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INNOVATION IN TRADITIONAL GAMBLING PRODUCTS

COMMISSIONED BY:

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GRA commissioned Central Queensland University, to undertake a study into the innovation in traditional gambling products.

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EXECUTIVE SUMMARY

This is a report on a research project investigating Innovative Gambling Products in Australia commissioned by Gambling Research Australia. It is difficult to precisely define 'innovation' in the context of gambling products, because innovation is always bound to the present state of technological development. Technology has profoundly influenced the experience of play on Poker Machines, for instance, although the impact of the electronic revolution has taken place progressively over the past 40+ years. More recently, the automation of other traditional games; including casino table-games, bingo, race wagering and sports betting; is providing distinctly new gambling experiences to consumers. The effect of these contemporary innovations on player behaviour in comparison to their traditional counterparts is the primary focus of this current research project and report.

The project was devised to answer the principal research questions posed by Gambling Research Australia:

Q.1 What are the impacts on gamblers attitudes and behaviour that result from the newer presentations of traditional products?

Q.2 To what extent (if at all) do current changes in traditional products such as table games, bingo and wagering encourage riskier play?

METHODOLOGY

The challenge for this research project was to define an approach to answering these questions that recognised the many detailed differences that can be introduced by technological innovation to diverse products (e.g., Casino Table-Games, Racing, Sport betting and Bingo). The approach for this project was to investigate the innovated products in a number of phases, each utilising different research methodologies to understand:

1. past literature relating to innovated products (Phase 1 Literature review)
2. what innovated products are being offered (Phase 2 Environmental Scan)
3. who uses these products and what features are seen as important by consumers (Phase 3 National Panel Survey)
4. what people like about innovated products versus traditional products (Phase 4 Focus Groups)
5. the influence of innovated features on real gambling intensity; including bet size, bet speed, gambling persistence and player losses (Phase 5 Experiments)

In undertaking each of these phases of the investigation, the project used a framework that was informed by cognitive psychology. These domains are captured in the acronym VICES:

VICES FRAMEWORK

V	**VISUAL AND AUDITORY ENHANCEMENTS:**	**PROVISION OF AN ENRICHED AND IMMERSIVE SENSORY ENVIRONMENT**
I	**ILLUSION OF CONTROL:**	**A KEY COGNITIVE DELUSION REGARDING THE MISATTRIBUTION OF RANDOM GAME OUTCOMES TO FACTORS WITHIN ONES' PERSONAL CONTROL (E.G. PLAY STRATEGY)**
C	**COGNITIVE COMPLEXITY:**	**INCREASES IN THE APPARENT COMPLEXITY OF THE GAME**
E	**EXPEDITED PLAY:**	**THE ABILITY TO BET FASTER**
S	**SOCIAL CUSTOMISATION:**	**ALTERING THE SOCIAL ENVIRONMENT OF THE GAME; SUCH AS SHOWING THE BETS AND WINS OF OTHER PLAYERS**

IMPACTS FROM AUTOMATION

Q.1.2 WHO USES AUTOMATED TABLE GAMES? [1]

Gambling Research Australia identified further questions of interest for the research program, including the requirement to identify who uses automated table games. Automated table games (ATGs) use games-cabinets or kiosks, similar to electronic Pokies, to deliver traditional casino-style table games. Our National Panel Survey met this need by surveying 13,748 people who gambled on poker-machines, casino table games, horse-racing or sports-betting within the last 12 months. The following are some highlights with regard to the use of Automated Table Games (ATGs):

- 45.1% of people who played ATGs used them a few times a year at most
- People with gambling problems were more likely to have played ATGs
- Male gamblers, younger gamblers and City Dwellers were proportionately more likely to have played ATGs
- ATG players were more likely to be well educated, employed, and possess higher personal and family incomes
- ATG players were more likely to be single or in de facto relationships (rather than married) when compared to others
- Indigenous Australians were more likely to play ATGs, and people from non-Australian and/or Asian cultural backgrounds were also more likely to play ATGs

Although people with gambling problems were relatively more likely to have played ATGs, they also were more likely to play a variety of other traditional games as well. Some demographic factors often associated with gambling problems are predictors of ATG usage (e.g., being young and male),

[1] The original specifications from Gambling Research Australia included a question (Q1.1) about the marketing of innovated games to consumers by industry. By mutual agreement between CQU and GRA, this question was removed from the project scope.

however, other protective factors; including being employed, well-educated and higher income; also predict ATG usage.

Q.1.3 TO WHAT EXTENT DO AUTOMATED TABLE GAMES PRESENT A DIFFERENT GAMBLING EXPERIENCE TO TRADITIONAL TABLE GAMES?

Gambling Research Australia also asked about the player experience of automated table games in comparison to traditional games. The current research program answered this question with data from the National Panel Survey, but also through questions posed to focus group participants with experience playing these games. First, our National Panel Survey of 13,748 current gamblers produced the following highlighted results:

- On average, gamblers prefer Traditional games over ATGs for Roulette, Big Wheel, Baccarat and Sic Bo
- Gamblers equally prefer automated and traditional Blackjack
- The top features of ATGs that were rated as at least “moderately important” include: Instant payouts, Privacy, and Real-time-feedback
- People with gambling problems nominated visual/audio enhancements, expedited-play and social enhancements of ATGs more highly than other gamblers
- Gamblers nominated greater losses on traditional products rather than ATGs
- Gamblers spend a similar amount of time playing both traditional and automated games
- 87% of ATG gamblers have *also* played Traditional Table Games, whereas only 13% have not

Second, we also found the following highlighted results from our Focus Group of 10 participants who played ATGs:

- Gamblers expressed a clear preference for traditional table games over ATGs, echoing results from the national survey
- The presence of a real live croupier was seen as important
- Gamblers prefer to lose money to other table-game players, rather than losing money to the house (as is seen to be the case with ATGs)
- Socialising was seen as a main benefit to traditional table games, which was largely absent from the experience of ATGs
- Traditional table games were perceived to involve more skill, whereas the ATGs were seen to be less complex
- ATGs were perceived to be “programmed to lose”, whereas traditional games “can’t be faked”
- ATGs were perceived by some to be for people who were learning the games, or felt intimidated by the rules of table games

GAMBLING RISK FROM INNOVATED PRODUCTS

Technological innovation provides an opportunity to create better products that represent value to consumers as an entertainment experience. In addition, however, innovation can also potentially exacerbate risks associated with gambling, particularly if the new presentations lead to riskier gambling behaviours or appeal more strongly to people who are already experiencing gambling-

related harms. The current project sought to investigate the following subsidiary question posed by Gambling Research Australia:

Q.2.1 TO WHAT EXTENT DO AUTOMATED TABLE GAMES REPRESENT A HIGHER RISK (IF THEY DO) FOR PLAYERS?

The National Panel Survey of 13,748 current gamblers provided the opportunity to examine what specific features of ATGs were most attractive to people who have gambling problems based on our VICES framework. Some of the highlighted results include:

- The important features of ATGs; such as Instant Payouts, Privacy, and real-time feedback; were more highly prized by people with gambling problems
- People with gambling problems who played ATGs were also more likely to have tried several forms of ATGs (e.g., roulette, baccarat, big wheel, etc.)
- People with gambling problems had the greatest preferences for ATG play over traditional forms (44.4%) when compared to other gamblers

Another important component of understanding how these innovated products affect gamblers is to take into account how these innovated game features influence play behaviour rather than attitudes and preferences. We conducted an experiment with an online automated version of Roulette that manipulated features of the games according to our VICES framework. There was a base game that served as our control condition, and several innovated versions of the same game that separately modified aspects of play to capture (V)isual and auditory enhancement, (I)llusion of control, (C)ognitive complexity, (E)xpedited play and (S)ocial customisation. An online panel of participants (N = 212) were directed to play our innovated Roulette game within their computer browser, where winnings were delivered as real-money compensation. Our results from the experiment revealed the following traces of behaviour that would lead to greater long-run losses as a result of these innovated features:

- The online roulette game showed greater bet speed under the illusion-of-control condition, wherein the gamblers can view spin history and hot-and-cold numbers.
- In the social condition, wherein gamblers could view other (fake) players gambling and occasionally winning at the game, betting speed was higher and more bets were placed per game

Q.2.2 WHAT ARE THE IMPACTS OF FASTER ELECTRONIC ACCESS TO MULTIPLE GAMES ON GAMBLING PLAYER BEHAVIOUR WITH BINGO?

