pm) ❑
- 2) Noon/Lunch (12pm – 1pm) ❑
- 3) Afternoon (1pm – 6pm) ❑
- 4) Evening (After 6pm) ❑

Day of week:
- 1) Monday ❑
- 2) Tuesday ❑
- 3) Wednesday ❑
- 4) Thursday ❑
- 5) Friday ❑
- 6) Saturday ❑
- 7) Sunday ❑

OUTCOME

Age identification asked?
- 1) Yes ❑
- 2) No ❑

		Attempted	Successful
Purchase results:	1) Instant lottery ticket	❑	❑
	2) Beer	❑	❑
	3) Instant lottery ticket and beer	❑	❑

ADDITIONAL NOTES/COMMENTS

Was supervisory staff (owner, manager) present at time of purchase? 1) Yes ❑ 2) No ❑

Were any questions asked by clerk when making purchase attempt? 1) Yes ❑ 2) No ❑

Specify _____

_____

_____

Were any comments made by clerk when making purchase attempt? 1) Yes ❑ 2) No ❑

Specify _____

_____

_____

Other notes/comments:

_____

_____

_____

Observer: _____

Signature: _____

Date: _____

Appendix B

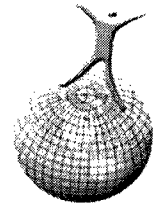
Ethics Certificate

Note. This study is part of a larger study funded by the Fonds québécois de la recherche sur la société et la culture (FQRSC). As such, ethics approval was originally obtained by Dr. Isabelle Martin, to whom funding was granted.

Appendix C

Informed Consent Forms

International Centre for Youth Gambling Problems and High-Risk Behaviors



McGill

Title of research project :
Retailer compliance with youth access regulatory policies: Are clerks more inclined to request age identification for the sale of alcohol versus lottery tickets?

Researchers:
Ms. Isabelle Martin, Ph.D., researcher
Ms. Rina Gupta, Ph.D., co-director
Mr. Jeffrey Derevensky, Ph. D, co-director
Ms. Renee St-Pierre, B.A., Master's candidate
International Centre for Youth Gambling Problems and High-Risk Behaviors

Primary researcher: Ms. Isabelle Martin
Financed by: Quebec research fund on society and culture

Introduction

It is important to carefully read and understand this consent form for the research we are asking your child to participate in. Take the time you need in order to make your decision. Do not hesitate at any moment to ask any questions that you may have. Your child can decide at anytime to withdraw his/her participation in this project, without any form of reproach or consequence.

Project description

Your child is invited to participate in a project whose main objective is to determine whether the administrative measures (i.e., age identification requirements) put forth by Loto-Québec to prevent sales to minors are being adhered to by retailers, and under what conditions. This project is also designed to ascertain whether vendor behavior differs for the sale of lottery products and alcohol. We believe that a better understanding of retailers' compliance behavior may assist in the strengthening of existing measures, and could result in the development of new policies that continue to help protect minors.

Nature of participation

If your child decides to participate in this project, he/she will be asked to make purchase attempts at selected retail outlets. Under the supervision of an adult team leader, young-looking purchasers will be instructed to enter a store and purchase an assigned product: 1) instant lottery ticket; 2) large can of domestic beer; or 3) a combination of both. If your child is asked for ID, they will be instructed to indicate that they do not have ID with them. If permitted to purchase the products, they will do so; if not, they will politely leave the establishment without protest. Once the purchase attempt is complete, your child will be asked to exit the outlet, and return the purchased product to the team leader. Your child will be accompanied by an adult supervisor at all times, who will ensure his/her transportation to each retail outlet.

Possible risks and discomforts

The risks in participating in this study are minimal. The adult team leader(s) will be responsible for the safety of the purchasers while in the field. If, for any reason, a store appears unsafe, purchasers will not be allowed to leave the vehicle.

