research

The impact of video lottery game speed on gamblers

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Abstract

Video lotteries seem to be one of the most profitable games for the gambling industry and are reported as the game of choice for many problem gamblers. Their popularity or, in some cases, their addictiveness, might be related to their structural characteristics: reinforcement schedule, lights, appearance, sound, and speed. We investigated the effects of video lottery game speed on concentration, motivation to play, loss of control, and number of games played. Forty-three participants were randomly assigned to either a high-speed (5 seconds) or a low-speed (15 seconds) condition. Results: gamblers in the high-speed condition played more games and underestimated the number of games played more than did participants in the low-speed condition. However, speed did not influence concentration, motivation, or loss of control over time or money. Conclusion: speed has a limited impact on occasional video lottery gamblers. The theoretical and practical implications of speed are discussed in the context of responsible gambling policies.
Key words: video lottery terminal, structural characteristics, speed of the game

Introduction

Video lottery terminals (VLTs) are widely found in many jurisdictions. A substantial proportion of gambling revenues comes from these machines. Their structural characteristics seem to attract people, and, for the majority of excessive gamblers seeking treatment, video lottery is often the preferred game (see Ladouceur, Sylvain, Boutin, & Doucet, 2002). Previous papers have discussed that structural characteristics of electronic gaming machines influence gamblers' behaviours or thoughts (Griffiths 1993, 1999; Ladouceur & Sévigny, 2002; Loba, Stewart, Klein, & Blackburn, 2001) and contribute to the development of problem gambling (Dickerson & Baron, 2000; Griffiths, 1990, 1993, 1999; Nova Scotia Department of Health, 1998). Griffiths (1993) speculated that structural characteristics such as lights, sounds, and colours act as reinforcements and thereby facilitate problem gambling. However, game speed has not often been empirically studied. Blaszczynski, Sharpe, and Walker (2001) conducted a study in venues located in New South Wales, Australia. Variables included players' level of enjoyment and satisfaction, problem gambling, and persistence in the patterns of play (wager size, number of bets, wins, losses, and time played). Gamblers played in their usual venues either on regular machines or on modified machines. Results showed that slowing the speed from 3.5 seconds to 5 seconds did not affect gamblers' behaviours. It was concluded that reducing the speed of the game may not be an effective strategy to minimize harm.

The Alberta Gaming and Liquor Commission (2001) also investigated speed by analyzing machine data. Unfortunately, there was no formal scientific study report completed that is available to the public. However, the Commission's opinion-driven observations are stated

on the Internet as follows:

> In Commission field tests, slowing down speed of play did not appear to affect player behaviour. Players continued to play for the same amount of time and bet the same amount per play as before. However, since each game took longer to play, fewer games were played than before. The Alberta Alcohol and Drug Abuse Commission (AADAC, 2001) believes that slowing down the games by several seconds per game may not accomplish the objective of reducing their attractiveness to the problem gambler. Instead, AADAC believes other responsible gaming features, such as forced interruption of play for a period of time, may be more effective. (chap. 14, p. 10)

More empirical studies are needed to clarify the influence of speed on gamblers. Could speed be detrimental to patrons? According to Blaszczynski, Sharpe, and Walker (2001), faster speeds are more enjoyable. Thus, gamblers' motivation to play might be greater with faster speeds, which could encourage more persistent gambling activity.

For the industry, making the games faster is a way to make more money. If this modification can be seen as a means to increase the number of games played, a faster speed might also affect how people perceive a game. For instance, a faster speed may lead a player to think that the game is more entertaining and exciting than a slower game. A faster speed would then influence the number of reinforcements players are exposed to in the same period. Williamson and Walker (2000) and Walker (2001) showed that players prefer higher frequencies of reinforcement to lower frequencies. Their participants chose to play electronic gambling machines with more lines per game. With a higher speed, patrons will receive more reinforcements per minute than with a slower speed, and this might in turn influence players' perceptions of the game played.

Individuals are frequently influenced by situational conditions when making judgments about time (see, for example, Fraisse, 1984). A faster speed may distort reality in such a way that players would lose track of time or of the number of games played, resulting in higher money losses and lengthier sessions. If a faster speed increases misperceptions about gambling behaviours, it may lead gamblers to lose control. In this study, loss of control is defined as the inability to respect self-imposed time or money limits while playing.

A faster speed may also affect motivation to play. Motivation has been found to be a key determinant of gambling involvement (Chantal, Vallerand, & Vallières, 1995). According to Monahan and Nicki (1999), the excitement and pleasure provided by the characteristics of the game are strong motivational determinants in VLT gambling. The more people like the game, the more motivated they will be to play it again. If a faster speed enhances motivation, it is likely to incite gamblers to play more often and for longer periods of time.