Bingo is another game that has been innovated into an electronic format (called PET), which has the primary feature of allowing a greater speed of betting by virtue of being able to play a greater number of cards at one time. A game simulating innovated Bingo was programmed to run within a computer browser window. Similar to the innovated Roulette game, a base Bingo game was created, and the game was innovated in 5 ways to reflect the facets of our VICES framework. Online panel participants (N = 189) played the innovated Bingo game for winnings delivered as real money compensation. The following principal result was discovered for innovated Bingo:

- In the expedited-play condition for the Bingo game, wherein game-balls were called with greater frequency, gamblers left the experiment with fewer remaining credits

Q.2.3 DOES A GREATER DIVERSITY OF THE WAGERING PRODUCT ATTRACT NEW PLAYERS AND ENCOURAGE ESTABLISHED GAMBLERS TO GAMBLE MORE? IF SO, WHICH IS THE GREATER IMPACT AND WHY?

The National Panel Survey provided an opportunity to examine whether gamblers who wagered online tended to also bet more often:

- Online bettors gambled with greater frequency than exclusive in-venue bettors. Over two-fifths of online bettors gambled at least once a week or more, which was more than twice that of non-online bettors.

Q.2.4 DO MORE AUTOMATED PRESENTATIONS AND/OR ACCESS TO THESE PRODUCTS LEAD TO A GREATER SPEND IN HIGHER RISK INDIVIDUALS?

Our National Panel Survey allowed us to examine spending differences between ATGs and traditional table games:

- People with gambling problems reported spending a similar amount on a non-winning session at ATGs compared to non-winning sessions on traditional table games (mode = $20-$50)

Furthermore, our Bingo experiment revealed faster betting amongst problem gamblers as a result of the illusion of control condition, wherein participants were able to choose from amongst several cards prior to play.

- A significant interaction between condition and problem-gambling status for average betting speed was found, whereby moderate-risk to problem gambler players bet faster than no to low-risk gamblers in the Illusion of Control condition.

CONCLUSION

The present studies provided many detailed findings on how innovated forms of traditional gambling products affect gamblers' attitudes and behaviours. Of particular interest is that most gamblers, including gamblers experiencing problems, prefer the traditional games over their innovated counterparts. People do not spend more on ATGs than traditional games, and there are only some aspects of play from the experiments; namely, illusion of control and social customisation; that indicate features of such games could pose added risk. At the moment, innovated products may appeal to the gambling industry as a means to reduce labour costs and more effectively utilise floor space. However, the attraction of such products may be limited by the inherent attractive features of traditional games, such as a live croupier and/or interactions with fellow gamblers, which many current gamblers find to be an important entertainment benefit.

One of the principal contributions of the present study was the provision of a unified framework (i.e., VICES) with which to understand and analyse future innovations. Our results suggest that careful consideration of how such games might exaggerate illusion of control and communication of winning outcomes amongst players is an important consideration with regard to regulatory approval of such games.

PHASE 1: LITERATURE REVIEW

INTRODUCTION

Recreational gambling is popular in Australian culture, providing entertainment, excitement and fostering social interactions. However, technological innovation within the gambling industry has led to the availability of gambling products that may facilitate addictive play (Griffiths 1999; Griffiths, Parke, Wood, & Parke. 2006). The distribution of electronic gaming machines (EGMs) in Australia has significantly increased the availability of electronic gambling (Productivity Commission, 2010). In 1999, there were 184,526 EGMs operating nationwide (Productivity Commission, 2010). By 2012, there were 196,694 (Queensland Treasury and Trade, 2014). Over the 1999-2009 period, EGM numbers had increased by 14% in casinos and 7% in clubs and hotels (Productivity Commission, 2010). The growth of EGMs in Australia has slowed in recent years, possibly due to increased political attention and government regulation. However, the revenue raised by EGM play remains substantial. In 2008-2009, Australian casinos obtained approximately AUD $3.46 billion in gaming revenue, with over a third coming from EGMs (AUD $1.37 billion) (Productivity Commission, 2010). The annual average revenue generated by EGMs is estimated to be AUD $59,700 per EGM and AUD $2.1 million per venue (Productivity Commission, 2010). EGMs are significantly associated with gambling problems, increased gambling expenditure and experiences of harm (Productivity Commission, 2010).

The growth of revenue from EGMs is due in part to the evolving nature of machine design. EGMs are the primary game of choice for problem gamblers, with an estimated one in six people who play EGMs regularly having serious gambling problems (Department of Social Services [DSS], 2013). It is believed that the high losses could be due to the intensity and speed associated with EGM game play, where average losses can reach $1,500 in just over an hour of play at maximum intensity (DSS, 2013; Productivity Commission, 2010). Despite the dominant role of EGMs in gambling revenue, 70-75% of Australians reported not playing EGMS in any given year (Productivity Commission, 2010). Approximately 4% of the Australian population (600,000 people) play at least weekly, with at least 15% of these players (approximately 95,000 people) being considered ‘problem gamblers’, accounting for an estimated 40% of total spending on EGMs (Productivity Commission, 2010). Findings from various surveys conducted in 2009 indicate that as many as 115,000 Australians are considered to have significant gambling problems, while a further 280,000 are categorised as being at ‘moderate risk’ (Productivity Commission, 2010). At the time of this report, national prevalence rates are estimated at 0.7% and 1.7% of the adult population for problem and moderate gamblers respectively (Productivity Commission, 2010). Problem gamblers who nominate EGMs as their primary game of choice account for 75-80% of problem gamblers in Australia (Productivity Commission, 2010).

THE EVOLUTION OF TABLE GAMES TO RESEMBLE EGMS

As technology develops, there is competition amongst manufacturers to offer more advanced gaming options that better attract new customers. New technology offers opportunities for faster games, linked jackpots, brighter and more dynamic visual and sound effects, multiple playing styles and other innovations that maintain the interest of the consumer (Productivity Commission, 2010). Modern machines differ significantly from their predecessors as a result of technological innovation. While the majority of literature examining problem gambling within Australia has been focused on EGM play over the past three decades, the popularity of such machines as well as a high demand to remain competitive has resulted in the digitalisation of traditional table games. For the purpose of

this review, the term 'innovative products' is used to refer to digitalised, computerised or otherwise automated forms of traditional gambling games (e.g., casino table games, bingo, wagering). These innovative products are expected to provide many industry benefits as they allow for increased capacity with more players being able to wager simultaneously, reduced staffing requirements and faster game turnover. Additionally, innovative gambling products have the capacity to reduce croupier error and minimise player and croupier misconduct, while providing the industry with substantial increases in revenue. The industry benefits of innovative products are clear; however, the potential impact of these products on gambling intensity and problem gambling is currently unknown.

