CHAPTER 2
REVIEW OF THE LITERATURE

2.1 INTRODUCTION

As part of this research project, a comprehensive review was undertaken of international and Australian literature on accessibility to gambling, its links with gambling behaviour and problem gambling, and gambling by staff who work in gaming venues. This review first summarises key characteristics of the Victorian gambling industry, before examining accessibility as an influence on gambling behaviour. It then reviews prior research into the various dimensions of accessibility. A review of research into gambling by gaming venue staff completes the chapter.

2.2 KEY CHARACTERISTICS OF THE VICTORIAN GAMBLING INDUSTRY

In Victoria at end 2007 there were 522 hotels and clubs, holding licences for 27,279 gaming machines (Victorian Commission for Gambling Regulation, 2007a). The casino in Victoria is held by Crown Casino Ltd, which has a licence to offer table games and gaming machines. Two companies, Tattersall's and Tabcorp, hold gaming licences, which authorise them to provide gaming on EGMs and Club Keno at licenced venues throughout the State (Office of Economic and Statistical Research, 2006). In addition, Tattersall's holds a public lotteries licence, and Tabcorp a wagering licence, an arrangement that gives each a degree of exclusivity over those forms of gambling in Victoria. Under the wagering agreement, Tabcorp is additionally able to offer sportsbetting services (Office of Economic and Statistical Research, 2006).

2.3 ACCESSIBILITY AS AN INFLUENCE ON GAMBLING BEHAVIOUR

As noted by the Productivity Commission (1999), understanding the link between accessibility to gambling products and venues and problem gambling is of critical concern to governments in the development of gambling policy. This is because the existence of any such link implies the need for caution in liberalising access to gambling. Despite this importance, the research that has been conducted into access to gambling and its impacts on gambling behaviour and gambling problems has been inconclusive. Indeed, the Productivity Commission asserted that 'causation is hard to prove beyond all doubt' given the evidence before it some nine years ago (1999:8.1). Nevertheless, in reviewing variations in problem gambling prevalence rates, gambling expenditure, the use of help services, the changing pattern of counselling demand and overseas evidence, the Commission concluded that there was 'sufficient evidence from many different sources to suggest a significant connection between greater accessibility to gambling – particularly to gaming machines – and the greater prevalence of problem gambling'(1999:8.31).

Other studies conducted into the relationship between access to gambling and problem gambling suggest that isolating the impact of accessibility is necessarily difficult and that related research is unlikely to be fully conclusive (Abbott, 2006; Shaffer and Hall, 2002). This is because accessibility to gambling accompanies a range of other factors that may influence the development and maintenance of gambling problems and thus, availability may only be 'the starting point for all people who develop gambling problems' (Abbott and Clarke, 2007:127). These other factors may include the characteristics and behaviours of the gamblers, the availability and effectiveness of

help services for gambling problems, industry behaviour, government policies, venue features, game features, and consumer information (Productivity Commission, 1999; Tse, Abbott, Clarke, Townsend, Kingi and Manaia, 2005), in addition to changing public attitudes and globalisation (Abbott, Volberg, Bellringer and Reith, 2004; Tse et al., 2005).

For Blaszczynski and Nower (2002), accessibility and availability are the 'ecological factors' that reflect the regulatory conditions, policy environment and social acceptability of gambling. In their 'pathways model', accessibility is also the starting point upon which the conditioning effects of participation, individual vulnerabilities, and the pattern of habitual gambling mediate to determine whether gamblers engage in problematic behaviours, such as chasing losses and losing more than expected (Blaszczynski and Nower, 2002).

The mental disorder view of problem gambling has led to comparisons with other problematic health behaviours. In particular, the agent-host-environment view that describes the interchange between exposure to harmful substances, individual attributes and experiences, and the physical, social and cultural setting is popular and seeks to account for the multiple influences on prevalence (Abbott, 2006). Abbot (2006:10) uses this paradigm to exemplify his conviction that 'availability or exposure theory was over-simplistic and misleading.' Conceptualising access as dose or exposure (Abbott, 2006, 2007; Perese, Bellringer and Abbott, 2005; Productivity Commission, 1999; Tse et al., 2005) is common in the literature, although this relationship is nuanced. As Marshall (2005:69) notes, as 'accessibility to gambling opportunities increases, exposure to the products increases and the likelihood of engagement with gambling would accordingly increase'.

Understanding the level of exposure at which gambling transitions from beneficial to risky behaviour has the potential to frame public policy (Shaffer, 2005). Recent work has sought to quantify the elements of exposure at the regional level, by modelling dose, potency and duration to establish a regional index of gambling exposure, or 'RIGE' (Shaffer, LaBrie and LaPlante, 2004b). In this model, components of 'dose' include the number of gambling establishments and the total number of people employed in gambling; measures of potency include the types of gambling available in the region; and duration is the time, measured in years, that gambling has been legalised in the region. The researchers found that exposure, as a composite of these measures, has a positive association with problem gambling prevalence rates in each of the eight Nevada, U.S. counties studied, although they counter that, where the duration of exposure was more than 10 years, the population seemed to develop some resistance (Shaffer et al., 2004b). Furthermore, Nevada has less incidences of problem gambling than other, 'less exposed' states (Shaffer, 2005). Other components of gambling exposure identified by Shaffer et al. (2004b) that were not modelled include those related to individual access to gambling, being interpersonal, societal, civic and occupational factors. This evidence serves to further highlight the multi-dimensionality of the relationship between access to gambling and problem gambling, and highlights potentially differing factors involved in determining individual accessibility to gambling, compared to population-level accessibility.

Assessing and addressing gambling problems on a population level is an approach favoured in many jurisdictions (Korn, Gibbins and Azmier, 2003; Korn and Schaffer, 1999; Volberg, 1994). This task is made complex by the variability in access to gambling experienced by individuals and the multi-dimensionality of this construct. The Productivity Commission (1999) framework of gambling accessibility identifies numerous dimensions, comprising the number of opportunities to gamble, the spatial distribution of venues, the number of venues, gambling opportunities per venue, opening hours of venues, conditions of entry to venues, ease of use of different gambling products, financial accessibility of gambling including initial outlay, and social accessibility of gambling venues and products. Thus, research into the link between access to gambling and gambling problems is complicated by the need to either isolate the influence of individual dimensions of accessibility or accommodate the likelihood that they have a combined influence.

