The Journal of Gambling Business and Economics 2014 Vol 8 No 3 pp 36-51

FACILITATING PLAYER CONTROL IN GAMBLING

Dr Adrian Parke *Andrew Harris* *Dr Jonathan Parke* *Dr Jane Rigbye*

University of Lincoln, School of Psychology, Lincoln

Responsible Gambling Trust, London

Professor Alex Blaszczynski[*]

University of Sydney, Faculty of Science, Sydney

ABSTRACT

Research indicates that gamblers frequently set self-imposed limits on how much time and money they wish to gamble in a given gambling session, yet consistently gamble more than initially intended. The emotional and arousing impact of gambling, as well as dissociative states gamblers experience whilst gambling, may contribute to this behavioural shift which reflects a failure in self-control. Essential then, is the need for harm minimisation strategies aimed at allowing a gambler to stay in control of their decisions and behaviour during gambling, whilst concurrently limiting the negative impact this may have on the gambling experience for those who frequently stay in control. The following article evaluates the use of limit setting and pre-commitment, the use of 'cooling off' periods, and restricting access to additional funds as harm minimisation strategies, in terms of their efficacy in facilitating self-control in problem and non-problem gambling populations. As with any potential mass intervention, such as the use of mandatory limit setting, the need for robust empirical evidence to prove its efficacy is essential. Existing research, while providing promise, falls short of this criterion, indicating a requirement for more stringent empirical research to best guide responsible gambling practices aimed at facilitating player control during gambling.

Keywords: Electronic Gaming Machines; Harm Minimisation; Pre-Commitment; Problem Gambling; Responsible Gambling; Self-Control.

1 INTRODUCTION

Research consistently indicates that gamblers frequently gamble more than intended (Blaszczynski, Ladouceur, & Lalande, 2008); where such individuals make impulsive decisions that override pre-session intentions

[*] Corresponding Author- Professor Alex Blaszczynski, The University of Sydney, Faculty of Science, Sydney, H36 - 110 Darlington Road (School of Psychology), alex.blaszczynski@sydney.edu.au.

pertaining to time and money with which to gamble. It is argued the shift may be motivated by the desire to prolong states of dissociation, need for emotional escape, desire to prolong excitement, impulsive choosing of short term rewards over longer term larger rewards, erroneous gambling beliefs such as a win being 'due', or the pressure to chase losses (See Petry, 2005 for review). These behavioural shifts are seen as reflecting a degree of impaired self-control, potentially resulting from a failure to maintain adequate goals or standards, a failure to self-monitor behaviour in line with such goals/standards, and weakened motivations (Moore, Thomas, Kyrios, & Bates, 2012).

An individual's capacity to self-regulate can be undermined by a series of factors, including: inability to regulate emotions (Scannel et al., 2000; Williams et al., 2012) and the use of emotion over problem-focused coping strategies (Blaszczynski, McConaghy, & Frankova, 1990); erroneous gambling cognitions (see Hodgins & Holub, 2007; Petry, 2005); heightened states of arousal (see Abrams & Krushner, 2004; Delfabbro, 2014); and neurotransmitter deregulation (Humphreys & Richards, 2014; Gouudriaan, van Holst, Veltman, & den Brink, 2014). In recognition of the difficulties gamblers have in maintaining self-control during periods of heightened arousal or emotion (Sharpe, Tarrier, Schotte, & Spense, 1995; Baudinet & Blaszczynski, 2012; William, Grisham, Erskine, & Cassidy, 2012) it is essential from a harm minimisation perspective to implement strategies aimed at facilitating player control during gambling.

2 LIMIT SETTING

It has been suggested allowing players to set monetary and time limits that cannot be exceeded will act to facilitate control over play and, importantly, reduce the likelihood of gambling to excess (Productivity Commission, 2010). The intent with such an approach is that it imposes external controls on a player to prevent gambling beyond levels initially intended, irrespective of the strength of any urges to prolong the gambling session. Essentially, the player sets limits on time and monetary expenditure prior to the commencement of play, which are decided upon when the individual is in the absence of any arousal/excitement that might impair decision-making (that is, a state of 'cold emotions'), allowing more rational decisions to be made regarding time and monetary expenditure in accord with their budgetary constraints (Scannel, 1999). The advantage of pre-commitment is that, once a limit is set, factors related to emotional states, incurred losses, personality traits (impulsivity and risk-taking), and shifting motivations, are less likely to influence decisions, making it more likely an individual will adhere to initial intentions and decisions.