The gambling industry uses an array of marketing strategies to entice players to initiate and maintain gambling behaviour (Griffiths et al. 2006). Many of these strategies are designed to appeal to players' cognitive and emotional demands and can be understood in terms of either situational or structural characteristics (Dixon, Trigg, & Griffiths, 2007). Situational characteristics refer to elements of the gambling environment that may influence gambling behaviour; including venue location, the number of venues in a given area, membership requirements or advertising (Cornish 1978; Dixon, Trigg, & Griffiths, 2007; Griffiths 1999; Griffiths 2003; (Griffiths et al. 2006; Parke & Griffiths 2006). These features directly contribute to the acquisition or initiation of gambling behaviour (Dixon, Trigg, & Griffiths, 2007; Griffiths 2003). Structural characteristics of EGMs are features created by manufacturers that are incorporated into the play experience itself (Griffiths 1999; Griffiths 2003; Griffiths et al. 2006; Parke & Griffiths 2006). These features include event frequencies (e.g., wins and losses), visual and auditory effects, use of near wins, payout probabilities, illusions of control or perception of skill requirements, the frequency of payouts and interval between the wager and outcome. While situational characteristics predominantly influence the player's initial decision to gamble, structural characteristics of games play an important role in the reinforcement and perpetuation of gambling behaviour (Griffiths 1999; Griffiths 2003; Griffiths et al. 2006). Many game features are designed to increase arousal or appeal whilst maintaining high profit margins for gaming operators (Griffiths et al. 2006). As these features are largely defined by gaming manufacturers, they can often be configured either to facilitate excessive gambling, or as a means to potentially reduce the harm associated with EGMs (Dixon, Trigg, & Griffiths, 2007; Griffiths et al. 2006).

Much of the literature surrounding digitalised gaming refers to EGMs and gambling behaviour. EGM features incorporated into other gambling products are likely to result in similar changes to behaviour as manufacturers can manipulate structural characteristics to arouse high intensity gambling behaviours. In an effort to assess the full impact of innovative products, this review proposes a framework developed through examination of the existing EGM literature that will aid understanding of the dynamic effects of innovative products. The VICES framework outlines five fundamental aspects that may be influenced by the automation of traditional games: Visual and auditory enhancements, Illusions of control, Cognitive complexity, Expedited play and Social customisation.

Visual and auditory enhancements describe the sensory enriched environment that automation enables compared to the restrictive sensory environment provided by traditional versions of the games. For example, International Gaming Technology (IGT) encodes each EGM with an average of four hundred unique sound effects to accompany different outcomes (Rivlin, 2004). Visual and auditory characteristics are designed to create a sense of excitement and reinforce the perception of winning to encourage people to gamble and alter player behaviour (Griffiths & Parke, 2005; Parke & Griffiths, 2006).

Illusions of control is a cognitive distortion whereby players misattribute random game outcomes to personal ability. Traditional games provide limited opportunities for gamblers to exercise control in

overcoming the house advantage. By incorporating additional features, digitalised versions have potential to enhance illusions of control as gamblers are able to modulate play; the speed of play, the volume, bet amounts and strategies (such as selecting cards of numbers), enhancing both psychological investment and perceptions of control over gameplay.

The complexity associated with games can create an enriched cognitive environment, and enhance the sense of absorption in the gambling experience. Traditional games such as poker or roulette that have large amounts of information that must be processed, and can be attractive by virtue of the subjective intricacy involved. Digitalisation is expected to enhance opportunities to inject complexity, using automation to increase game play options and engagement by adding additional features or layers to pre-existing game mechanics. In addition, increases in cognitive complexity of games may impede players' ability to keep track of other important information such as time spent playing, number of games played, and accumulating losses.

Expedited play refers to the measures that facilitate and encourage accelerated or prolonged play, affecting customer spend. Compared to traditional gambling products, where gambling opportunities are limited by the behaviours of other gamblers or dealers, automation may significantly reduce the time-delay between betting and outcome, as well as game reset intervals. Digitalisation also increases event-frequency and rapid reply within any given time period; encouraging rapid, continuous play while leaving minimal time for financial reflection.

Finally, the social environment can be an important facilitator or inhibitor of gambling behaviour. Social environments can promote interest and excitement for some, while increasing stress or distraction for others given potentially tedious breaks in play. Furthermore, the presence of others can increase betting persistence as others' wins create an expectation for an imminent win for the gambler. Traditional table games incorporate and facilitate social interaction. Automation can significantly alter the level and quality of social interactions, potentially increasing the risk for developing gambling problems.

These five dimensions have been found to be influential in EGM gambling behaviour and are expected to vary substantially between traditional and digitalised versions of games. Despite there being many other influential factors that contribute to gambling behaviour, the VICES framework identifies five central factors that should be investigated in relation to the automation of traditional games given the ability of such automation to alter these characteristics. Given the substantial influence of EGM play on gambling behaviour and the development of gambling problems, the potential risks associated with the introduction of innovative products must be investigated in order to limit harm. The framework outlined in the current review is neither exclusive nor comprehensive, but provides a useful tool for understanding the impact of technological trends on gambling behaviours. This review will systematically address each dimension of the VICES framework and will consider how automation may affect gambling behaviour. While there is minimal literature specifically pertaining to innovative products at the present time, this paper will aim to identify avenues for further research in order to accumulate a body of knowledge to better understand the impact of automation on gambling behaviour.

VISUAL AND AUDITORY ENHANCEMENTS

Traditional table games are often presented in similar ways throughout different casinos. While traditional games may have various versions (e.g., Texas hold 'em as a variant of traditional poker), the display of these games, such as table characteristics, are generally presented in similar ways. The auditory environment associated with table games is usually naturalistic; relying on the dealer,

the consumer and the background noise of the casino to create an exciting and enriched atmosphere. Innovative products provide manufacturers the opportunity to manipulate certain features of traditional games; such as graphics, colour and sound; to either entice new players or encourage extended play. While traditional games already have enticing features, innovative products allow for more sophisticated event-dependent sound effects, as well as brighter and more dynamic coloured lighting. There is minimal direct literature in the area of innovative gambling products. Most of the research focuses on EGMs that utilise computer technology for dynamic visuals and sounds in a similar way to the products of interest. The presentation of gaming machines, including dynamic computerised graphics coupled with detailed event-dependent sound effects, gives the impression of a lucrative and exciting experience, enticing people to gamble while stimulating betting persistence (Griffiths & Parke, 2005; Parke & Griffiths, 2006).

VISUAL ENHANCEMENTS

There is currently limited research investigating the visual elements of gaming machines on gambling behaviour. Studies have investigated the effects of visual complexity on gambling behaviour by altering the way visual information was displayed (Christopherson & Weatherly, 2006; Ladouceur & Sévigny, 2002). Ladouceur and Sévigny (2002) investigated the sequential presentation of symbols on a video lottery terminal predicting that players would wager or play more when symbols were presented sequentially than simultaneously. Results indicated that the sequential presentation influenced gambling persistency, with those in the sequential group playing an average of 130 more games than those in the simultaneous group. Sequential presentation encourages people to systematically follow symbols as they are displayed, thus the time between each reel stimulates the player to play more games (Ladouceur & Sévigny, 2002; Wolfgang, Zenker, & Viscusi, 1984). This delay is expected to create winning expectancies where players are in constant anticipation for imminent wins (Ladouceur & Sévigny, 2002). Additionally, Christopherson and Weatherly (2006) found that the number of symbols displayed as the reels spun on a simulated slot-machine had no effect on gambling behaviour. This suggests that people may not be affected by quantity of visual features but rather the ways in which visual features are presented to enhance game engagement. Delfabbro, Falzon and Ingram (2005) found that the illumination of the display had no effects on preference or excitement but did impact the number of games played and the time spent playing. People spent more time on machines that had lower rather than higher illumination. Innovative products that incorporate interesting visual features may encourage increased betting persistence when compared to those that are more visually overwhelming.

Many researchers have focused on the effects of specific coloured lighting on gambling behaviour (Spenwyn, Barrett & Griffiths, 2010; Stark, Saunders & Wookey, 1982). Stark and colleagues (1982) found that those who played the card game under red light (compared to blue) took greater risks, gambled higher stakes and wagered more frequently. A literature review conducted by Singh (2006) found that red light attracts attention and heightens excitement levels while also encouraging rapid decision-making. Contrary to previous findings (Singh, 2006; Stark et al., 1982), however, Spenwyn and colleagues (2010) found no main effect of red versus white lighting on subjects gambling behaviour while playing virtual roulette.