Similarly, in policy terms, a single measure to control accessibility may have little positive effect, if other dimensions of accessibility remain high.

2.4 DIMENSIONS OF ACCESSIBILITY TO GAMBLING

This section now discusses research into various dimensions of accessibility to gambling, loosely arranged around each of categories identified by the Productivity Commission (1999).

2.4.1 Geographical Opportunities to Gamble

The generic components of geographical accessibility have been well described by Kwan, Murray, O' Kelly and Tiefelsdorf (2003). Accessibility, they argue, can be represented as either locational (place-based) or individual (Kwan et al., 2003). Space and time strongly influence the access that people have to activities or services and thus these dimensions can be used to evaluate constraints on accessibility (Marshall, 2005). Separating the locations of supply from the locations of demand, and accurately scaling the representations of these points (for example, in several dimensions rather than linearly, as facilitated by GIS techniques) enhances studies of geographic accessibility and should guide ensuing research methodologies and their application (Kwan et al., 2003). Kwan et al. (2003) also debunk the accessibility research assumption that users travel to their closest location to engage in their activity of choice, and further concede that individual locational preferences may change over time. Several of the studies discussed in the next part of this review that have utilised individual representations of geographical accessibility (Marshall and Baker, 2002; McMillen, Marshall and Murphy, 2004) or place-based methods (Marshall, McMillen, Niemeyer and Doran, 2004; Marshall and Baker, 1999) for evaluating various dimension of gambling access acknowledge, but do not wholly address, these problems.

Delfabbro and Le Couteur's (2006) definition of locational characteristics concurs strongly with the geographical elements of accessibility. They argue that the location of the gambling activity, for example at home via the internet or telephone, or in a casino or club, is influenced by social context, atmosphere and the broader environment (Delfabbro and Le Couteur, 2006). This concurs with the sociological, community level approach advocated by Preston and Bernhard (2004) to evaluate the impact on problem gambling of factors such as the general social acceptance of gambling, size of the local industry, and community stigmas associated with gambling behaviour and the industry. Acknowledgement of these factors further highlights the complexity of influences on access to gambling (Delfabbro and Le Couteur, 2006; Preston and Bernhard, 2004).

Although the Productivity Commission identified nine distinct factors related to accessibility (1999), Abbott (2007) has identified similarities in several of these that relate to geographic proximity: the number of venues, the number of opportunities to gamble per venue (e.g. number of machines), and the location of those venues (relative to the gambler's place of work/residence). Delfabbro and Le Couteur (2006) loosely refer to these dimensions as 'geographical opportunities'.

2.4.2 Machine Numbers

Despite the findings of the Productivity Commission (1999) that gaming machine numbers *per se* are not an adequate measure of accessibility – the spatial distribution of those numbers needs to be reckoned along with contextual factors – it was able to link per capita gambling expenditure, often used as a marker of problem gambling potential, to gaming machine numbers. This relationship was subsequently discounted for gaming machines in Queensland by the Queensland Office of Gaming Regulation (QOGR) (2003), who claim the second highest number of machines nationally, but third in share of expenditure, fourth in income spent on gambling and fifth in per

capita expenditure. The regulatory environment, individual characteristics and spatial distribution in Queensland are cited as additional factors, other than access as measured by number of machines, complicit in the per capita expenditure data (Queensland Office of Gaming Regulation, 2003).

More compelling evidence is found at the local or regional level, where several studies have focused on aggregate gaming machine numbers and compared these to problem gambling prevalence rates, with varying results. For example, in a Saskatchewan study utilising key informant opinions, restrictions on the number of machines per venue and the concentration of machines in fewer venues were strongly supported by respondents as measures most able to reduce the risk of problem gambling (Responsible Gaming Council, 2006). However, this study was based on respondents' opinions, rather than actual measures of gambling behaviour.

In South Australia, deliberations about how to effectively impose regional caps on gaming machine numbers or reduce those numbers while increasing access to counselling and returning a higher proportion of taxes to regional areas, has been the focus of discussion (O'Neil and Whetton, 2002). The later *Inquiry into the Management of Gaming Machine Numbers* (O'Neil and Whetton, 2004) continued to discuss the options available to effectively decrease the number of gaming machines per venue and redistribute the remaining machines equitably between metropolitan and non-metropolitan areas of the state, supporting the Independent Gambling Authority's (2004) position of a causal relationship between the accessibility of gaming machines, gambling expenditure and problem gambling. As a result, machine numbers were reduced by 2168 machines and the effects of this reduction evaluated (Harrison Market Research and University of Adelaide, 2006). Little support for the effectiveness of this strategy in reducing problem gambling was found, based on self reports from problem gamblers, although the rate of growth of EGM expenditure was slowed (Harrison Market Research and University of Adelaide, 2006).

The NSW state-wide cap on gaming machine numbers and individual venue level caps have also been recently reviewed (Minister for Gaming and Racing, 2007). Several submissions to the review supported further restrictions, including regional or local caps, while another asked for the hotel-level cap to be increased. Changes to any of the existing provisions were ruled out, while the minister acknowledged the effectiveness of state-wide caps in reducing harm (Minister for Gaming and Racing, 2007). However, no evidence was provided in the review document to support this statement.

In Victoria, caps on machine numbers at the local government level were used as a mechanism for reducing the harm caused by gambling, with a focus on reducing machine numbers in socio-economically marginal areas, although some concerns were raised about the arbitrary nature of the reductions (Australian Institute for Primary Care, 2001). The *Study of the Impacts of Caps on Electronic Gaming Machines* (The South Australian Centre for Economic Studies, 2005) assessed the impacts of this policy in five regions of Victoria, in order to determine its effectiveness in reducing risks to the community associated with EGM gambling. It concluded, perhaps unsurprisingly given the earlier criticisms, that the regional caps on EGM numbers had no real impact on accessibility to gambling opportunities. More specifically, it found: little evidence that the caps reduced the level of gambling expenditure at specific venues in the regions affected; no significant evidence that by year three of the cap reduction program that venues from which EGMs were removed experienced larger declines than EGM revenues in other capped regions; no support that the caps caused a reduction in EGM expenditure that was significant for Victoria as a whole; no evidence that the caps displaced gaming expenditure in the leakage regions; and no evidence that the regional cap policy had any positive influence on problem gamblers attending counselling, on problem gambling counselling rates or on other forms of help-seeking behaviour.