Such a strategy is supported by the findings of a number of studies exploring methods used by those with a gambling disorder to self-regulate their gambling behaviour. Moore, Thomas, Kyrios, and Bates (2012)

reviewed the natural recovery literature to elicit the range of useful self-management techniques used by individuals ceasing their gambling in the absence of professional intervention, especially relevant given the fact 40-82% of individuals with a gambling disorder recover without professional help (Abbot, Williams, & Volberg, 1999; Froberg, Rosendahl, Abbot, Romlid, Tengstrom, & Hallqvist, 2014; Slutske, 2006). One of the primary techniques identified was self-imposed limit setting (Blaszczynski & Nower, 2010; Nelson et al., 2008; Dzik, 2006), where approaches reportedly used included taking set amounts of cash to venues and leaving credit and debit cards at home, taking alternative routes home to avoid or by-pass venues, involvement in substitute activities/hobbies with greater personal salience, and coming to the realisation that gambling impinges negatively on their overall quality of life. Building on these studies, Moore and colleagues (2012) administered a 20-item self-regulation scale to a sample of social, problem, and ex-problem gambling participants. Consistent with existing literature, they found a five-factor structure best described the key strategies: limit setting (time and money); cognitive approaches (awareness of negative outcomes and competing priorities); direct action (help-seeking, destroying credit cards, limiting ready access to cash); social experience (not gambling in isolation); and avoidance (not attending venues).

Several jurisdictions, namely Australia, Denmark, New Zealand, Norway, Nova Scotia, and Sweden have instigated trials evaluating voluntary or mandatory pre-commitment for electronic gaming machines (EGMs; Williams, West, & Simpson, 2012), and more recently, Great Britain. In the case of Norway, all players must register with a central monitoring server, and all machines have a mandatory pre-commitment threshold (Biggs, 2011). However, whilst conceptually sound with high face validity and potential promise (Griffiths, 2012; Parke, Rigbye, & Parke, 2008; Productivity Commission, 2010), there is currently no strong or conclusive empirical evidence demonstrating the efficacy of pre-commitment for the majority of players or problem gamblers (Ladouceur, Baszczynski, & Lalande, 2012; Parke, Rigbye, & Parke, 2008). Despite inherent methodological limitations, self-report data shows that the majority of gamblers regard pre-commitment as positive and results in a reduction of time and money expenditure, as well as loss chasing behaviour (Omnifacts Bristol Research, 2005, 2007; Schottler Consulting, 2010). The challenge is to determine the proportion and characteristics of those players benefiting from pre-commitment, and to devise strategies to maximise the uptake of pre-commitment without causing unintended negative consequences.

It is a matter of concern that pre-commitment might result in the setting of high limits for a small proportion of players (Responsible Gambling Council, 2009) which could potentially lead to an exacerbation of expenditure (Ladouceur, Blaszczynski, & Lalande, 2012). For example, higher limits may be set to avoid a repeat of situations where a player unexpectedly meets a friend at a gambling venue but has already met their limits and thus, cannot

take part in further social gambling. This highlights the fact that unless experimental or observational research is carried out into pre-commitment in the exact regulatory and cultural context in which it is intended to be introduced, it might not be possible to determine its impact in a cost-effective manner. Findings from jurisdictions with socio-political and cultural differences may not validly transfer to others. In addition, the principle of 'proportionality' ought to be considered, that is, a great standard of evidence is required for interventions that are costly, affect the majority of players, and have ramifications for revenue and taxation, before they should be introduced into jurisdiction.

2.1 Most Gamblers Pre-commit Expenditure Levels

Most gamblers do indeed predetermine the amount of money or time they wish to spend in a session. In a qualitative study, Husain, Wardle, Kenny, Balarajan, and Collins (2013) found that individuals tend to set predetermined budgets depending on decisions related to how much they are willing to lose, and then subsequently play at stake levels that maximise the chance of playing for a chosen length of time. This is supported empirically in research by Lalande and Ladouceur (2011), who demonstrated that 80% of both subgroups of problem and non-problem Video Lottery Terminal (VLT) players reported setting expenditure limits prior to play. Similarly, 90% of a sample of slot machine players reported setting financial limits prior to entering a gaming facility (Wohl, Christie, Matheson, & Anisman, 2010). According to anecdotal reports and trails by industry operators however, players seem to be more reluctant to set time limits, which was confirmed in recent literature reviews by Lalande and Ladouceur (2011), and Williams, West, and Simpson (2012).

Pre-commitment is one matter, but setting limits that fall within one's affordable discretionary disposable income is another. Problem gamblers consistently gamble beyond their affordable budget, often risking greater amounts as they chase losses (Lesiuer, 1984; McDonnell-Phillips, 2006; Lalande & Ladouceur, 2011). Problem gamblers also self-reported to set higher subjective expenditure thresholds in comparison to non-problem gamblers as found by Lalande and Ladouceur (2011), who also found that 42% of the problem gamblers exceeded personally set limits compared to 8% of the non-problem gambling group. Thus, it may be argued that a pre-commitment system designed to minimise losses for problem gamblers, but require those with impaired control to set their own expenditure levels, is fundamentally flawed. Whether or not a pre-commitment system prevents or delays the onset of a gambling disorder, and the extent to which it is successful in decreasing the incidence of problem gambling, is yet to be determined by prospective studies. By definition, individuals with a gambling disorder exhibit impaired control over their gambling behaviour as reflected in repeated unsuccessful efforts to reduce their gambling and in gambling more

than can be afforded in an effort to chase losses. The challenge therefore, is to encourage individuals to (a) self-determine appropriate budgets relative to their income, and (b) not to increase pre-set limits over time. What is required is more objective measures using prospective research designs to allow more conclusive statements on the impact of pre-commitment to be made.