A high speed may also heighten a gambler's concentration, thus leading to excessive gambling habits. The faster the game, the more concentration is needed from the player and the more likely external background stimuli will not be noticed. Concentration is defined as a situation where gamblers focus on the game with such intensity that they do not see or hear what is going on around them in the environment. Diskin and Hodgins (1999) showed that VLT players did not respond quickly to a light flash when playing. This finding could be interpreted as not seeing external stimuli due to the gambler being in a state of high

concentration. Could a fast game speed facilitate concentration and therefore produce a loss of control on limits fixed before playing? Conversely to a fast speed, a slow speed may result in a loss of interest, which in turn could incite players to quit playing sooner. A slow speed may create the impression that the machine cannot become "hot" and will probably pay less. Slower speeds might help players to better estimate gambling variables, such as time spent playing or number of games played.

Since persistence is not the only variable associated with excessive gambling, it would be useful to assess the effect of speed on gamblers' perceptions, motivation to play, concentration, and loss of control. Based on the literature mentioned above, it is hypothesized that a high speed will increase motivation to play, enhance concentration, and result in a greater loss of control and misinterpretation of the number of games played than a slow speed. It is also predicted that gamblers in the high-speed condition will play more games and play for a longer period of time than those in the low-speed condition.

Method

Participants

Participants were recruited through newspaper advertisements in Quebec City. The sample comprised 43 participants over 18 years of age (22 women). They were randomly allocated to the high-speed condition (11 women and 10 men), where a game took 5 seconds, or to the low-speed condition (11 women and 11 men), where a game took 15 seconds. In Quebec, a real game takes about 5 seconds to play. The mean age was 36.8 (ranging from 19 to 69, *SD* = 13.9) for the high-speed group and 41.4 (ranging from 20 to 63, *SD* = 13.1) for the low-speed group. Participants reported playing VLTs from 0 to 24 times in the last 6 months (high-speed group: *M* = 2.6, *SD* = 4.3; low-speed group: *M* = 3.6, *SD* = 7.5). The majority of participants (14 in the low-speed group and 18 in the other) had a score of 0 on the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987), while 6 participants (5 in the low-speed group and 1 in the other) had a score of 1, and 5 participants (3 in the low-speed group and 2 in the other) had a score of 2 (high-speed group: *M* = 0.2, *SD* = 0.6; low-speed group: *M* = 0.5, *SD* = 0.7). Both groups were equivalent with regard to gender ($\chi 2$ (1, 43) = 0.024, $p > .05$), age (t (1, 41) = 1.106, $p > .05$), gambling experience (t (1, 41) = 0.543, $p > .05$), and mean SOGS scores (t (1, 41) = 1.251, $p > .05$).

Procedure

The French version of the SOGS, adapted for telephone surveys (Volberg & Steadman, 1988), was used to assess gambling habits. Participants were invited to the lab and played a game called "The Swinging Bells." Each participant received $10 for participating. The rules of the game were explained and they were allowed 10 practice games. Players received an additional $10 to gamble with. They were instructed that they could stop gambling whenever they decided to and could cash in the credits on their machine, up to a maximum of $50. The VLTs were programmed so that each player experienced the same sequence of wins and losses in both conditions. Participants were informed that, for scientific reasons, the purpose of the study would be communicated to them only after they had completed the questionnaire at the end of the experiment.

Measures

The SOGS is a 20-item scale on which each item is worth 1 point. Respondents who scored 2 or less were not considered to have a gambling problem. Those who scored 3 or 4 were at risk, while those who scored 5 or above were considered as probable pathological gamblers.

Dependent variables

The number of games played and the total time spent gambling were used as behavioural indexes of gambling. These variables were automatically monitored on the VLT.

Estimation of the number of games played and time spent playing was assessed by asking the following questions at the end of the session: "How many games do you think you played?" "How long did you play, in minutes?"

Motivation was assessed using a 10-point Likert-type scale with the question, "To what extent would you be motivated to go elsewhere to play the same game, either today or another day?" Both groups were also questioned as to whether they liked the game or not. Replies varied from "Do not like it at all" to "Like it very much" on a 4-point Likert-type scale.

Concentration was measured using a telephone placed 10 feet from the gambler. The phone rang three times in a row, 10 minutes after the session began. If the gamblers heard all three rings, they were not considered to be concentrated on the game. If they heard only one or two rings, they were considered to be more concentrated on the game. If the gamblers did not hear the phone, they were considered to be in a state of high concentration.

Loss of control was measured by checking if players respected the limits they had set before playing. They were asked about these limits after the session: "Did you fix a time limit before beginning to play?" "Did you fix a monetary limit before beginning to play?"

Players' perceptions about the speed of play were investigated by asking the following two questions: "Would you prefer a slower speed?" "Would you prefer a faster speed?"