In contrast, several positive effects have occurred since the recent 30 per cent reduction in gaming machine numbers in Nova Scotia province, Canada (Corporate Research, 2006) although the different environmental and social context should be acknowledged. Eleven per cent of surveyed players decreased the amount of time they spent playing and 12 per cent of players decreased the amount spent as a result of the reduction in machine numbers, with current problem gamblers most affected by these changes(Corporate Research, 2006).

In analysing the Productivity Commission (1999) prevalence survey results against number of machines per 1000 adults, Volberg and Abbott found support for the assertion that low machine numbers tend to lower problem gambling prevalence rates, with one anomaly: the concentration of relatively low numbers of machines in areas where the risk of developing problems and intensity of use is high in Victoria (Volberg and Abbott, 2005a). Thus, the authors speculated that the relationship between machine numbers and gambling problems is not linear, and that 'somewhere between seven and ten machines (per 1000 adults) the relationship breaks down' (Volberg and Abbott, 2005a:10). Shaffer LaBrie, Nelson and Stanton (2004a) have also remarked upon this non-linear relationship in their overview of exposure effects. Consequently, they proposed that the gambling problems of newly exposed populations recede over time through a process of adaptation (Shaffer et al., 2004a). Abbott (2006) also argues that the findings from many US prevalence studies (Volberg, 2002; Welte, Barnes, Wieczorek, Tidwell and Parker, 2002) support adaptation theory and demonstrate inconsistency in their support for exposure theory.

2.4.3 Machine Density

The Productivity Commission (1999) found evidence of a statistically significant relationship between the number of machines per adult and problem gambling rates, concluding that this supports the link between accessibility and problem gambling in jurisdictions where supply and demand are relatively unconstrained (Productivity Commission, 1999).

Recent evidence of these relationships comes from several local sources. In various analyses of socio-spatial densities of gaming machines in metropolitan Adelaide, Melbourne and Sydney (Marshall, 1999; Marshall and Baker, 1999, 2002) and in the NSW regional Tweed-Richmond area (Marshall, 2005), high concentrations of machines with high expenditures were found in lower socio-economic areas, although the authors were unable to discern which factors had a stronger influence. Legislative, historical and cultural influences were perceived as contributing factors. In an examination of machine density in three Victorian local government areas, McMillen and Doran (2006) provide evidence of machine concentrations in areas of socio-economic disadvantage, and note that people from this disadvantaged group are most at risk of developing gambling problems (McMillen and Doran, 2006). The researchers were not, however, able to prove a direct relationship between machine density, player expenditure and socio-economic disadvantage in each geographic area, although this relationship was present and clear in one instance. They advocate for data concerning who the gamblers are – local or tourist, for example – to improve the depth and accuracy of analysis, and for examination to take place on a small spatial scale (McMillen and Doran, 2006).

Two Victorian studies have examined density from different perspectives. *The Changing Electronic Gaming Machine Industry and Technology* (Australian Institute for Primary Care [AIPC] 2004) found that current EGM consumption patterns correlated closely with measures of socio-economic disadvantage, with disadvantaged areas much more likely to have high densities of EGMs and to spend more money on EGM play. Thus, high machine density was strongly correlated with high per capita consumption. Many other studies corroborate, to varying degrees, this finding (Marshall et al., 2004; McMillen and Doran, 2006).

A later Victorian report, *Community Impacts of Electronic Gaming Machine Gambling* (Department of Justice, 2005a), compared several Victorian regions with similar areas in Western Australia, where there are no EGMs outside Burswood Casino. It reported that: the Victorian prevalence rates of problem gambling were three times that of Western Australia; more clients in Victoria attended financial counselling with gambling problems; EGM play is the source of these problems; and EGM play has resulted in increased numbers of females attending counselling. It also found that gambling expenditure, its growth, and its proportion of household disposable income were very much higher in Victoria than in Western Australia, and that there is a clear relationship between gambling expenditure and problem gambling. The authors called for further research to determine whether gambling-related harm is caused more by the number of machines per venue or the convenience of where machines are available. They were of the view that limiting the number of 'destination centres' would contribute significantly to harm minimisation in gambling. This assertion is currently subject to review in Victoria (Department of Justice, 2007).

Similar effects have been measured internationally. In acknowledgement of higher problem gambling prevalence rates among Canadian non-casino EGM players, Ladouceur, Jacques, Sevigny and Cantionotti (2005) tested the geographic availability of non-casino machines, with a view to determining whether concentrating machines in fewer venues could reduce problem gambling prevalence rates. Problem gamblers indicated a preference for this restriction, perceiving that this would help them to control their gambling, although infrequent and at-risk gamblers were undecided (Ladouceur et al., 2005). The quantitative and experimental second stage of this project confirmed this finding, with 77 per cent of respondents agreeing that concentrating machines would 'better control the negative effects associated with EGM(s)…' (Ladouceur et al., 2005:148). The authors cite several additional benefits of this approach to reducing gambling frequency and excesses, including a reduction in geographic proximity (see below), reduced exposure of non-gamblers and an ability to better manage self-exclusion programs (Ladouceur et al., 2005).

An earlier North American study examined the connection between the availability of gambling activities, participation in gambling, amount of money lost and problem gambling rates over a seven year period (Ladoucer, Jacques, Ferland and Giroux, 1999). During this time the number of machines increased from none to more than 14,000, while the proportion of people who gambled, and the proportion of those people who experienced gambling problems, increased significantly as well (Ladoucer et al., 1999). While these results seem to counter the arguments presented elsewhere, the researchers do acknowledge that several methodological limitations hindered conclusion of a causal relationship.

A socio-spatial analysis of the availability of machines in the city of Montreal, Canada was conducted to discover whether the socio-economic characteristics of urban areas influence youth gambling (Gilliland, 2003). By plotting the location of secondary schools and gaming machine venues and overlaying land use areas (e.g. commercial), the researchers were able to calculate a measure of exposure that showed concentrations of machines around the schools (Gilliland, 2003). While interesting, the analysis did not reveal whether opportunity equalled participation; that is, whether school students were playing those machines, although evidence of high gambling participation of minors was cited (Gilliland, 2003). Evidence from New Zealand also confirms the trend toward higher machine densities in lower socio-economic areas, citing high participation by residents of these areas (Clarke, Tse, Abbott, Townsend, Kingi and Manaia, 2006).