2.2 Conducive Gambling Environments to Set Limits

As the Productivity Commission (2010) notes, the labels used to describe mandatory, partial, or full voluntary pre-commitment often lead to confusion. A fully 'mandatory' system is one that requires all players to be registered to play. The operator sets default deposit and loss limits, and once the pre-set limit is reached, further play is not allowed. Norway is a prime example of such a system.

A 'partial voluntary' system refers to one where an operator offers a pre-commitment facility, but the decision to use this facility is left to the discretion of the player. Players can elect to use the pre-commitment facility, but once the pre-set limit is reached, are allowed to continue to play. In contrast, a 'full voluntary' system requires individuals to register to play but retain the option of using the pre-commitment option or not. Once the facility is used to set a limit and that limit is reached, no further play is permitted.

2.3 Electronic Gaming Machines

Individuals do not readily voluntarily register for and/or use pre-commitment systems available without having some awareness and understanding of their purposes and intent (Blaszczynski, Ladouceur, & Lalande, 2012; Williams, West, & Simpson). The take-up rate of pre-commitment options, particularly given the fact most individuals have already done so personally, has been shown to be small, particularly for setting time limits. Those who do voluntarily pre-commit said such facilities are useful in helping to manage gambling budgets. Accordingly, there is merit in offering players the option to use pre-commitment, but the difficulty still remains in that those with gambling disorders have difficulty in adhering to decisions made pertaining to limit setting, making it important to direct attention to certain features of the gambling environment. The extent to which these features can be modified, and in what manner, is subject to socio-cultural and political demands. In Norway for example, it was possible to legislate the removal of all gaming machines and the reintroduction of mandatory low-intensity pre-commitment machines and registration allowing for player tracking, given the population's propensity to accept mandatory policies as a means of balancing societal and personal liberties (Sjolstad, 2008, as cited in Responsible Gambling Council, 2009). Any attempt to conduct a similar enterprise in more socially liberal socio-cultural contexts, such as the UK, USA, or Australia, would most likely be met with strong resistance.

2.4 Mandatory versus Voluntary Pre-Commitment

For optimum success, an EGM pre-commitment system needs to apply to all players whilst eliminating the options for players to (a) exchange player cards with other players, or be provided with temporary cards by venue operators once pre-set thresholds are reached, and (b) switch play to cash-based machines. There would also be a necessity for restrictions on the timeframe for increasing limits and opting out of low default limits to minimise impulsive decision-making. A mandatory system has the advantage of helping both recreational gamblers avoid chasing losses, and assist problem gamblers in managing their expenditure. While Norway is an exemplar of this approach, the ability for players to switch to other forms of gambling undermines the system's effectiveness, but the extent to which gamblers readily substitute one form of gambling to another is yet to be established. Indeed, it might be the case that EGM players do not readily switch gambling activities, resulting in a reduction of problem gambling. This does however highlights the need to monitor the longer-term effects in Norway, particularly given suggestions of a possible increased uptake in internet gambling (Biggs, 2011).

This potential for transition means that all forms of gambling should be subjected to the same pre-commitment requirements. It is acknowledged that this would be more difficult for gambling requiring 'over-the-counter' cash transactions (e.g. casinos, horse wagering) where loyalty cards or registration is not required. Setting this issue aside, in more liberal, individualistic societies, such mass intervention may not be tolerated by the community at large, and therefore, is not a realistically viable option to consider.

In most other jurisdictions, voluntary pre-commitment facilities are offered as options that players can use at their discretion. Voluntary limit setting has the advantage of being available to all those wishing to use the facility while not imposing limits or additional steps to initiate play imposed on recreational gamblers. One primary advantage of a voluntary pre-commitment system is that it represents an excellent adjunct for a number of gamblers in treatment programmes. Therapists can incorporate the use of pre-commitment facilities in treatment programmes designed to assist individuals with a gambling disorder maintain controlled gambling. Ticket-out printed player information could be used to obtain evidence of compliance with therapeutic instruction, though ideally, data across all sessions and forms of gambling should be recorded, but nevertheless, voluntary systems can still benefit those motivated to overcome a gambling disorder. In addition, recreational gamblers with occasional episodes of gambling more than intended may see the option as useful to minimise the chances of exceeding their budget, and such voluntary options are not imposed on the majority of gamblers who stay in control of their gambling, and therefore avoiding negatively impacting on their gambling experience.

2.5 Online and Offline Gambling Environments

Pre-commitment facilities can be incorporated in EGMs with land-based venues as a standard feature. The cost to the industry of having to modify or manufacture pre-commitment compliant machines may be substantial and acts as a barrier to its feasible introduction (Parke, Rigbye, & Parke, 2008). Costs may also be associated with the purchase of smarts cards that incorporate bio-identification features used to prevent card swapping behaviour that occurs among approximately a third of players (Omnifacts Bristol, 2005; 2007). However, the availability of cash-based EGMs or other gambling opportunities within the same venue dilutes the potential effectiveness of pre-commitments if players can easily switch gambling activities once their pre-set limits are reached.