Despite little consensus on the behavioural influences of coloured lighting on gambling, there is strong support for particular colours having differing emotive properties. Most findings are in support of the colour red being more exciting or arousing than blue or green (Bellizzi & Hite, 1992; Valdez & Mehrabian, 1994; Wilson, 1966; Yoto, Katsuura, Iwanaga, & Shimomira, 2007) with blue being considered to have calming or relaxing qualities for individuals to make rational, well-thought out decisions (Bellizzi & Hite, 1992). Researchers suggest that colours on the extreme ends of the colour

spectrum (red and violet) are more arousing than those in between (Bellizzi & Hite, 1992). One study took these ideas further by investigating the effects of brightness (black to white quality), saturation (purity or vividness, higher saturation colours containing less grey) and hue on levels of arousal, pleasure and dominance (Valdez & Mehrabian, 1994). The results indicated that brightness influenced pleasure levels more than saturation, while arousal decreased with increases in colour brightness. Dominance was reported to increase with colour saturation and decrease with colour brightness. The authors concluded that saturated colours evoked greater feelings of arousal. When considering hue, red was rated as the intermediate value of pleasantness with blue, blue-green, green, purple-blue, red-purple and purple being reported as the most pleasant. The most arousing hue was green-yellow, with the least being purple-blue, yellow-red, and red-purple. They concluded that brighter colours (white, greys and lighter colours), while considered more pleasant, were less arousing and less dominance-inducing than darker colours (dark greys, black and other darker colours).

AUDITORY ENHANCEMENTS

Many authors have suggested that event-related sound effects and background noise in gambling environments entice and perpetuate gambling, as sounds make wins more memorable and salient (Dixon et al. 2007; Griffiths & Parke, 2005; Hess & Diller, 1969; Parke & Griffiths, 2006). Parke and Griffiths (2006) argue that auditory cues act as reinforcers, since machines often have a particular sound effect or music that plays when individuals experience a win. The win is associated by the player with this auditory stimulus and thus reinforces their behaviour and perpetuates further gambling. Usually there are no auditory cues for losing and, when there are, they are often antagonising, invoking disappointment and frustration that cause the consumer to chase the sound associated with a positive outcome (Parke & Griffiths, 2006). More sophisticated technology allows for more intricate musical pieces that can have greater effects on emotion and gambling behaviour (Parke & Griffiths, 2006). Depending on the piece, music can heighten arousal or the tension associated with the game as well as the speed in which the game is played (Delfabbro et al. 2005; Griffiths and Parke 2005; Parke and Griffiths 2006; Spenwyn et al. 2010).

The sound effects associated with a specific machine can be a deciding factor when consumers are choosing which machine to play (Griffiths & Parke, 2005; Hess & Diller, 1969; Parke & Griffiths 2006). An exploratory observational study investigating how gaming machines utilise sound found that the auditory cues of the machine were associated with four main factors: the quality of the machine, familiarity, distinctiveness, and the sound of winning (Griffiths & Parke, 2005). People were more likely to play a machine that they perceived to have good quality sound as they directly related the quality of the music to the quality of the machine. Results indicated that the familiarity of the music (e.g., a theme song from a popular movie or television show) was important in the acquisition of gambling, while the distinctiveness of the music (whether or not the sound was memorable to the consumer) would result in further play or returning to that particular machine. The sound effects associated with winning, such as coins falling or triumphant music, were considered to be vital in both the acquisition and perpetuation of gambling behaviour. Not only do these sounds give players the illusion of winning more than they actually are (perpetuating gambling behaviour), they send a signal to other players in the vicinity that someone has just won, suggesting that it may be beneficial for others to play and win too (Griffiths & Parke, 2005).

Such observational findings have been supported in experimental research, with many authors finding that sound effects and music tempo influence behaviour in a variety of settings (Caldwell & Hibbert, 1999; Dixon et al., 2007; McElrea & Standing, 1992; Milliman, 1982, 1986; Spenwyn et al., 2010). Fast tempo music has been found to increase the pace with which an activity is completed;

whereas slow tempo music reduces it (Caldwell & Hibbert, 1999; Dixon et al., 2007; McElrea & Standing, 1992; Milliman, 1982, 1986; Spenwyn et al., 2010). Using online or virtual roulette simulations, multiple authors have found that the faster the musical tempo, the faster the participant would place a bet (Dixon et al., 2007; Spenwyn et al., 2010); while slower music actually led to slower completion of bets than no music at all (Dixon et al., 2007). However, Dixon et al. (2007) indicated that musical tempo had no influence on either the size of each bet or the total amount spent. Loba, Stewart, Klein, & Blackburn (2001) also found that when the sound was turned off (on a video lottery terminal), participants reported decreased levels of excitement and enjoyment, and a reduction in tension. These findings were supported by Delfabbro et al. (2005), who reported higher excitement and preference ratings among those playing on machines with sound. However, sound had no effect on time spent or number of plays.

While Spenwyn et al. (2010) found no main effect of lighting on speed of bets, they did find an interaction between music tempo and colour of lighting. Results indicated that betting speed significantly increased under red light and fast tempo music when participants were playing a roulette simulation. Despite the limited literature pertaining directly to innovative products, the research available does outline how structural characteristics (visual and auditory components) of machines can be manipulated and combined in order to improve the chance of acquisition and prolonged gambling behaviour. Manufacturers have the opportunity to tailor sound effects and musical riffs, as seen with electronic gaming machines, in order to increase tension and arousal rather than relying on naturalistic sounds in the venue environment. Effective use of sound may increase playing time, betting speed and the likelihood players will return to play again (Dixon et al., 2007; Griffiths & Parke, 2005; Hess & Diller, 1969; Parke & Griffiths, 2006; Spenwyn et al., 2010). Not only are manufacturers able to manipulate sound, but the graphics of the machines can also be altered in terms of colour, brightness and even saturation in order to present traditional games in the most enticing, arousing and stimulating way possible that may result in increased risk taking or faster betting speeds. Computerised graphics are also a dynamic medium, where the display can animate and change according to events within the game. For instance, losses disguised as wins accompanied by event dependent music can cause people to believe they are winning more than they actually are (Dixon et al., 2014; Dixon, Collins, Harrigan, Graydon, & Fugelsang, 2015). Gamblers who played a simulated slot machine with or without event-dependent sound showed a greater preference for winning sounds that were associated with higher psychophysical and psychological arousal (Dixon et al., 2014). Event-dependent sound also caused people to significantly overestimate the number of times they had won. Manipulating the pairing of sound to different outcomes can alter gamblers perceptions of wins and losses. Dixon and colleagues (2015) investigated whether using negative sounds associated with losses paired with losses disguised as wins would change people's perception of their gambling experience. Similarly to Dixon et al. (2014), they found that when losses disguised as wins were paired with winning sounds, participants overestimated the number of times they won. However, when paired with negative, losing sounds participants were more likely to identify the outcome as a loss and were more accurate in their estimates of winning outcomes. As sensory information is more easily stored and recalled than numerical information, auditory cues hold more weight in people’s perceptions of gambling outcomes than the actual gambling outcome itself. When information regarding the experience is recalled at a later date, people are more likely to remember the sensory cues rather than the outcome, and potentially perceive their gambling experience to be more lucrative than it actually was. There is little research specifically pertaining to the effects of graphics and, more generally, visual stimuli on gambling behaviour. Nevertheless, enhanced visual presentation of games may result in similar outcomes as to auditory enhancements. For example, animated graphics when a player wins, or familiar and distinctive symbols or patterns, may affect acquisition and perpetuation of gambling behaviour. Future research into the effects of auditory and visual stimuli in both current gambling contexts and innovative products is warranted.