2.4.4 Proximity

Several studies provide evidence around distance travelled or proximity to a gambling venue (Adams, Sulliivan, Horton and Menna, 2007; Chhabra, 2007; Hinch and Walker, 2005; Perese et al., 2005; Shaffer et al., 2004b; Walker and Hinch, 2006). However, it should be noted that the adequacy of proximity as a measure of accessibility has been questioned (Donato, 2003). In their

consideration of earlier evidence from North American studies linking casino gambling, proximity and problem gambling prevalence rates, the Productivity Commission (1999) concluded that support for this link was 'tenuous'. Marshall (2005) also advocates caution: the methods employed for many of these studies use aggregate data and do not adequately address the issue of expenditure by persons living outside the geographic areas under investigation. Nonetheless, he found compelling evidence to suggest a causal association.

In Victoria, it has been found that 50 per cent of gamblers, when asked the location of the last gambling venue they visited, had not travelled more than five kilometres (Centre for Gambling Research, 2004a). In Tuggeranong in the ACT, spatial analysis found that, where patrons lived locally to a venue, their expenditure was likely to be higher than for those patrons who travelled more widely to gamble (Marshall et al., 2004). Overseas, a US national telephone survey found a positive link between proximity to a casino (less that 10 miles) and problem gambling prevalence rates (Welte, Wieczorek, Barnes, Tidwell and Hoffman, 2004), while a US qualitative impact study of the community effects of a casino with more than 500 machines opening within 50 miles, found that seven of the nine communities had experienced increases in the number of regular gamblers experiencing problems (Toce, Hoffman, Bouten, Larison and Gerstein, 1999).

Several studies have also been conducted in Canada involving distance travelled to gamble. For example, using distance travelled as a measure of gambling behaviour and factoring in the effect of ethnicity and marginality (as measured by income and education), Chhabra (2007) found that Canadians from lower income brackets travel more to gamble at a casino but spend less on the trip than do those with higher incomes. Hinch and Walker (2005) examined Canadian casino patrons on the basis of whether they travel to the destination (are tourists) or are locals, finding that casino tourists are attracted to the social opportunities present in the activity, while those who scored high on risk-taking motivation were more likely to be locals or the small portion of casino tourists for whom visiting the casino was the primary motivation (7 per cent). Further evidence from two Canadian studies supports a significant increase in problem gambling prevalence rates after the opening of a casino (Jacques, Ladouceur and Ferland, 2000; Room, Turner and Ialomiteanu, 1999). However, a similar but longitudinal study in a third location found that the increase in that population's problems were not sustained beyond the first year (Jacques and Ladoucer, 2006). Similar resistance effects have been documented elsewhere after ten years of exposure to commercial gambling (Shaffer et al., 2004b).

In their examination of spatial variance in problem gambling prevalence in Ontario, Canada, Rush, Veldhuizen and Adlaf (2007) mapped exposure to gambling opportunities and accessibility of treatment against problem gambling prevalence rates. Their model also had inputs for proximity and opening hours (expressed as days open) of venues and proximity of gambling treatment providers (Rush et al., 2007). The authors found that '…problem gambling appears to be modestly but significantly associated with proximity to casinos and racetracks with slot facilities' and that '…these forms of gambling might constitute an independent risk factor for problem gambling (Rush et al., 2007:205).

These studies cited above provide some support for a link between the number of opportunities to gamble in a geographical area and gambling expenditure. Overall, they also support a link between the number of opportunities to gamble per venue and gambling expenditure, with a relationship evident between venue size (measured by EGM numbers) and average consumption per EGM.

2.4.5 Social Accessibility

The Productivity Commission interpreted social accessibility to gambling as 'the sense in which a venue provides a non-threatening and attractive environment to groups who might otherwise feel

excluded' (1999:8.6). Some of these groups are considered below in terms of research linking them to accessibility to gambling.

Females

While the historical basis for the acceptability of many forms of gambling in Australia is often explicitly accepted (Australian Institute for Gambling Research, 1999), the growing accessibility of gaming machines and attractiveness of clubs and casinos has increased the acceptability of participation by women (Abbott, 2001; Delfabbro and Le Couteur, 2006), leading to a feminisation of gambling (Brown and Coventry, 1997; Productivity Commission, 1999; Trevorrow and Moore, 1998; Volberg, 2003; Volberg, 2000). Female participation in lottery and casino gambling is now equal to that of men ((Brown and Coventry, 1997; Delfabbro, 2000; Potenza, Maciejewski and Mazure, 2006; Volberg, 2000) and, while males still gamble at more problematic levels than women (ACNielsen, 2007; Perese et al., 2005), the increasing incidence of women seeking help for problem gambling evidences the link between access to gambling and problem gambling prevalence (Productivity Commission, 1999). This trend is mirrored internationally. In New Zealand, for example, Maori women are the fastest growing group of help-seeking problem gamblers (Clarke et al., 2006).

Ethnic groups

Social accessibility to different forms of gambling also appears important to many recently migrated Asian community members, who may gamble in response to the difficulties associated with the migrant experience (Abbott, 2001; Kim and Wong, 2005). Other aspects of social accessibility and acceptability potentially unique to some Asian gamblers include gambling to bring luck, to be perceived as lucky by your peers, and to be present in the relatively opulent casino environment (Tanasornnarong, Jackson and Thomas, 2004). Certainly, an over-representation of some Asian groups amongst casino patrons is evident, but no studies have explicitly examined the role of social accessibility in this. The Productivity Commission (1999:8.7) also commented that, in the Northern Territory in Australia, the casinos are a non-threatening and attractive environment for Aboriginal and Torres Strait Islanders, who are tacitly said to be discouraged from gambling in clubs and hotels.

Family and peer effects

A further feature of social accessibility is the endorsement – tacit or explicit – given to gambling activity by family and peers. Several clinical studies have provided strong support linking family involvement in gambling to problem gambling (Abbott, Cramer and Sherrets, 1995; Au, 2005; Australian Council of Social Services, 1997). The peer influence may be additionally influential in young people's gambling (Delfabbro, Lahn and Grabosky, 2005; Tanasornnarong et al., 2004; The South Australian Centre for Economic Studies, 2003c), with accessibility regarded as an influencing factor for this population by some researchers (Gilliland, 2003), yet discounted by others (Abbott, 2006; Shaffer et al., 2004a; Volberg, 2002).