Studies using university students in simulated laboratory gambling situations have evaluated the effectiveness of limit setting in modifying behaviours (Steenbergh, Whelan, Meyers, May, & Floyd, 2004; Stewart & Wohl, 2013). Although results have been promising, design limitations of most studies makes it difficult to isolate the effects of student-experimenter demand characteristics and/or concurrent interventions administered on outcomes. In Steenbergh et al.'s (2004) study for example, participants in the warning plus brief intervention condition were informed of the benefits and then encouraged to set limits, with 100% and 51% complying for money and time limits respectively. This is compared with 24% (money) and 9% (time) for the control condition, and 35% (money) and 11% (time) for the warning video only condition. Direct encouragement was not given for the latter two conditions, suggesting the possibility that demand characteristics of the study's design resulted in 100% of participants setting money limits.

Wohl et al. (2010) exposed non-problem slot machine players to animated educational videos explaining probabilities and randomness. Included were seven 'concrete actions' for 'problem-free gambling' that incorporated suggestions for setting financial limits in addition to limiting access to additional funds, for example, leaving credit cards at home. While fewer participants in the animation compared to non-animation group exceeded set limits, at 30-day follow-up the difference was not significant. Given the multiple 'problem-free gambling' strategies that were offered, it makes it difficult to attribute findings specifically to limit-setting rather than other actions aimed at limiting access to cash.

Wohl, Gainsbury, Stewart, and Sztainert (2013), exposed university students to either an educational or non-educational video; the educational video was designed to examine common misconceptions about the operation of gambling machines. Participants received a pop-up message that required them to set a limit on credits they wished to spend. More participants in the educational video compared to control condition adhered to pre-set limits in a virtual gambling laboratory environment, but given that the educational video group also reported less gambling-related cognitions, it remains unclear

whether adherence was the result of setting limits or changes in erroneous cognitions.

More recently, Walker, Litvin, Sobel, and St-Pierre (2014) explored an innovative concept of setting win limits as a responsible gambling tool, that is, pre-committing to a pre-set winning amount and ceasing play if that limit is achieved. The rationale is that players persist in gambling such that even if they do win, they will continue play until their loss limit is reached. Walker et al. (2014) reported evidence for improved player performance in a simulated slot machine software program. The authors acknowledge however, that such an approach may not gain acceptance as a responsible gambling tool. Players may set unrealistically high win limits and rarely reach these, or continue to play beyond their winning threshold if they believed they were on a winning 'streak'; subsequent losses resulting in a win below the threshold might lead the player to persist in an attempt to reach the win limit, ultimately losing all. Reaching a win limit early in a session would reduce that session's duration, which may cause conflict in decisions for those players who intend to gamble recreationally for a longer period of time.

Internet gambling, on the other hand, lends itself well to the application of a mandatory pre-commitment system. All players must open an account and all gambling, done with that operator, is monitored. At the account opening stage, players can set their deposit, daily bet limit, and maximum loss thresholds. Personalised warning messages can be directed electronically to player approaching or reaching their pre-set limits, and accounts can be suspended for high-risk players who repeatedly reach or increase their threshold limits.

A number of agencies have developed behavioural tracking programs (e.g. Mentor, Bet Buddy, Featurespace, Playscan) that provide feedback to players regarding their gambling behaviour patterns relative to normative data. Preliminary evidence indicates a benefit for those electing to use these programs (Auer & Griffiths, 2013), however, the possibility of transferring to other online or offline venues once thresholds have been reached dilutes the overall effectiveness of such software programs. For example, Parke et al. (2012) found that the vast majority of internet gamblers had played more than one gambling website in the three months preceding the survey, with 25% and 12% on internet casino and poker player respectively reporting having played with at least six different operators in the same time frame. Findings from the Internet Poker Committee (2008; cited in Responsible Gambling Council, 2009) indicate that over a third of 1,000 internet players on Svenka Spel's sites shifted to another online site when set limits were reached.

The capacity for players to ignore or set excessively high limits negates the purpose of pre-commitment. Broda et al. (2008) found only 0.3% of account holders exceed deposit limits, arguably because operators set minimal deposit limits that are higher than the average amount that players deposit which may account for this low percentage figure. Importantly, players informed that their betting limits were exceeded changed their betting patterns

such that there was a reduction in the number of bets placed but a compensatory increase in single large bets.

2.6 Stimulating the Take-up of Pre-Commitment

Reviews of the outcome of studies conducted in Nova Scotia, and the Australian states of Queensland and South Australia (see Productivity Commission, 2010; Responsible Gambling Council, 2009; Williams, West, & Simpson, 2012), have clearly indicated that players are not highly motivated to take up pre-commitment facilities, particularly in regards to setting time limits. Despite gamblers reporting that they agree pre-commitment represents a useful tool to facilitate player control, behaviourally only a fraction of individuals (Ladouceur, Blaszczynski, & Lalande, 2012; Williams, West, & Simpson, 2012) actually decide to use pre-commitment options when gambling.

This low usage rate likely reflects a poor understanding of the concept and/or lack of motivation to use the system. If pre-commitment is to be successful, it is argued that the facility should be normalised and players fully educated. An appropriate education campaign should be introduced, marketing pre-commitment as a normalised budget management system, designed to inform players that the primary purpose of pre-commitment is to offer a general tool to maintain recreational gambling at affordable levels and to minimise impulsive decision-making under conditions of emotional arousal/distress that drives individuals to gamble more than intended and/or affordable.