Results

Number of games played

An analysis of variance indicated a statistically significant difference between the two conditions for the number of games played (Welch F (1, 27.569) = 8.145, $p < .01$). Participants in the high-speed condition played 2.5 times as many games (M = 251.3, SD = 221.5) as participants in the low-speed condition (M = 100.5, SD = 100.2). However, no difference was found on time spent playing (M = 29 min, SD = 29, in the low-speed group and M = 33 min, SD = 29, in the high-speed group; F (1, 41) = 0.172, $p > .05$). Due to high standard deviations within both variables, we calculated nonparametric statistics (Mann–Whitney U) and the results point in the same direction: U = 145, $p < .05$, for the number of games played and U = 205.50, $p > .05$, for the time spent playing.

Estimation of number of games and time spent playing

An analysis of variance for paired measures (estimated versus real number of games played by each participant) showed that participants in the low-speed condition did not underestimate the number of games played (mean estimate of 70 games, *SD* = 110.02, when they actually played a mean of 103.14 games, *SD* = 101.83; *F* (1, 20) = 1.596, *p* > .05), while participants in the high-speed group did (mean estimate of 97.86 games, *SD* = 106.58, when they actually played a mean of 251.29 games, *SD* = 221.54; *F* (1, 20) = 19.352, *p* < .001). A difference score was computed between the two variables for each group. An analysis of variance showed that participants in the high-speed condition underestimated the number of games played five times more than participants in the low-speed condition (*M* = 33.14, *SD* = 120.21, *n* = 21, for the low-speed group; *M* = 153.43, *SD* = 159.83, *n* = 21, for the high-speed group; *F* (1, 40) = 7.597, *p* < .01). Also, players in neither group incorrectly perceived the length of time played (a mean estimate of 33 min, *SD* = 34.68, *n* = 22, for the low-speed group when they actually played a mean of 29.05 min, *SD* = 28.57; *F*(1, 21) = 2.717, *p* > .05; a mean estimate of 32.55 min, *SD* = 26.8, *n* = 20, for the high-speed group when they actually played a mean of 30.60 min, *SD* = 28.43; *F*(1, 19) = 0.99, *p* > .05). Due to high standard deviations within all variables, we calculated nonparametric statistics (Wilcoxon signed ranks test (*Z*) and Mann–Whitney *U*), and the results point in the same direction as those presented above, except for the low-speed group, where there was a difference between the distribution of the estimated number of games played and of the real number of games played: *Z* = 2.047, *p* = .041.

An analysis of variance for repeated measures showed that participants in the low-speed condition did not underestimate the number of games played (mean estimate of 70 games when they actually played 103 games), while participants in the high-speed group did (mean estimate of 98 games when they actually played 251 games; *F* (1, 20) = 19.352, *p* < .001). They underestimated the number of games played five times more than participants in the low-speed condition (*F* (1, 40) = 7.597, *p* < .01). Also, players in neither group incorrectly perceived the time played (mean estimate of 33 min when they actually played for 30 min, *p* > .10).

Motivation

No difference was found between groups on motivation to play again (a mean of 2.6 out of 10, *SD* = 2.6, in the low-speed group and 2.5 out of 10, *SD* = 2.4, in the high-speed group; *F* (1, 41) = 0.024, *p* > .05). Both groups had similar scores on whether they liked the game or not (*M* = 2.7 out of 4, *SD* = 0.8, for the high-speed group, versus *M* = 2.5, *SD* = 1.1, for the other group; *F* (1, 41) = 0.305, *p* > .05).

Concentration

A chi-square test revealed no difference between groups with respect to concentration ($\chi 2$ (2, 30) = 0.136, *p* = .934). In both groups, the proportion of participants in a high state of concentration (did not hear the phone) reached around 40% (41.2% in the low-speed group versus 38.5% in the high-speed group). The proportion of players who heard all three rings was quite low, around 20% in both groups (17.6% in the low-speed group versus 23.1% in the high-speed group). Finally, 40% of the participants in both groups were in a light state of concentration (heard some rings but not all) that would not cause them to dissociate from

reality (41.2% in the low-speed group versus 38.5% in the high-speed group).

Loss of control

Groups were similar with respect to loss of control. In both groups, all players who had set a time limit respected their limit (7 in the low-speed group and 5 in the high-speed group). In the low-speed group, 66% (6 out of 9 players) respected their money limit compared to 86% (6 out of 7 players) in the high-speed group. A chi-square statistic indicated no significant difference between groups.

Players' perceptions of speed

In both groups, 91% of players did not want a slower game. In the high-speed condition, 33% of players would have preferred the game to go faster as compared to 64% in the low-speed group ($\chi 2$ (1, 43) = 3.949, $p < .05$). It is interesting to see that 36% of players in the low-speed condition and 67% of players in the high-speed group did not wish the game to go faster.