Smokers

The *Study of the Impacts of Caps on Electronic Gaming Machines* (The South Australian Centre for Economic Studies, 2005) reported on the impact of the smoking ban in restricted gaming areas in Victoria, introduced in September 2002. While not an obvious dimension of accessibility, a smoking ban can reduce the social accessibility of gambling for smokers in that it reduces their comfort level in gaming areas, while increasing this for non-smokers. It also reduces the length of

time that smokers can comfortably gamble, thus affecting their use and expenditure. The study concluded that this ban had significantly reduced gaming expenditure in the regions examined by up to 19 per cent (The South Australian Centre for Economic Studies, 2005). However, no link was established between this limit on accessibility and problem gambling. Similarly, the *Evaluation of Electronic Gaming Machines Harm Minimisation Measures* in Victoria (Department of Justice, 2005b) also noted the initial reduction in gambling expenditures following the smoking ban and speculated that this came from those who were highly dependent on cigarettes and who were also problem gamblers. Evidence for this view is also equivocal.

2.4.6 Opening Hours

Many jurisdictions have attempted to minimise harm to gamblers though the imposition of restrictions on the hours of gaming machine operation. In many cases, these are aligned to the liquor licensing conditions. The Victorian *Evaluation of Electronic Gaming Machines Harm Minimisation Measures* (Department of Justice, 2005b) reported the 'views and perceptions' of gaming machine players and venue managers. A majority of both groups agreed that shutdown periods are possibly effective strategies in assisting problem gamblers. However, consistent with the NSW *Evaluation of the Impact of the Three Hour Shutdown of Gaming Machines* (ACNielsen and Australian Centre for Gambling Research, 2003), this evidence is inconclusive and further research into the most effective time for the shutdown was considered necessary (Department of Justice, 2005b). Anecdotal evidence of players moving to the casino when the shutdown came into effect was also provided to the Victorian report's authors (Department of Justice, 2005b).

The *Study of the Impacts of Caps on Electronic Gaming Machines* (Victorian Department of Justice, 2005) reported on the impact of the staggered cessation of 24 hour gaming in licensed venues in Victoria. It concluded that the ensuing fall in gaming expenditure in the venues examined which had initiated a shutdown period was collectively about 3.3 per cent. However, the research did not investigate whether this reduction in gaming expenditure was due to reduced expenditure by problem gamblers or those at risk, and so a link between opening hours for gambling venues and gambling problems was not established.

Other jurisdictions have also implemented machine shutdowns as part of their responsible gambling policies (Australian Gaming Council, 2007). The *Gaming Machines Act 2001 NSW* obligated machine shutdowns in NSW venues for three hours per day. After 1 May 2003, this was extended to six hours. The *Evaluation of the Impact of the Three Hour Shutdown of Gaming Machines* concluded that the three hour shutdown had little effect on recreational gamblers, as most did not play gaming machines during the most common shutdown hours of 6am to 9am (ACNielsen and Australian Centre for Gambling Research, 2003). Of the ten problem gamblers interviewed, most frequented clubs, although 'a couple would mostly play in hotels and would go to numerous venues depending on where they were working' (ACNielsen and Australian Centre for Gambling Research, 2003:47). Venue opening hours did affect the frequency and duration of play for some of these problem gamblers; for example one hospitality worker recounted gambling after their shift, while another recounted long gambling sessions that extended into the early morning hours (ACNielsen and Australian Centre for Gambling Research, 2003). One gambler noted that when a venue closed, they would 'go down to the club down the road which was a 24 hour type thing and keep playing' (ACNielsen and Australian Centre for Gambling Research, 2003). It is unclear, however, how prevalent this gambling behaviour was amongst the sample of ten problem gamblers interviewed (ACNielsen and Australian Centre for Gambling Research, 2003). Three-quarters of the venues managers consulted for this study thought the shutdown had had a negative effect on their business, with reports of loss of revenue, loss of gamblers and loss of staff the most frequently cited by the ten managers who participated in a face to face interview (ACNielsen and Australian Centre for Gambling Research, 2003). A review of the more recent six hour shutdown in NSW is currently underway.

ACT venues must shutdown their machines for three hours each day (McMillen and Pitt, 2005). In reviewing the effectiveness of this measure in reducing harm to gamblers in the ACT, McMillen and Pitt (2005) found little support from club managers, in the face of a 3-10 per cent reduction in gaming machine turnover since the introduction of the shutdown. These managers reported that recreational gamblers were disadvantaged by the shutdown, although this view was not corroborated by the majority of recreational gamblers themselves (McMillen and Pitt, 2005). A few problem gamblers interviewed for this study offered cautious support for the break in play induced by this measure (McMillen and Pitt, 2005).

Results from Nova Scotia province, Canada, provide positive evidence of the potential effectiveness of extended machine shutdowns on problem gambling (Corporate Research, 2006). Citing research that showed that 'a disproportionate number of problem gamblers played VLTs between midnight and closing' (Corporate Research, 2006:2). Nova Scotia province moved the shutdown time forward to midnight with the effect that problem gamblers reduced their spending by $75 per week and moderate risk gamblers by $140 per week. The effect of this change on time played was not reported.

2.4.7 Conditions of Entry

Access to gambling can also be restricted by imposing conditions on entry. The most common example of this is contained in legislation which requires that gamblers be over the age of 18 years. Other restrictions that may be applied include prohibitions on locals gambling, entrance fees, and identification requirements. For example, the Holland Casino in Amsterdam requires payment for entry, and a valid passport or similar identification must be produced (Casino City, 2008). Other international jurisdictions require that 24 hours notice of intent to gamble be given (Blaszczynski, 1988 cited in Productivity Commission, 1999). In Australia, clubs require that gamblers be members or are signed in as guests of members, or are visitors from outside the immediate local area, and restrictions on acceptable attire are also widely applied (Hing, Breen and Weeks, 2002).

Exclusion from selected gaming venues is another method useful for restricting entry. In assessing the self-exclusion regime in Victoria and summarising their operation Australia-wide, the *Evaluation of Self Exclusion Programs* documented several inherent weaknesses and a general failure of self-exclusion programs to be effective (The South Australian Centre for Economic Studies, 2003a). For Victoria, they noted that 'the limited data available on self-exclusion is input not outcomes based' and so 'it is not possible to comment meaningfully on compliance by venues, rates of detection or notification rates and hence the effectiveness of exclusion as a protective measure' (The South Australian Centre for Economic Studies, 2003b:12). Furthermore, the Victorian venues surveyed considered that the self-exclusion program had had little or no effect on problem gambling. Weaknesses included that photographs were an inadequate means by which to identify people, that this problem would compound as the number of exclusions increased, that there was a lack of training and support for venue staff in how to administer the program, identify problem gamblers, and report breaches, and that there is a 'conflict of interest where enforcing self-exclusion may impact directly on operator income' (The South Australian Centre for Economic Studies, 2003b:12). Indirectly, the report suggests that this condition of entry can be circumvented.