3 COOLING-OFF

The premise underlying cooling-off periods is that individuals, because of deficits in emotional regulation, operant condition, or financial pressure to chase losses, may impulsively decide to continue play (Delfabbro, 2014; Lesieur, 1984; Williams, Grisham, Erskine, & Cassidy, 2012), or increase pre-set limits to extend current or future sessions of play. Cooling-off periods are important in offering gamblers time to reconsider and re-evaluate their decisions to gamble, particularly decisions made impulsively and without consideration of their consequences. Cooling-off periods are common in commercial transactions where contracts allow individuals a timeframe in which they can rescind purchases without penalty.

Online providers and venues providing pre-commitment options on EGMs require a period of delay before an individual can access gambling funds following a request to increase deposit or bet limits. Typically reductions in deposit limits take effect immediately, while increases do not take effect for variable periods; 24, 48, 72 hours, or up to one week. There is a lack of empirical evidence to indicate that cooling-off periods assist problem gamblers to limit losses to affordable levels, how many gamblers rescind their

request for an increase after the imposed delay, or decide to return to pre-request levels of expenditure. While this does not diminish the usefulness of cooling-off periods, it does argue the need for more data on the degree of its effectiveness and guidelines for enhancing its impact.

It has been argued that delays in play can be achieved by limiting the operating hours of venues on the assumption that individuals will be better placed to limit losses if there is a reduction in time available to gamble. A number of jurisdictions have required venues to operate restricted hours of trade, for example, Nova Scotia, Australia, and Switzerland. These closures may involve shutting down gambling facilities in venues for four to six hours daily, or after midnight/early morning until midday/early afternoon (for example see Williams, West, & Simpson, 2012).

Gauging changes in revenue as a proxy index of successful harm minimisation initiatives indicates closing times effectively reduce venue revenue by 3-10% and 18% in self-reported expenditure. However, as noted by McMillen and Pitt (2005), closing periods do not have a major impact on reducing problem gambling, arguably due to the fact that problem gamblers do not gamble during the shutdown, or that they simply move from venue to venue due to a lack of universal shutdown period across venues. This is supported by Parr (2008) who found 63% of problem gamblers continued to gamble during closure of a venue. There remains a lack of substantive evidence to indicate the effectiveness of trading hour restriction as a cooling-off period and harm minimisation strategy for problem gambling.

Gamblers often enter into states of dissociation (Jacobs, 1986) and lose track of time and money spent whilst gambling. Theoretically therefore, forcing a break in play by causing a machine to cease functioning or having a mandatory cash out feature after a period of continuous use, or interrupting dissociation through dynamic messages displayed on screen, provides an opportunity for re-evaluation of one's behaviour.

A number of studies have evaluated the effects of dynamic and personalised messages on gaming machines (e.g. Monagahan & Blaszczynski, 2010), and while promise is shown in terms of short-term self-reported benefits, its overall effectiveness in changing actual behaviour remains inconclusive. Nevertheless, personalised dynamic messages directed at players who engage in long periods of play have the advantage of not interfering with recreational gamblers, but target those for whom the message is most relevant (Monagahan & Blaszczynski, 2010). More importantly, dynamic messages are designed to gain the attention of the player and to motivate them to re-evaluate their behaviour. Other types of breaks in play simply assume that the individual will take the opportunity and/or be motivated to do so.

While forcing breaks in play has high face validity in allowing a player to re-evaluate their behaviour, recent literature pertaining to the App-based game 'Candy Crush' suggests much of the 'addictiveness' of the game can be attributed to the imposed breaks in play (Dockterman, 2013). The extent to

which a break in play can create a sense of frustration and stimulate demand has particular relevance to gambling. It may be the case that imposing breaks upon gamblers may inadvertently cause compensatory behaviours, such as gambling larger amounts in a shorter period of time in anticipation of the onset of a break. The implication is that such strategies designed to introduce breaks in play may be counterproductive if they withdraw supply and the urge to gamble remains unsatisfied, highlighting the need for such concepts to be tested carefully.

It is evident that more clarity is needed to determine the optimal frequency and length of breaks in play in terms of their effect on gambling behaviour. For example, imposing frequent short breaks in play may have different effects on behaviour compared with infrequent long breaks, where frequent short breaks may be perceive as irritating, but infrequent long breaks may have the ability to disrupt dissociative states and encourage re-appraisal of behaviour. Clearly, in situations where a gambler has played continuously over a period of ten or more hours, the session should be interrupted, as such behaviour is indicative of a gambling disorder (Schull, 2013). Staff intervention to break play in such circumstances is warranted, however, the nature of this type of break in play (staff intervening after prolonged play) differs from the imposition of breaks during the course of sessions of much shorter duration.