ILLUSION OF CONTROL

While visual and auditory characteristics influence gambling behaviour (Dixon et al., 2007; Griffiths & Parke, 2005; Hess & Diller, 1969; Parke & Griffiths, 2006; Spenwyn et al., 2010; Stark et al., 1982), the maintenance of gambling is perpetuated by people's underlying beliefs (Chau & Phillips, 1995; Ladouceur & Mayrand, 1984; Langer, 1975). One of the main cognitive fallacies involved in the maintenance of gambling behaviour is the *illusion of control*. The *illusion of control* creates an expectancy of personal success that is inappropriately higher than objective probability warrants (Langer, 1975), and is a consequence of people's erroneous beliefs that they exert some control over random events exercised through either skill or luck (Chau & Phillips, 1995; Langer, 1975).

Many traditional casino games contain elements of skill that are critical to the outcome of the game. For example, blackjack relies on the individual making a decision whether to hold their hand or receive another card. While many table games do require individuals to make skills-based decisions, in a casino, statistically perfect play still results in negative long-run returns and, thus, the overall outcome ultimately remains decided by chance (e.g., which card is dealt next). Exceptions can include high skill games such as poker and, arguably, racing and sports betting, and instances where rare professional players can take advantage of novice bettors to make positive returns. More often, however, games such as blackjack create the illusion that skill is a fundamental feature of the game, although no realistic opportunity to overcome the house advantage is ever provided[2] (Griffiths et al., 2006; Langer, 1975). Langer (1975) suggested that there are five primary factors influencing the development and maintenance of the *illusion of control*: active or passive involvement, choice, sequence of outcomes, familiarity, and competition.

ACTIVE VERSUS PASSIVE INVOLVEMENT

Active versus passive involvement refers to the degree to which the individual participates directly in the process or procedures involved in the act of gambling. Research suggests that the higher the level of personal involvement, the more likely individuals are to perceive skill to be a relevant factor in the determination of outcomes (Cornish, 1978; Parke & Griffiths, 2012; Weatherly & Flannery-Woehl, 2009). This phenomenon stems from the belief that, due to one playing an active role in the game, the odds of winning somehow improve (Langer, 1975). A comprehensive meta-analysis investigating factors influencing the *illusion of control* found that the largest effect sizes were related to personal control and skill related judgements; suggesting that when subjects had an active part in the situation, they experienced a heightened sense of control (Stefan & David 2013). These findings reflect those of Langer (1975), who found that participants had greater confidence when placing their own bets and exercising physical control over gaming apparatus than when experimenters performed the task for them. Davis, Sundahl, and Lesbo's (2000) observational study investigating craps players in casinos (United States, Reno, Nevada) found similar results, as patrons wagered larger amounts on their own dice rolls than on the rolls of other gamblers. However, Wolfgang et al. (1984) found neither level of involvement (type of bet) or participation (who is in control of the die) affected subjects' *illusions of control*. Therefore, *illusion of control* may affect betting behaviour without necessarily involving a cognitive recognition that influence over chance events is being sought or achieved through active involvement in betting.

[2] Card-counting can be an effective strategy to overcome house advantage, but is difficult to achieve with multiple decks used in most casinos.

CHOICE

In conjunction with active participation, subjects' ability to choose is also an instrumental driver of *illusion of control*. When people have choice within their situation, they behave as if they have control over the outcome – even if their choices are irrelevant (Langer, 1975), Casino games, gaming machines, sports betting and even lotteries give gamblers an element of choice, such as which numbers to bet on, the amount of the wager or even at which machine or table to play (Dixon, 2000). Many of these choices have little relevance to the likelihood of winning, although they may affect the absolute amounts won or lost. Multiple studies have investigated the element of choice in gambling situations (Dixon, Hayes, & Ebbs, 1998; Goodman & Irwin, 2006; Langer, 1975). Despite the odds remaining constant, players generally preferred to pick their own numbers rather than have the experimenter do it for them (Dixon, et al., 1998; Goodman & Irwin, 2006; Langer, 1975). Dixon et al., (1998) found that subjects would actually pay an extra unrecoverable bet premium in order to control the numbers they were playing in a game of roulette. Similarly, in Langer's (1975) study, subjects who had the freedom to choose the lottery ticket, as compared to those who were given the ticket, would charge a much higher price (i.e., $8.67 vs. $1.96, or 342% higher) to sell the ticket. However, Dannewitz and Weatherly (2007) found that subjects actually gambled more when they had no control over how the game was to be played. Participants played video poker over three sessions. In the first, subjects chose which cards were played while, in the second, the program identified the best move to make but subjects were free to choose how to play the hand. In the third session, the program identified the optimal move and participants were required to play that hand. Both the number of hands played per session and the total amount of money wagered increased significantly when control over the game decreased. These findings suggest that subjects had greater confidence in the computer's ability to pick the optimal hand, giving more weight – by gambling more - to the computers' decisions than their own. This, however, does not negate that people may prefer their own choice in the absence of perceived expert guidance.

SEQUENCE OF OUTCOMES

Characteristics of the game can also influence the *illusion of control*. Stefan and David's (2013) meta-analysis on the *illusion of control* found that the reinforcement rate (number of cases where the expected result occurred regardless of the degree of control) and the sequence of outcomes (whether stimuli followed a descendant or ascendant pattern) produced the largest effect sizes. These findings suggest that perceived control is largely affected by the number of times an expected result occurs and the pattern or sequence in which these outcomes are presented. As such, the sequence of outcomes and the rate of reinforcement can perpetuate gambling behaviour as people believe the outcomes are due to their skill or luck rather than a consequence of blind chance (Stefan & David, 2013). Chau and Phillips (1995) investigated gambling behaviour using a computerised blackjack simulation that manipulated short term odds using winning and losing streaks. Two levels of control were considered: control of skill relevant factors (requesting extra cards during game play); and control of skill irrelevant factors (choice of dealer). Those who did not have card control adjusted their bets more vigorously. That is, following a win, subjects would increase their bet sizes (taking advantage of their good fortune), while, following a loss, reduce their bet sizes considerably, minimising potential losses due to bad luck. When participants had card control, less alterations to bet sizes were made. Participants generally explained successful outcomes as results of their skill or ability while losses were due to uncontrollable circumstances (i.e., bad luck or misfortune).

These findings were contradicted in a study by Weatherly and Flannery-Woehl (2009), who found that participants with greater misconceptions about chance wagered less money on video poker. Nevertheless, in combination, these studies suggest that when the influence of chance is perceived

to be an important factor, subjects' wagering becomes more erratic as they alter bets according to the previous outcome, increasing the likelihood of substantial losses from greater persistence (Chau & Phillips, 1995; Weatherly & Flannery-Woehl, 2009).

FAMILIARITY

Familiarity with the game can aid in the development of an *illusion of control* (Langer, 1975). When subjects have had practice and become familiar with a game of chance, they report having increased confidence in the outcome compared with when they receive no practice (Langer, 1975). It is also suggested that being familiar with a task or how the task is conducted may motivate the development of strategies. For example, a seminal study by Henslin (1967) noted that, when playing dice games, people generally behave as if they can control the outcome of the roll. Players tended to throw the dice hard if they wanted high numbers, and softly if they wanted low numbers.

COMPETITION

In addition to familiarity, the perceived competence of an opponent or competition can affect an individual's confidence in their own ability (Langer, 1975). Often, a major consideration for players of table games is the luck of the dealer. People frequently believe they must exploit dealers' luck (or lack of luck) and pick the table that they perceive to be the most likely to pay out. By assessing their competition (the dealer), players are able to exercise choice, which creates an *illusion of control* (Chau & Phillips, 1995; Langer, 1975). However, when the competition is too threatening, the extent of perceived control is lost (Chau & Phillips, 1995; Langer, 1975). Other gamblers can also influence the *illusion of control.* Martinez, Le Floch, Gaffie, and Villejoubert (2011) found that being informed of other gamblers exercising their control increased betting speed, gain expectancy and subjective personal control. This suggests that it is not solely directly perceived competition (dealer or the machine itself), but also indirect (perceived) competition such as that of other gamblers that may affect the *illusion of control*.