Dissemination of results

The results of this project will be disseminated in many different ways, such as during conferences or in journal articles and other forms of publications. Conferences will be given in diverse regions of Quebec in order to inform stakeholders and retailers of the results of the study. Under no circumstances will your child's name or identity appear anywhere.

Confidentiality

All of the information gathered for this research project will be treated in a confidential manner. In order to protect your child's identity, he/she will be assigned an identification number for coding purposes. The data and consent forms will only be available to the primary researchers. However, it is possible that we will be required to share this research dossier with McGill officials (Ethics Committee) or to government agencies, for internal and monitoring purposes.

Compensation

Your child will be paid an hourly wage ($10/hour) to compensate him/her for his/her participation in this study.

Contact person

If you have any questions, comments or complaints, or if would like more information about this study, please contact Ms. Isabelle Martin at (514) 398-2244.

Freedom of participation and withdrawal

Your child's participation in this study is completely voluntary. Your child is therefore free to accept or not accept to participate, without needing to give a reason or risk being judged. Your child is also free to withdraw his/her participation at any moment.

Terms of consent

I have read and understood the content of this consent form. I had the opportunity to ask questions and they were answered to my satisfaction. I know that my child is free to participate in this study and is able to withdraw at any moment, by a verbal expression, without prejudice. I can certify that I was given enough time to make my decision.

Please check one of the following:

☐ I agree to allow my son/daughter _____ to participate in this research project. I understand that he/she is free to withdraw this consent and discontinue participation in this project at any time without further implications.

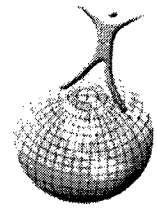
☐ I do not agree to allow my son/daughter _____ to participate in this research project.

Parent's Name _____ Date: _____

Parent's Signature _____

This form will be entered in our research dossier. This research study and consent form have been approved by McGill University's Ethics Committee.

International Centre for Youth Gambling Problems and High-Risk Behaviors



McGill

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Ms. Renee St-Pierre, B.A., Master's candidate
International Centre for Youth Gambling Problems and High-Risk Behaviors

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Nature of participation

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The risks in participating in this study are minimal. The adult team leader(s) will be responsible for the safety of the purchasers while in the field. If, for any reason, a store appears unsafe, purchasers will not be allowed to leave the vehicle.

Dissemination of results

The results of this project will be disseminated in many different ways, such as during conferences or in journal articles and other forms of publications. Conferences will be given in diverse regions of Quebec in order to inform stakeholders and retailers of the results of the study. Under no circumstances will your name or identity appear anywhere.

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Contact person

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I have read and understood the content of this consent form. I had the opportunity to ask questions and they were answered to my satisfaction. I know that I am is free to participate in this study and I am able to withdraw at any moment, by a verbal expression, without prejudice. I can certify that I was given enough time to make my decision.

Please check one of the following:

☐ I agree to participate in this research project. I understand that I am free to withdraw this consent and discontinue participation in this project at any time without further implications.

☐ I do not agree participate in this research project.

Name _____ Date: _____

Signature _____

This form will be entered in our research dossier. This research study and consent form have been approved by McGill University's Ethics Committee.

Appendix D

Data Coding Scheme

Variable	Variable Description	Variable Coding
Product Type	Product selected for a purchase attempt.	0 = Beer 1 = Lottery ticket 2 = Combination of both (Reference variable)
Purchaser Gender	Purchaser's self-identified gender.	0 = Male 1 = Female
Vendor Gender	Gender of the vendor identified by the purchaser.	0 = Female 1 = Male
Vendor Age Group (Estimated)	Vendor age group based on the purchaser's estimation of age.	0 = Younger (< 30 years) 1 = Older (≥ 30 years)
Request for Age Identification	First outcome variable. Measure of the vendor's request for a valid piece of identification from the purchaser at any time during a purchase attempt.	0 = No 1 = Yes
Purchase Outcome	Second outcome variable. Measure of the vendor's refusal of a sale to the purchaser.	0 = Yes (Refused) 1 = No (Not refused)