4 ACCESS TO ADDITIONAL FUNDS

Problem gamblers often seek to obtain additional funds to continue gambling once their initial budget allocation for a session has been exhausted, leading them to spend more than intended (Ladouceur, Blaszczynski, & Moodie, 2008). To facilitate player control, efforts have been directed to restricting options to withdraw more funds. In many jurisdictions, venue operators are not permitted to offer lines of credit or to advance cash against cheques, though exceptions occur in the USA and some Canadian provinces. In Australia, winnings exceeding $1000 are paid by cheque, a requirement that gamblers report can be effective in limiting the likelihood of excessive spending (Caraniche, 2005; McMillen & Pitt, 2005). Problem gamblers have a greater tendency to borrow money in comparison to non-problem gamblers, with 25-75% of problem gamblers reporting using credit and borrowing to supplement their gambling (McMillen, Tremayne, & Masterman-Smith, 2001; South Australian Department for Families and Communities, 2007).

Automatic teller machines (ATMs) located in venues provide ample opportunity for individuals to easily withdraw additional funds. Self-report data from gamblers suggests that 24-hour easy access to ATMs in venues represents a trigger for impulsive decision making (White et al., 2006). Problem compared to recreational gamblers are more likely to withdraw money from ATMs (59-87% versus 4-20% respectively), withdraw larger amounts of cash (30% of problem gamblers in excess of $100), direct their

withdrawal to fund continued gambling, with the majority of problem gamblers making multiple withdrawals (76-92% compared to 54% of moderate risk and 18-25% of recreational gamblers) (McMillen, Marshall, & Murphy, 2004; Productivity Commission, 1999).

In 2009, the Victorian Gambling Regulation Amendment (Licensing Act) effectively legislated for the removal of ATMs from all licensed gaming venues, with the exception of casinos, commencing July 2012, with its impact reviewed a year later. Results indicated the initiative appeared successful in the short term, reducing time and money expenditure among moderate and problem gamblers, such that these individuals reported a greater sense of control and fewer occasions of spending more than intended; a reduction from 44% to 26% pre-to post-removal of ATMs (Thomas, et al., 2013).

Self-report data suggests however, that some patrons migrated to other venues in close proximity to ATMs or participated in other forms of gambling (McMillen & Pitt, 2005). Thus, if a policy of ATM removal is to be instigated, it should be extended to apply to all venues in close proximity, although this does not address the availability of ATMs in local public locations. In addition, it should be applied to other venue-based options for accessing cash, such as 'over-the-counter' debit card withdrawals to load machines.

It remains to be seen if individuals will modify their behaviour in the long term to compensate for the absence of ATMs in venues. Nevertheless, in the absence of ATMs, individuals will be required to make considered pre-planned decisions as to how much they intend to spend gambling, that is, decisions equivalent to the concept of pre-commitment. Moreover, individuals seeking to obtain additional funds would be required to leave the venue to access an ATM which could act as a break in play (Productivity Commission, 2010). Although increasing the opportunity for staff interactions with players, the use of debit cards to load machines in a manner described by the Association of British Bookmakers (2013) in their code of responsible gambling and player protection, will serve to undermine the intent of any strategy designed to limit access to cash, and therefore should not be supported. The use of debit cards may act to distance the relationship between money and the act of gambling, and enhance the prospect of an individual failing to realise exactly how much they have spent gambling over multiple used of debit cards within a session, or indeed longer term. The question remains whether the opportunity to use debit cards and hence easy access to cash is contrary to the notion of fostering a responsible gambling environment.

5 CONCLUSIONS AND RECOMMENDATIONS

Policies designed to facilitate player control should focus on strategies that effectively assist players experiencing impaired control to (a) set limits on the time and money expenditure within a session of play, and (b) restrict their

ability to withdraw additional funds to continue play. Higher standards of evidence is required before implementing costly interventions affecting the majority of players and revenue and taxation. Accordingly, and given the current state of knowledge and complexities of a gambling environment such as in Great Britain, the mandatory requirement for all gaming machines and regulated online gambling accounts to have pre-commitment facilities offering players the option to voluntary set limits on time and money expenditure should be introduced. This would allow those with problems controlling their expenditure to limit losses, as well as provide opportunity for recreational gamblers to manage their gambling budget. At the same time, such a system would avoid the inconvenience of and concerns imposed by a mandatory system, such as privacy and the tracking of gambling-related expenditure by third parties.

The option to limit access to cash might involve a range of strategies from removing ATMs from venues, to restricting daily withdrawals to certain amounts, removing capacities to use or placing limits on the usage and amounts able to be deposited in debit cards, and players self-barring use of debit cards within venues. In the context of a libertarian society such as the UK, a voluntary pre-commitment system allowing the option for motivated players to use its facilities while concomitantly restricting easy access to cash through ATMs and debit card loading of machines, and providing historical information on their expenditure, appears to be an acceptable compromise in light of the current available empirical research data.

6 REFERENCES

Abbott, M., Williams, M.M., & Volberg, R.A. (1999). *Seven years on: A follow-up study of frequent and problem gamblers living in the community*. New Zealand: Department of Internal Affairs.

Abrams, K., & Krushner, M.G. (2004). Behavioural understanding. In J.E. Grant & M.N. Potenza (Eds.). *Pathological gambling: A clinical guide to treatment*. Washington DC: American Psychiatric Publishing.

Association of British Bookmakers (2013). *The ABB's code for responsible gambling and player protection in licensed betting offices in Great Britain*. Association of British Bookmakers: United Kingdom.