CONCLUSIONS FOR INNOVATIVE PRODUCTS

Personal involvement, choice, event outcome and frequency, familiarity and competition all play a role in the development of an illusion of control. These factors can be more easily manipulated to encourage illusions of control with the digital technologies that typify innovative gambling products. Griffiths and colleagues (2006) argue that digital advancement increases personal involvement by allowing players more perceived control over how the game is played. Ladouceur and Sévigny (2005) suggest that this occurs due to structural characteristics of the machine that the player can manipulate to uniquely tailor how the game is conducted. For instance, people have been found to prefer games that incorporate a stop wheel/reel function over standard games as this enhances the illusion of control or perceived skill associated with the game without altering underlying probabilities for winning outcomes (Ladouceur & Sévigny, 2005; Loba et al., 2001). In a study by Ladouceur and Sévigny (2005), 58% of participants believed that their ability to stop the device gave them control over the outcome, with 42% perceiving skill to be an influential factor in the outcome of the game. Additionally, 89% believed that, because they had stopped the reel themselves, the symbols were somewhat different to what might have resulted if the reel had stopped automatically. By adding additional functions, a new element of 'perceived skill' is introduced, which results in people believing that, by exercising their choice and personal involvement, they can alter the outcome in their favour (Parke & Griffiths, 2012). Additional functions not only increase personal involvement, they also enhance the variety of choices associated with the game. Some players may prefer mechanical

games to computerised programs as they believe they have more control over the start/stop functions (Chau & Phillips, 1995). Consumers are able to choose the machine that they believe will give them the greatest level of control over the outcome of the game, and erroneously believe that these choices provide advantages to them (Chau & Phillips, 1995).

Outcomes or event frequencies during a digitalised game may also be more frequent. Players are not reliant on the dealer or other gamblers to progress through the game, potentially increasing the speed at which a game is played. This may result in greater event frequencies over a shorter amount of time, reinforcing misconceptions about the influence of personal skill on advantageous outcomes. As discussed in the previous section (Visual and Auditory Enhancements), familiar characteristics of machines entice individuals to play and encourage extended play (Griffiths & Parke, 2005). General familiarity with computer technology may result in greater confidence in one's ability to play a digitalised version of traditional games. Players of computerised games may have altered perceptions of the amount of control they exert, particularly when considering their competition (Chau & Phillips, 1995). Chau and Phillips (1995) suggested that the *illusion of control* may be smaller when playing a programmed machine, and that some players may question the fairness or role of chance in event frequencies and outcomes as game parameters may be programmed to be less random or even unfairly biased.

As outlined above, there are multiple factors that facilitate the development of an illusion of control. While it is speculated that these factors (involvement, choice, event frequency/outcome, competition and familiarity) can be applied to innovative products in a similar way, a comprehensive investigation of how illusions of control may differ between traditional and innovative games has yet to be undertaken. Innovative products could be designed to use these factors to increase the perceived control players have in order to encourage play. However, an *illusion of control* may cause people to become more or less cautious depending on their perceived self-efficacy. This is particularly relevant for innovative products given they are adaptations of traditional versions. Players may therefore have different perceptions of self-efficacy if they have had previous experience with the traditional version of the game. However, given that greater *illusion of control* seems to result in less alterations to bet sizes on simulated games, perceived control in innovative products may reduce the likelihood of substantial losses in short periods of time.

COGNITIVE COMPLEXITY

The cognitive complexity of a task can influence both behaviour and engagement (Johnson & Bruce, 1997) and, yet, has received little consideration within the gambling literature to date. Complexity occurs when a task requires processing of large volumes of information, often across multiple dimensions (Bedny, Karwowski & Bedney, 2012; Liu & Li, 2012). Although no single agreed upon definition currently exists, three fundamental elements contributing to task complexity have been identified within the literature: the structural characteristics of the task; the resources required to complete the task; and the interaction between the task and the performer (Liu & Li, 2012). Increases in task complexity result in higher cognitive load (Boag, Neal, Loft & Halford, 2006; Liu & Li, 2012), which may affect player engagement (Johnson & Bruce, 1997), performance (Boag et al., 2006; Mascha & Miller, 2010; O'Donnell & Johnson, 2001), and decision making (Johnson & Bruce, 1997; Sung, Johnson, & Dror, 2009). Consequently, an understanding of task complexity across gambling products is critical in understanding gambling behaviour; including gambling initiation and maintenance, and the development of gambling problems.

STRUCTURAL CHARACTERISTICS

Task structure is a fundamental contributor to complexity. Generally, complex tasks are those that incorporate multiple elements (e.g., functions, information cues, processes or qualities of the task itself) that must be processed in order to understand or perform a task successfully (Bedny et al., 2012; Liu & Li, 2012; Williams, 1999). Thus, tasks become more complex as the number of elements and information processing requirements increase: a process referred to as attribute based complexity (Asare & McDaniel, 1996; Bedny et al., 2012; Carey & Kacmar, 1997; Liu & Li, 2012; Williams, 1999). In turn, this results in a greater number of alternatives that must be considered in order to make a decision: referred to as *alternative based complexity* (Johnson & Bruce, 1997; Liu & Li, 2012; Sung et al., 2009). Complex games such as poker incorporate numerous alternatives and task attributes that must be considered to reach a decision. Not only must players attend to their own hand, but respond and incorporate estimated probabilities, amount spent and other players gambling behaviours into reaching their decision. Such information loads can increase the effort associated with completing the task, impairing the ability to process information effectively.

ATTRIBUTE CHARACTERISTICS

Understanding task elements, or attributes, is critical to formulating an appropriate course of action. Games such as poker incorporate numerous elements that must be processed. For instance, the current hand, previous winning hands, winning probabilities, and other players circumstances are elements of the game that interact together to increase information load and game complexity. Characteristics of task elements such as: inconsistencies and clarity of information (Mascha & Miller, 2010; O'Donnell & Johnson, 2001; Ritov & Baron, 1990); routine versus non-routine functions (Schwarzwald, Koslowsky, & Ochana-Levin, 2004); repetition and quantity of information (Mascha & Miller, 2010); relationships or conflict between different task elements (Biggs, Bedard, Gaber, & Linsmeier, 1985; Boag et al., 2006) and complicated elements (Klein & Yadav, 1989; Sung & Johnson, 2007); can further add to task complexity as it hinders information processing (Liu & Li, 2012). For instance, EGMs incorporate a number of winning combinations of symbols that are often presented ambiguously in displays on the machine. Furthermore, there are multiple betting options (number of credits and lines) that are not well explained for the novice gambler. Element characteristics can adversely affect not only performance, but also time spent on the task (O'Donnell & Johnson, 2001), how the task is approached (Schwarzwald et al., 2004), and perceived difficulty and control (Boag et al., 2006; Mascha & Miller, 2010). This may result in increased playing time in efforts to master or understand the task while experiencing significant losses in the process. Additionally, gamblers may not choose the most appropriate course of action as increased complexity can often result in people taking the easiest or least ambiguous option rather than the most beneficial one (Johnson & Bruce, 1998).

Johnson and Bruce (1998) investigated alternative and attribute based complexity in horse-racing wagering. They compared bets on races designed to reduce the discriminability between runners (handicap races) with bets on high discriminability races (non-handicap races). Alternative-based complexity was assessed by the number of runners, such that complexity increased along with the number of betting choices available to participants. Level of task complexity was shown to affect risk strategy. While complexity did not alter the size of the risk (amount wagered), both attribute and alternative based complexity influenced bettors' susceptibility to accepting greater degrees of risk (based on odds of winning). That is, individuals did not wager differently in dollar amounts when the task was more complex but were more likely to make riskier gambling decisions. This suggests that when gamblers are exposed to higher volumes of information, they may not process all elements or alternatives effectively, resulting in poorer decision-making.