Equally, evidence from other jurisdictions highlights the fallibility of many conditions of entry when it comes to protecting vulnerable groups such as minors. A study in Auckland, New Zealand found high levels of adolescent gambling, with 10 per cent of surveyed teenagers having played poker machines, and high rates of problem gambling amongst this population (Sullivan, 2001), despite it being illegal for minors to gamble. More generally, the International Centre for Youth Gambling and High Risk Behaviors (2007) notes that 'prevalence studies conducted in the United

States, Canada, New Zealand, Europe, and Australia have noted rising prevalence rates of youth involvement in both legal and illegal forms of gambling'.

2.4.8 Ease of Use

This dimension refers to the level of skill required to play a game, with gaming machines requiring far less skill, compared to blackjack or betting on the races (Productivity Commission, 1999). The level of skill required to gamble on an activity in turn influences its accessibility. For example, several authors have identified that male adolescent interest in skill-based games increases their access to these types of gambling activities in early adulthood and they have linked this early interest with high adolescent problem gambling prevalence rates (Delfabbro and Le Couteur, 2006; Shaffer, Hall and Vander Bilt, 1997). While accessibility to gambling is influenced by the 'match' between the user's skills and those required to participate in certain forms of gambling, ease of use of some types of gambling has also been heightened by the introduction of new technologies.

New technologies

Delfabbro and Le Couteur (2006) remark that technology has transformed the ease with which traditional forms of gambling - such as racing and sportsbetting - can be accessed. For example, while the telephone is not a new technology, its application to wagering makes gambling in this manner 'the most spatially accessible' (Productivity Commission, 1999:8.4). Technology facilitates access to gambling by increasing opportunities to gamble which, in turn, may increase the number of problem gamblers (Griffiths, 1999; Volberg, 2000). This potentially increased event frequency is particularly evident on gaming machines, where there are few constraints on the speed of play (Griffiths, 1999), although other forms of gambling, including lotteries, keno and bingo games, are also increasingly able to be played repeatedly as a consequence of the application of technology (Volberg, 2000).

The phenomenal growth of access to the internet has been matched by growth in internet gambling participation, which is widely available and easily accessible to anyone with an internet connection or other communications device and the means to electronically transfer money (Wood and Williams, 2007). In Australia, however, the *Interactive Gambling Act 2001 C'th* has sought to curtail access to online casino gaming. Globally, however, internet gambling's rapid growth is undisputed, although market estimates vary. Since the first online gambling site opened in 1995, 465 companies now operate around 2,500 sites globally, with site numbers more than doubling in the last five years alone (Wood and Williams, 2007). Revenues (after payments to players) have grown from under $1bn in 1998 to over US$12bn in 2005, and are predicted to reach over US$20bn by 2008 (Christiansen Capital Advisors, 2005). In Australia, 26 wagering and lotteries sites operate, but only one company, Lasseters, is licensed to provide an online casino service, and only to non-residents of Australia (Casino City, 2008).

The association of internet gambling with problem gambling has strong evidence, with one international study finding 43 per cent of internet gamblers had severe or moderate gambling problems (Wood and Williams, 2007), while an Australian survey found that problem gambling was four times higher amongst internet gamblers than non-internet gamblers (The Allen Consulting Group, 2003). When easy accessibility leads to frequent gambling, and the immersive qualities of online gambling lead to long gambling sessions, large gambling losses can result and the potential for gambling problems appears serious (Griffiths, Wood and Parke, 2006), especially in the absence of responsible gambling features.

Other technologies that have received much attention in recent reviews of gambling harm minimisation measures that have the potential to influence accessibility to gambling include access

to cash via ATMs (Department of Justice, 2007; Independent Pricing and Regulatory Tribunal, 2004; KPMG Consulting, 2002) and cashless payment technologies (Independent Pricing and Regulatory Tribunal, 2004; Perese et al., 2005). Recent legislative amendments in Victoria have restricted daily ATM withdrawal limits (Department of Justice, 2007). Specifically, the *Gambling Legislation Amendment (Problem Gambling and Other Measures) Act 2007* states the following:

13 Section 3.5.32A

(2) A venue operator must not provide, or allow another person to provide, an automatic teller machine in any other part of an approved venue (other than an approved venue that is on a race-course), if the automatic teller machine allows a person to withdraw, on any one debit or credit card, an amount of cash exceeding $400 in total in a period of 24 hours. Penalty: 60 penalty units.

(3) If an approved venue is on a race-course, a venue operator must not provide, or allow another person to provide, an automatic teller machine within 50 metres of an entrance to a gaming machine area in the approved venue, if the automatic teller machine allows a person to withdraw, on any one debit or credit card, an amount of cash exceeding $400 in total in a period of 24 hours. Penalty: 60 penalty units.

(4) This section does not apply to a venue operator who is a casino operator.

58 Section 81AAA inserted

After section 81AA of the Casino Control Act 1991 insert-

"81AAA Limited placement of automatic teller machines and amount that can be withdrawn in a 24 hour period

A casino operator must not provide, or allow another person to provide, in the casino or within 50 metres of any entrance to the casino, an automatic teller machine, if the automatic teller machine allows a person to withdraw, on any one debit or credit card, an amount of cash exceeding $400 in total in a period of 24 hours. Penalty: 60 penalty units".

Similarly, denomination controls, particularly restrictions on note acceptors, were discussed by the Productivity Commission (1999) for their ability to minimise expenditure which has been tied to lower problem gambling prevalence rates. In NSW, notes have been accepted for payment since 1994, despite evidence linking faster rates of play and the development of gambling problems with this innovation (Delfabbro and Le Couteur, 2003; Independent Pricing and Regulatory Tribunal, 2004). Note acceptors, it has been claimed, led to a doubling of machine turnover in NSW (Face, 2002).