Auer, M., & Griffiths, M. (2013). An empirical investigation of theoretical loss and gambling intensity, *Journal of Gambling Studies*, DOI: 10.1007/s10899-013-9376-7.

Baudinet, J. & Blaszczynski, A. (2012). Arousal and gambling mode preference: A review of the literature. *Journal of Gambling Studies*, DOI 10.1007/s10899-012-9304-2.

Biggs, A. (2011). *Electronic gaming machines: What lessons learnt from Norway?* Parliamentary Library (21 November). Department of Parliamentary Services: Parliament of Australia.

Blaszczynski, A., McConaghy, N. & Frankova, A. (1990). Boredom-proneness in pathological gambling. *Psychological Reports, 67*, 35-42.

Blaszczynski, A. & Nower, L. (2010). Instrumental tool or drug: Relationship between attitudes to money and problem gambling. *Addiction Theory and Research, 18* (6), 681-691.

Broda, A., LaPlante, D. A., Nelson, S. E., LaBrie, R. A., Bosworth, L. B., & Shaffer, H. J. (2008). Virtual harm reduction efforts for Internet gambling: effects of deposit limits on actual Internet sports gambling behavior. *Harm Reduction Journal, 5* (27), 1-9.

Caraniche (2005). *Evaluation of electronic gaming machines harm minimisation measures in Victoria: Final report*. Melbourne: Gambling Research Panel.

Delfabbro, P. (2014). Behavioural risk factors in disordered gambling and treatment implications. In D.C. Richards, A. Blaszczynski, & L. Nower (eds.). *The Wiley-Blackwell handbook of disordered gambling*. Oxford: John Wiley & Sons.

Dzik B. (2006). Between consumption and investment: A new approach to the study of the motivation to gamble. *Journal of Gambling Issues, 17*. Retrieved URL: www.camh.net/egambling/issu17/index.html.

Dockterman, E. (2013). Candy Crush saga: *The science behind the addiction*. Time: Business & Money. November 15. http://business.time.com/2013/11/15/candy-crush-saga-thescience-behind-our-addiction/.

Fröberg, F., Rosendahl, I.K., Abbott, M., Romild, U., Tengström, A., & Hallqvist, J. (2014). The incidence of problem gambling in a representative cohort of Swedish female and male 16–24 year-olds by socio-demographic characteristics, in comparison with 25–44 year-olds. *Journal of Gambling Studies*, DOI: 10.1007/s10899-014-9450-9.

Gouudriaan, A.E., van Holst, R.J., Veltman, D.J., & van den Brink, W. (2014). Contributions from neuroscience and neuropsychology. In D.C. Richards, A. Blaszczynski, & L. Nower (eds.). *The Wiley-Blackwell handbook of disordered gambling*. Oxford: John Wiley & Sons.

Griffiths, M. D. (2012). Internet gambling, player protection, and social responsibility. *Routledge International Handbook of Internet Gambling*. In: Williams, R, Wood, R. & Parke, J (Eds.), *Routledge International Handbook of Internet Gambling*. Abingdon:Routledge.

Hodgins, D.C., & Holub, A. (2007). Treatment of problem gambling. In G. Smith, D.C. Hodgins, & R.J. Williams (Eds.). *Research and Measurement Issues in Gambling Studies.* New York: Academic Press.

Humphrey, J., & Richards, D.C. (2014). Dopamine and learning: Brain-behavioural interaction in disordered gambling. In D.C. Richards, A. Blaszczynski, & L. Nower (eds.). The Wiley-Blackwell handbook of disordered gambling. Oxford: John Wiley & Sons.

Husain, F., Wardle, H., Kenny, T., Balajaran, M., & Collins, D. (2013*). Examining Machine Player Behaviour: A Qualitative Exploration*. Report prepared for the Responsible Gambling Trust: UK.

Jacobs, D.F. (1986). A general theory of addictions: A new theoretical model. *Journal of Gambling Behavior, 2*, 15-31.

Ladouceur,R., Blaszczynsk,A.& Lalande, D.R.(2012). Pre-commitment in gambling: a review of the empirical evidence. *International Gambling Studies*, 1–16.

Lalande, D. R., & Ladouceur, R. (2011). Can cybernetics inspire gambling research? A limitbased conceptualization of self-control. *International Gambling Studies, 11*(2), 237-252.

Lesieur, H.R. (1984). *The Chase: Career of the Compulsive Gambler*. Massachusetts, Schenkman.

McDonnell-Phillips. (2006). *Analysis of gambler pre-commitment behaviour*. Victorian Office of Justice: Gambling Research Australia.

McMillen, J., Marshall, D., Murphy, L., Lorenzen, S., & Waugh, B. (2004). *Help-seeking by problem gamblers, friends and families: A focus on gender and cultural groups*. Canberra: Centre for Gambling Research, Australian National University.

McMillen, J., & Pitt, S. (2005). *Review of the ACT government's harm minimisation measures.* The Australian National University: Centre for Gambling Research.

McMillen, J., Tremayne, K., & Masterman-Smith, H. (2001). *Survey of gambling and problem gambling in the ACT*. Report to the ACT Gambling and Racing Commission. Australian Institute for Gambling Research, Sydney.