Discussion

Participants in the high-speed condition played 2.5 more games than low-speed participants but underestimated the number of games played five times more. The faster the game, the greater was the difficulty in keeping track of the number of games played. Since participants in both groups played for the same amount of time, the high-speed group wagered more money. Combining the two statistically significant results indicates that a high speed brings higher monetary risks and a greater misperception of the number of games played. Our results are consistent with previous findings highlighting the importance of the structural characteristics of VLTs and their possible negative impact on gamblers' behaviours (Dickerson & Baron, 2000; Griffiths, 1990, 1993, 1999; Ladouceur & Sévigny, 2005). The current findings are also similar to those of the Alberta Gaming and Liquor Commission (2001) field tests.

However, our interpretation differs. According to the Commission field tests, speed does not influence gamblers' behaviours. Since high-speed condition gamblers played more games in both our and their study, we believe that it corresponds to a change in behaviour. Therefore, slowing down the speed of play did have an effect on players' behaviour. It also improved players' perception of the number of games played.

Despite the fact that gamblers played more games in the high-speed condition, these results suggest that a slow speed does not induce gamblers to play longer sessions. This interpretation differs from that of Blaszczynski et al. (2001), who concluded that a faster speed could lead gamblers to spend less time playing and therefore suffer less harm. Our results suggest that speed might not be related to time played. Blaszczynski et al.'s (2001) expected relationship between speed and time played should be further investigated.

In addition to having no effect on time played, speed did not have any impact on concentration, loss of control, motivation, or perception of time. How can we explain the non significant impact of speed on these variables? Firstly, focused attention and concentration due to the high number of games played in a short time span could have been expected to

provide gamblers with an escape from reality (see Diskin & Hodgins, 1999). Concentrated attention was possibly also present in the low-speed group. The measure of concentration was a telephone ring. This might have been a measure for which concentration would have to be very strong for players not to hear the ring. Since the sample was composed of occasional players, some players in both groups might not have concentrated on the game due to their low interest in gambling activity, or the noise produced by the phone ring, or both.

Secondly, speed had no effect on loss of control over time or money. However, few players had set limits: 28% of participants set time limits and 37% set money limits. The Nova Scotia Gaming Corporation (2004) also reported that only a small percentage of VLT gamblers set time limits (13%) and that only 2% of players ever cashed out when the time limit was reached. They also reported that players set a budget before starting to play in only 24% of the times played. Since our participants were occasional gamblers, it may have been easier to respect limits, regardless of the speed of the game. The effect of speed on loss of control should be further investigated with larger samples of regular gamblers, playing games they enjoy, or problem gamblers that might represent a sample of gamblers more susceptible to being influenced by the effect of slower speed.

Thirdly, the estimated number of minutes played was probably close to reality because the time played was not that long: an average of only 30 minutes in both groups. Consequently, it might have been easy to estimate the time played in both conditions.

This study has limitations that should be taken into account in the interpretation of the results. The study was conducted in a laboratory setting with a small sample of non-problem gamblers. Also, the setting did not allow players to drink alcohol.

In conclusion, playing more games or taking more risks and underestimating the number of games played do not necessarily lead to more negative consequences (more time played, loss of control). Although the reduction of speed may help players to take fewer risks, the overall conclusion is that slowing speed down to 15 seconds per game has a limited effect on gamblers. It did not help occasional gamblers to increase control, to respect their money or time limits, or to suffer less harm due to gambling activity. Since responsible gambling policies should promote initiatives that will reduce or eliminate the potential harm associated with gambling (Blaszczynski et al., 2004), slowing down the speed of play does not appear to be a critical feature that should be targeted in prevention strategies. However, the impact of the participants' familiarity with either speed was not measured. Therefore, behaviours observed in this study might prove different in a context where players would, for example, become more familiar with a slower speed. Also, our results do not generalize to other speeds, either faster or slower. If additional research were to find a speed effect on gamblers' behaviours, while controlling for players' familiarity with every speed evaluated, then it could not be ignored that speed could ultimately be regarded as a potential variable that would promote the responsible gambling policies put forth by the Reno Model (Blaszczynski et al., 2004). The critical questions are as follows: To what extent, and for what type of gamblers, is speed a variable? Which level of speed will harm gamblers or help them control their gambling activities? Very little is known about the impact of speed on problem or at-risk gamblers. Further research on regular gamblers should explore these issues. Since gambling-related harm must stem from the time spent gambling or the money lost on gambling or, in most cases, both, then time and money gambled per session should be investigated in natural settings. At present, it is concluded that speed is not a significant

variable to promote harm minimization. Targeting individual factors such as fixing money limits or developing cognitive strategies to stay in control of one's gambling habits might be more appropriate measures for the prevention of excessive gambling habits.

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