2.4.9 Initial Outlay

The Productivity Commission (1999:8.6) notes that low outlay games are clearly more accessible to people on low incomes. EGMs typically have a low initial cost – as little as 1c per game, although $1 may the minimum amount which can be inserted into a machine – while table games have a much higher initial cost. The low cost of gaming machines makes this form of gambling particularly appealing to people on low incomes (Productivity Commission, 1999).

However, while the ability to pay the initial outlay needed to gamble affects overall accessibility to gambling, the link between access to gambling and its overall affordability is less clear. For example, population studies typically indicate that participation in gambling by lower socio-economic groups is higher than that for more affluent socio-economic groups. As such, the

attraction of a chance of winning at gambling may negate considerations of affordability for some people.

2.4.10 Summary

The preceding review of recent literature indicates some evidence of a link between certain dimensions of accessibility to gambling and gambling behaviour and problem gambling. However, the research results are largely inconclusive, being hampered by the difficulties of isolating from other factors the influence of accessibility on the development and maintenance of gambling problems and of separating out the influence of different dimensions of accessibility. Thus, further research is needed before definitive conclusions can be drawn. The current study of gambling by gaming venue staff will add to this research base by capitalising on a natural experiment amongst three groups of people with different levels of access to gambling – gaming venue staff who are allowed to gamble in their workplace, those who are not allowed to gamble in their workplace, and the general population of Victoria. The discussion below now reviews research conducted into gambling by gaming venue employees.

2.5 GAMBLING BY GAMING VENUE EMPLOYEES

Very little research has been conducted into the gambling behaviour of gaming venue employees, yet their high exposure and ready accessibility to gambling suggest they would be an at-risk group for gambling problems. This theory, that occupation within the gambling industry is a dimension of exposure (Shaffer et al., 2004b), is supported by a small number of empirical studies conducted overseas and within Australia.

2.5.1 Overseas Studies

The few overseas studies which have been conducted have found higher rates of problem gambling amongst gaming venue employees than in the general population, although several interesting variations are evident within these estimates:

- Collachi and Taber (1987) asked 34 employees from three large casinos in Reno about their frequency of gambling, gambling habits, opinions of others who gamble, and gambling itself. Although many of their findings were consistent with problem gambling (e.g. borrowing money between paydays), no consistent, quantifiable instrument was used to measure no-risk, low-risk, medium-risk or problem gambling.
- Shaffer, Vander Bilt and Hall (1999) examined the prevalence of pathological gambling, drinking, smoking and other health risk behaviours amongst casino employees. A sample of 3,841 full-time casino employees from four sites of one casino was surveyed. The study found that the casino employees had a higher prevalence of past-year level 3 (pathological) gambling (2.1 per cent), but a lower prevalence of level 2 (problem) gambling (1.4 per cent), than the general adult population, when measured on the South Oaks Gambling Screen. In addition, employees had a higher prevalence of smoking, alcohol problems and depression than the general adult population. Although not specified in their report, it is presumed that this study was conducted in the US.
- In an apparent extension of this work, a longitudinal study that re-tested a sample of 1,176 employees at three intervals over 12 months found that some respondents demonstrated an ability to reduce their gambling problems (Shaffer and Hall, 2002), lending support to adaptation theory (Abbott, 2006).

- Duquette (2000) surveyed 271 employees of one hotel/casino in Las Vegas, also using the South Oaks Gambling Screen. The rate of pathological gambling amongst these employees was found to be 20.3 per cent, compared to 1.14 per cent for the general adult population.
- Wu and Wong (2007) examined psychological impacts on the disordered gambling of Chinese casino employees in Macao. In finding a problem gambling prevalence rate of 7 per cent (10 or more on the SOGS) amongst the 119 dealers surveyed, the researchers hypothesised that job related stress, induced by lack of job meaningfulness and job monotony, were the key contributors to these gambling problems. While evidence supporting these relationships was found, the link between accessibility and problem gambling was neither supported nor refuted by the study's authors. What was emphasised, however, are the difficulties associated with identifying causality between these variables (Wu and Wong, 2007).

2.5.2 Australian Studies

The current study represents the third Australian study relating to gambling by gaming venue staff, all conducted by the Centre for Gambling Education and Research at Southern Cross University. The two other studies were conducted in Queensland, with the results of only the first published at the time of writing (Hing and Breen, 2005, 2006a, 2006b, 2007, 2008a, 2008b, in press). This section discusses key findings from that research and the relevance of these when considering accessibility of venue staff to gambling.

The study in question was a mainly qualitative research project examining the gambling behaviour of Queensland gaming venue employees and how aspects of their workplace might influence that behaviour. It also examined how gaming venues might provide a work environment that is conducive to responsible gambling amongst employees. The research employed personal interviews to collect data from 86 employees and 73 managers of hotels, clubs and casinos, from 32 gambling counsellors, and from six problem gamblers. To supplement the qualitative data, most employees interviewed (N = 56) also completed a short survey questionnaire to gather quantitative data on their gambling behaviour. The qualitative component of the study revealed over 80 reasons why working in a gaming venue may have an encouraging influence on staff gambling, as shown in Table 2.1.

Table 2-1: Why working in a gaming venue can potentially encourage staff gambling