RESOURCE REQUIREMENTS

Increases in structural complexity require a corresponding increase in cognitive resources in order to make an informed decision (Sung et al., 2009). Cognitive resources refer to the neurological processes designed to manage information input, comprehension, storage, and retrieval (Liu & Li, 2012). Such processes include cognition (e.g., memory and attention) as well as visual, auditory and psychomotor functions (Bettman, Johnson, & Payne, 1990; Campbell, 1988; Liu & Li, 2012). As the volume of information associated with the number of elements and alternatives increases, the load on information processing systems is also increased (Bettman et al., 1990; Campbell, 1988; Liu & Li, 2012; Nadkarni & Gupta, 2007). Under these conditions, a greater proportion of cognitive resources are required and appropriate decisions become more difficult to make as, for example, the numbers of available lines, mini-games or features on an EGM increase. While simple information cues take significantly less cognitive resources to encode and store than complex informational cues (Nadkarni & Gupta, 2007, cognitive load also has a cumulative effect, with multiple simultaneous tasks taxing available resources (Wixted, 2004). Consequently, an individual's cognitive resources may be partially engaged in other activities such as conversation, self-reflection or emotional regulation, leaving fewer resources available to process risk related information during gaming sessions. Under such conditions, the capacity to respond appropriately to complex stimuli associated with many gambling activities may be impeded.

As only limited cognitive resources are available, tasks that require high levels of information processing may overload processing capacity (Bedny et al., 2012; Nadkarni & Gupta, 2007), leading to the individual's perception of complexity or subjective difficulty as they struggle to comprehend incoming information (Bedny et al., 2012; Nadkarni & Gupta, 2007). Li, Jiang, Tan and Wei (2014), for instance, found that video game players reported exerting more cognitive effort when they were required to mentally calculate, plan or strategise during gameplay compared to when gameplay was spontaneous or reactive. When individuals experience less cognitive strain, they are less likely to identify a task as complex (Nadkarni & Gupta, 2007). While the structural complexity of a task determines the resources required to complete the task, it is actually the subjective strain on these resources that results in the perception of complexity or difficulty.

Strain on cognitive resources results in increased subjective effort, confusion, errors, and a reduction in performance (Johnson & Bruce, 1998; Jacoby, Speller & Kohn, 1974; Klein & Yadav, 1989). In the context of gambling, this may be reflected in detriments to a player's ability to keep track of losses or to decide when to terminate play. Studies suggest that people utilise compensatory strategies in decision-making as task complexity increases (Keren & Wagenaar, 1985; Onken, Hastie & Revelle, 1985; Payne, 1976; Sung et al., 2009). Onken et al. (1985) found that people tended to engage in simplifying strategies when attempting complex tasks (see also; Keren & Wagenaar, 1985; Klein & Yadav, 1989). When comparing attribute and alternative based complexity, multiple authors have observed that the use of simplifying strategies is associated more frequently with increases in the number of available alternatives than with increases in the number of task attributes or elements (Johnson & Bruce, 1998; Payne, 1976; Timmermans, 1993). When there are multiple elements to a task, it is suggested that people generally adopt a "search" strategy whereby they seek the information most relevant to their decision (Payne, 1976). However, when the number of alternatives is increased, individuals seek to reduce cognitive load by eliminating undesirable alternatives, leading to possible failures to process relevant information (Payne, 1976). Consequently, when the complexity of a task increases to the point of multiple alternatives, people attempt to simplify the task as quickly as possible and do not sufficiently consider the elements associated with each option, or the potential ramifications of their decision.

In an earlier study, Johnson and Bruce (1997) found that increasing the number of elements associated with horse racing betting resulted in lower levels of participation as measured by total amount wagered. That is, individuals wagered significantly less money when required to process more task elements, suggesting that gamblers are less inhibited when complexity is in the form of multiple alternatives. When exposed to increasingly numerous task attributes, gamblers may experience cognitive overload due to the amount of information processing required and, consequently, may adopt ineffective decision making strategies. For example, there are numerous casino-based games in which large amounts of information are available upon which a player may base a strategy or make decisions (Keren & Wagenaar, 1985). In blackjack, for example, players may choose strategies based on blind luck (e.g., randomly deciding whether to deal or sit), any number of systematic strategies based on the pre-determined card or value limits, reactive strategies based on available information regarding all players at the table (including the dealer), or even card counting requiring high levels of cognitive processing and memory (Keren & Wagenaar, 1985). In roulette, players are typically presented with large amounts of information about previous winning numbers, frequencies of payouts within different sections of the table (e.g., black versus red, 1st, 2nd and 3rd quarters, odd versus even numbers), “hot” and “cold” numbers and more. In addition to processing this information, players must process the various (often complex) betting options while attempting to maximise the risk-to-benefit ratio of their own wagers. It is possible that the information processing requirements in such games may consume a significant proportion of available cognitive resources, leaving only limited resources to process important information such as probabilities and how much money has been wagered (and lost). This process is also similar for other complex forms of gambling, such as horse-race betting. Johnson and Bruce (1998) suggest that gamblers have a methodology for processing race attributes and comparing alternatives. When attributes are more complex, gamblers often alter this methodology and adopt simpler strategies, such as the horses’ name, in order to make a decision (Sung et al., 2009). This supports findings previously mentioned by Johnson and Bruce (1998), who suggested that higher gambling complexity resulted in risky gambling behaviour.

However, it is also important to note that the role of complexity in decision-making may work both ways. Ladouceur and Mayrand (1984) found that subjects’ confidence significantly wavered and players failed to develop an illusion of control during a simple game of coin toss. Consequently, when complexity is high, people may compensate by employing simplifying strategies that result in greater risk taking behaviour. However, when tasks are too simple, the need for decision making becomes obsolete with outcomes being obviously reliant predominantly on chance. This is an important consideration in relation to complexity and gambling behaviour. It must be acknowledged that, with the exception of a small number of skill-based games, the perceived relationship between skill and outcomes is erroneous (see section on Illusion of Control above). Consequently, increased task complexity may function to encourage engagement with gambling products by injecting an “apparent complexity”, in which an activity for which essentially no skill is required (and therefore may otherwise be uninteresting) is encouraged to appear complex and deep (and therefore interesting). Game appeal may be heightened due to the perceived exciting and interesting information, potentially leading to greater player persistence and, ultimately, losses (Johnson and Bruce, 1997).

INTERACTION OF TASK AND PERFORMER

The interaction between task and performer creates a subjective perspective of complexity that includes the extent of effort involved in a task. That is, based on the attributes of the task performer, a task can be experienced as more or less difficult than as experienced by somebody else (Bedny et al., 2012; Campbell, 1988; Liu & Li, 2012). Individuals perceive tasks differently and have unique skill and ability sets that can affect task comprehension and performance (Bedny et al., 2012;

Haerem & Rau, 2007). When task complexity exceeds the abilities of the person, the task will be perceived as more difficult or complex (Bedny et al., 2012; Liu & Li, 2012). Moreover, those that are familiar with aspects of the task or task stimuli may encode and process information more efficiently than others (Nadkarni & Gupta, 2007). Thus, the relationship between structural characteristics and the resources required is mediated by individual characteristics (Liu & Li, 2012; Nadkarni & Gupta, 2007).

Two primary characteristics are believed to affect perceived complexity: task familiarity and expertise (Liu & Li, 2012; Nadkarni & Gupta, 2007). Familiar components of a task increase acceptance of complexity, allowing people to better process and comprehend task requirements and identify information relevant to their decision-making (Nadkarni & Gupta, 2007). Lack of knowledge or expertise can result in elements of the problem appearing ambiguous, with the value of particular aspects going unrecognised, and potentially relevant alternatives appearing less attractive (Johnson & Bruce, 1998). Haerem and Rau (2007) found that experts and novices gave attention to different aspects of a problem which affected both task perception and performance. This suggests that the level of familiarity or expertise with a task can influence how different individuals process information and perceive the same task. Consequently, novice players may be more prone to poor decision making in complex games compared with regular or experienced gamblers.