Monaghan, S. & Blaszczynski, A. (2010b). Impact of mode of display and message content of responsible gambling signs for electronic gaming machines on regular gamblers. *Journal of Gambling Studies, 26*, 67-88.

Moore S, Thomas A., Kyrios M, Bates G., (2012) Self-regulation of gambling. *Journal of Gambling Studies, 28*(3), 405-420.

Nelson, S.E., LaPlante, D., A., Peller, A.J., Schumann, A., LaBrie, R., A., & Shaffer, H.J. (2008). Real limits in the virtual world: Self-limiting behaviour of Internet gamblers. *Journal Gambling Studies 20* (4), 463–477.

Omnifacts Bristol Research (2005). *Nova Scotia player card research project: Stage I Research Project.* Report prepared for Nova Scotia Gaming Corporation.

Omnifacts Bristol Research (2007). *Nova Scotia player card research project: Stage III Research Project.* Report prepared for Nova Scotia Gaming Corporation.

Parke, J., Parke, A.J., Rigbye, J.L., Suhonen, N., & Vaughan Williams, L., (2012). The eCOGRA Global Online Gambler Report. In Williams, R.J., Wood, R.T., and Parke, J. (Eds.), *Routledge International Handbook of Internet Gambling*. Abingdon: Routledge.

Parke, J., Rigbye, J. & Parke, A. (2008). *Cashless and card based technologies in gambling: A review of the literature*. Report for the Gambling Commission.

Petry, N. (2005). *Pathological Gambling: Etiology, Comorbidity, and Treatment.* Washington DC: American Psychiatric Publishing.

Productivity Commission (2010). *Gambling (Report no 50)*. Canberra.

Responsible Gambling Council (2009). *Play Information and Management Systems*. Responsible Gambling Council, Toronto, Ontario.

Scanell, E. D., Quirk, M. M., Smith, K., Maddern, R., & Dickerson, M. (2000). Females' coping styles and control over poker machine gambling. *Journal of Gambling Studies, 16* (4), 417-432.

Schottler Consulting. (2010). *Major findings and implications: Player tracking and precommitment trial: A program and outcome evaluation of the PlaySmart precommitment system.* Retrieved from www.treasury.sa.gov.au/public/download.jsp?id¼3188.

Schüll, N. (2013). *Addiction by design: Machine gambling in Las Vegas*. Princeton, NJ: Princeton University Press.

Sharpe, L., Tarrier, N., Schotte, D., & Spence, S. H. (1995). The role of autonomic arousal in problem gambling. *Addiction, 90* (11), 1529-1540.

Slutske, W.S. (2006). Natural recovery and treatment-seeking in pathological gambling: Results of two US national surveys. *The American Journal of Psychiatry, 163* (2), 297-302.

South Australian Department for Families and Communities (2007). *Gambling Prevalence in South Australia*. Adelaide: Government of South Australia.

Steenbergh, T., Whelan, J., Meyers, A., May, R., & Floyd, K. (2004). Impact of warning and brief intervention messages on knowledge of gambling risk, irrational beliefs and behaviour. *International Gambling Studies, 4*, 3–16.

Stewart, M. J., & Wohl, M. J. (2013). Pop-up messages, dissociation, and craving: How monetary limit reminders facilitate adherence in a session of slot machine gambling. *Psychology of Addictive Behaviors, 27*(1), 268.

Thomas, A., Pfeifer, J., Moore, S., Meyer, D., Yap, L., & Armstrong, A. (2013). Evaluation of the removal of ATMs from gaming venues in Victoria, Australia. *Evaluation*.

Walker, D.M., Litvin, S.W., Sobel, R.S., & St-Pierre, R.A. (2014*) Setting Win Limits: An Alternative Approach to "Responsible Gambling"?* Available at: http://walkerd.people.cofc.edu/pubs/2014/Win%20Limits%201-27-14Dist.pdf Last accessed 24th March 2014.

White, A. M., Kraus, C. L., & Swartzwelder, H. S. (2006). Many college freshmen drink at levels far beyond the binge threshold. *Alcoholism: Clinical and Experimental Research, 30* (6), 1006-1010.

Williams, A. D., Grisham, J. R., Erskine, A., & Cassedy, E. (2012). Deficits in emotion regulation associated with pathological gambling. *British Journal of Clinical Psychology, 51* (2), 223-238.

Williams, R. J., West, B. L., & Simpson, R. I. (2012). *Prevention of problem gambling: A comprehensive review of the evidence and identified best practices*. Ontario Problem Gambling Research Centre and the Ontario Ministry of Health and Long Term Care.

Wohl, M. J., Christie, K. L., Matheson, K., & Anisman, H. (2010). Animation-based education as a gambling prevention tool: correcting erroneous cognitions and reducing the frequency of exceeding limits among slots players. *Journal of Gambling Studies, 26*(3), 469-486.

Wohl, M. J., Gainsbury, S., Stewart, M. J., & Sztainert, T. (2013). Facilitating responsible gambling: The relative effectiveness of education-based animation and monetary limit setting pop-up messages among electronic gaming machine players. *Journal of Gambling Studies, 29* (4), 703-717.