Close Interaction with Gamblers Staff hear about wins more than losses Seeing people win creates hope of winning Staff get caught up in the excitement of patrons' wins Staff constantly hear about gambling and given 'hot tips' Patrons can encourage staff to gamble Staff who gamble build relationships with other gamblers Staff want a piece of the action	**Influence of Workplace Stressors** Staff need to unwind after work Staff can experience stress about problem gamblers Staff can experience stress about difficult customers Staff can experience stress from heavy workloads Job dissatisfaction/boredom Staff need to escape from work stresses Staff want to be left alone Staff have to leave workplace soon after end of a shift
Frequent Exposure to Gambling Increases staff familiarity with gambling Increases staff interest in gambling Normalises gambling for staff Staff may have ready access to gambling Staff are surrounded by the lights, music and atmosphere Infrequent staff can gain distorted views about winning New or younger staff can be vulnerable Staff can lose sight of the value and ownership of money Increases perceived insider knowledge about gambling Staff become attracted to the gambling environment Normalises heavy gambling for staff Triggers the temptation to gamble	**Influence of Shift Work** Staff can suffer social isolation Lack of alternative social opportunities for staff Lack of alternative recreational opportunities for staff Only gambling venues are open late at night Staff need to find solitary leisure activities Staff tend to socialise with other hospitality workers Staff gamble to fill in time between shifts Staff social life can revolve around the workplace Staff gamble while waiting for others to finish work Shift work makes it easier to hide heavy gambling Shift work leads to stress
Influence of Fellow Employees Staff gamble together in their workplace Staff gamble together after work Staff gamble together on days off Staff directly encourage other staff to gamble Staff introduce other staff to gambling Staff share gambling tips Staff gamble on hospitality industry nights Staff travel away together to gamble Staff social club activities can encourage gambling Staff gamble before work Staff gamble to gain acceptance into the workgroup General acceptance of gambling amongst staff Gambling problems not taken seriously by staff	**Other Aspects of the Workplace** Some staff drink large quantities of alcohol Reluctance to expose problems due to fear of job loss Some staff have the opportunity to bet on credit Irregular wages of casual staff Low wages of some staff Young age group of staff Self-exclusion difficult due to embarrassment/ job loss Staff are overlooked in problem gambling Staff cannot gamble at workplace so problem undetected Access to cash and pay in their workplace Lack of alternative employment opportunities Staff may not have time to access help services The industry attracts gamblers and problem gamblers The industry attract outgoing people Staff receive gratuities drawing attention to wins Staff boredom
Influence of Venue Managers, Policies and Practices Managers are sometimes gamblers and set an example Managers gamble with staff Managers allow staff to gamble in the workplace Gambling can be a job requirement Workplace has a gambling culture Managers sometimes talk about big wins Managers might talk about gambling in a positive way Managers do not take gambling problems seriously	**Frequent Exposure to Gambling Marketing and Promotions** Promotions can act as a trigger Reinforces gambling as a way to win money Raises awareness of jackpot levels Increases knowledge about other promotions Staff get caught up in the excitement of promotions Worsens existing gambling problems

(Source: Hing and Breen, 2006a)

The quantitative component of the project added weight to the qualitative results suggesting that working in a gaming venue can encourage gambling amongst some staff. However, it is important to note that the results of this quantitative survey provide an overview of the gambling behaviour of only the 56 respondents, not of all gaming venue employees in Queensland. Nevertheless, the results depict a group who actively engages in gambling. When compared to the *National Gambling Survey* (Productivity Commission, 1999), higher proportions of the respondents were regular gamblers on nearly all forms of gambling, and these proportions were markedly higher for gaming machines, TAB betting and keno. This profile of active gambling involvement was also

supported by the respondents' reported gambling expenditures. During the previous 12 months, they spent ten times more than the average Queensland adult on keno, over five times more on TAB betting, over three times more on lottery-type games, double the average on gaming machines, and about 1.7 times more on casino table games (Office of Economic and Statistical Research, 2006). The respondents also displayed relatively high rates of problem, moderate risk and low risk gambling, as measured by the *Canadian Problem Gambling Severity Index* (Canadian Centre on Substance Abuse, 2001). Compared to results from the *Queensland Household Gambling Survey 2003-04* (Queensland Government, 2005), the prevalence of problem gambling amongst the respondents (8.9 per cent) was 16 times higher than the Queensland adult population, moderate risk gambling (19.6 per cent) was ten times higher, and low risk gambling (16.1 per cent) was triple the state average. In general, as the level of risk amongst respondents rose from no-risk to problem gambler, so did reported expenditures and session lengths on gaming machines, TAB betting, keno, and private gambling.

The research project discussed above focused on all workplace influences on staff gambling, not just accessibility. However, many factors that respondents identified as encouraging staff to gamble are related to various dimensions of accessibility to gambling. For example, the location of the workplace determines the number of venues and gambling opportunities accessible to staff before or after work. Staff accessibility to gambling is also influenced by whether accessible venues are open after they finish their work shifts and whether they are in fact the only entertainment venues open after they finish work. Venue staff who work in gambling-related positions typically have greater knowledge about how different gambling products work and this influences their ease of use of these products. Financial accessibility of gambling may depend on the disposable income of staff and/or their perceived need to try to supplement their income through gambling. Social accessibility to gambling may be heightened for venue staff as the gambling environment is a familiar one, they often face peer pressure from work colleagues to gamble, and they often know the staff at nearby venues. Clearly, any restrictions on staff gambling in their workplace also affect their accessibility to gambling.

2.6 CHAPTER CONCLUSION

In conclusion, research into the link between accessibility to gambling and problem gambling has been inconclusive to date, as is existing research into how working in a gaming venue influences gambling by staff. However, this project builds on the opportunity to conduct a natural experiment with groups of people who have differing access to gambling in order to further test this link. When comparing the relative accessibility to gambling of the three populations of interest in the current study, previous research and the results from the Queensland study discussed above suggest various reasons why their relative accessibility to gambling may differ.

For example, when compared to the general population of Victoria, gaming venue staff who can gamble in their workplace have very high accessibility to gambling because:

- they have the highest number of opportunities to gamble, given the proximity and convenience of gambling in their workplace;
- their ease of use of gambling products is heightened due to their knowledge and familiarity with how they work;
- their social accessibility to gambling is very high as the workplace is typically a familiar, non-threatening and attractive environment for them, which provides safety, a sense of inclusion, an opportunity for social interaction with known patrons and fellow staff, and social acceptance in the venue;

- the venue may be open when they finish a shift, allowing them the opportunity to gamble to relax after work;

- their accessibility to gambling in the workplace is not limited by any conditions of entry to gaming, the spatial distribution of gaming venues, the number of accessible gaming venues, and the number of opportunities to gamble, except as these relate to opportunities in their workplace.

Gaming venue staff who cannot gamble in their workplace have less accessibility to gambling than staff who can gamble in their workplace, but higher accessibility than the general population because:

- their ease of use of gambling products is heightened due to their knowledge and familiarity with how they work;

- their social accessibility to gambling is high as other gambling venues are often a familiar, non-threatening environment for them, they often know staff at other venues which heightens their social acceptance in those venues, and they are sometimes encouraged to gamble with work colleagues after work and on days off;

- other venues may be the only places open when they finish a late shift, allowing them the opportunity to gamble to relax after work;

- however, depending on the location of their workplace, residence and nearby gaming venues, accessibility to gambling for these staff is no more influenced than is the general population by the number of opportunities to gamble, their spatial distribution, the number of venues and opportunities per venue, financial accessibility, and conditions of entry to venues.

The next chapter explains the methodology used to examine the gambling behaviour of staff in Victorian gaming venues and to assess the influence of accessibility to gambling on this behaviour.