In research examining video-game playing, greater game familiarity has been shown to increase engagement (Li et al., 2014). The highest levels of game engagement were found for those in the high-familiarity/low-complexity group with the low-familiarity/high-complexity group reporting the lowest levels of game engagement. Although in a gaming context rather than a gambling context, these results may be indicative of what would be expected of gamblers. Individuals more familiar with gambling products may be more engaged than novices, although familiarity may not be effective in accommodating complexity due to the random nature of many gambling products and the accompanying lack of control over outcomes. Johnson and Bruce (1998) suggest that bettors may engage differently depending on their level of education or expertise. However, further research should be conducted in order to validate these assumptions.

CONCLUSIONS FOR INNOVATIVE PRODUCTS

There has been limited consideration of complexity in innovative gambling products or table games. While Keren and Wagenaar (1985) have outlined potential blackjack strategies, the introduction of digitalised forms may alter how people strategize and comprehend information cues to reach decisions. Johnson and Bruce (1997, 1998) consider that gamblers would be inconvenienced by higher levels of complexity. While their research has shown that increased complexity in horse-race betting reduced participation (1997) and increased risk taking (1998), this cannot be generalised to traditional table games given the configuration and attributes associated with horse-racing (i.e., form, jockey, trainer etc.). They suggest that bettors may enjoy certain levels of complexity as it provides people with an element of control over how to react to the information provided. Similarly, increased complexity may actually serve to benefit the gambler by allowing them to use their skills and knowledge to generate a response. Those with skills or experience have been shown to be able to select more optimal responses and display greater accuracy on a number of gambling tasks (Khazaal et al., 2012; Lueddeke & Higham, 2011). Greater complexity in innovative products may therefore provide experienced gamblers with a greater “edge”. Conversely, greater information does not guarantee a positive outcome and is said to provide very little insight into future events (Browne, Rockloff, Blaszczynski, Allcock, & Windross, 2015). Greater complexity may result in overconfidence as people believe they have greater insight in predicting chance outcomes, potentially leading to riskier gambling. This remains to be explored for innovative products.

Digitisation provides a means by which jackpots, side bets or other features that can influence player behaviour may be incorporated into traditional games. Research shows that jackpots can have a significant effect on EGM gambling intensity. Hidden jackpots (Donaldson, Langham, Rockloff & Browne, 2015) or those with high values (Browne, Langham, Rockloff, Donaldson, & Goodwin, 2015) result in faster betting and greater betting persistence. Further, those who are primed with thoughts of a "big win" are more likely to be orientated towards EGMs with jackpot features (Li, Rockloff, Browne, & Donaldson, 2015). Many casino environments do encourage patrons to think about the "big win" and thus, based on EGM findings, gamblers who play automated products may be more attracted to those that include additional features that are likely to increase gambling intensity. Features such as these have been shown to be evident on automated bingo products. Harrigan, Browne and MacLaren (2015) provided a detailed description of the features of automated bingo products available to consumers through the Ontario Charitable Gaming Centers. Not only did these games include jackpots reaching as high as $115,000.00, they tended to provide information solely detailing past wins and not losses. Not only do jackpots have the potential to increase gambling intensity, having such a large emphasis on winning bets and failing to detail the losses encourages consumers to focus on winning and to disregard their losses. A study by Leino et al., (2015) has also shown that by increasing the features on which people can wager can significantly influence their betting frequency. In their study of the structural features of video lottery terminals, Leino and colleagues (2015) showed that those products that included bonus features resulted in greater betting frequency. Further, other additional features such as being able to bet on additional lines resulted in a greater number of bets being placed. Despite there being no observed influence of providing advanced betting options on gamblers behaviour, it seems that providing more features for people to wager on can result in more intensified betting as observed by betting frequency and the number of wagers. Innovative products introduce another element to table games – digitalisation – that may inhibit or enhance information processing. Bedny et al. (2012) suggest that computerisation can over-simplify some tasks leading to monotony, while inadequate design may perhaps impair some cognitive mechanisms of information processing due to a lack in clarity. While the literature provides some indication as to what to expect from complexity in table games, the added technological component and the high role of chance in the outcome increases the complexity associated with the task. Consequently, there is a need for further research into complexity of innovative products in order to better understand how gamblers respond in a digital gambling context.

EXPEDITED PLAY

In traditional table games, there is often a delay between placing a bet, learning the result of the bet, and making subsequent bets. The actions of other players or the dealer, casino rules, and the mechanics of the game itself, can all act to limit the rate at which games can be played. In contrast, EGMs are designed to facilitate greater numbers of games played over a set time period (Griffiths et al., 2006). The rate of play on EGMs is a structural characteristic implemented by the manufacturer and controlled by the consumer (within legislative constraints; Griffiths, 1999; Griffiths et al., 2006). Increasing the rate of play results in more frequent game outcomes, which may exploit psychological principles of operant conditioning (Skinner, 1953) by providing frequent and rapid rewards for player behaviour (Griffiths et al., 2006). Innovative products such as automated table games may increase the rate of play and affect decision-making and wagering. Rapid and continuous gambling associated with EGM play is believed to be an important factor in the development and maintenance of gambling problems (Griffiths, 1999; Griffiths et al., 2006). In particular, speed of play is thought to be associated with a number of factors that facilitate gambling maintenance including: number of games played and playing time (Blaszczynski, Sharpe & Walker, 2001; Delfabbro et al., 2005; Ladouceur & Sévigny, 2006; Sharpe, Walker, Coughlan, Enersen, & Blaszczynski, 2005);

reinforcement rates and expenditure (Griffiths, 1999; Griffiths et al., 2006; Ladouceur & Sévigny, 2006; Parke & Griffiths, 2006; Sharpe et al., 2005); perceived enjoyment and satisfaction (Blaszczynski et al., 2001; Sharpe et al., 2005; Delfabbro et al., 2005; Ladouceur & Sévigny, 2006; Loba et al., 2001); and contributing to dissociative gambling states (Dickerson, 1993; Griffiths, 1999; Ladouceur & Sévigny, 2006). The following sections will focus on each of these factors in turn and discuss how rate of play affects gambling characteristics.

NUMBER OF GAMES AND PLAYING TIME

Multiple authors have hypothesised that increasing game speed may lead to people playing more games and for longer periods of time (Ladouceur &Sévigny, 2006; Sharpe et al., 2005). Naturally, when total play-time is held constant, a greater number of games may be completed when game speed is increased. Indeed, several studies have shown increased rate of play to be associated with a corresponding increase in the number of games played (Delfabbro et al., 2005; Ladouceur & Sévigny, 2006). Ladouceur and Sévigny (2006) allocated people to either a high-speed (5 sec) or low-speed (15 sec) version of a video lottery terminal, “swinging bells”. Participants in the high-speed condition played 2.5 times as many games as those in the low-speed group. Similarly, Delfabbro et al. (2005) had participants play either a 3.5 second or a 5 second computer simulated EGM and observed a significantly greater number of games played among those using the high-speed machine compared with the low speed machine. Conversely, Sharpe et al. (2005) found that game speed had no effect on the number of games played on EGMs in live Participants were recruited from hotels and clubs in New South Wales, Australia, and played either a modified (5 sec) or unmodified (3.5 sec) EGM.

Discrepancies between the findings of Sharpe et al. (2005) and those of other researchers may be due to differences in testing environments and apparatus. Both Ladouceur and Sévigny (2006) and Delfabbro et al. (2005) conducted their research in laboratory settings while Sharpe et al. observed players on site in live gambling venues. There may be numerous factors differentiating player experiences in laboratory and live gambling environments that may be responsible for the incongruous findings (e.g., distraction, perceived realism, and perceived personal investment). When gambling in a club or hotels, for example, there may be factors that preclude people from giving their full attention, resulting in slower game-play despite the speed capabilities of the game. In addition, Sharpe et al. used a modified Aristocrat Leisure Technologies ‘Pirates’ EGM provided by the gaming manufacturers rather than a computer simulation. Consequently, the greater ecological validity associated with actual venues and realistic machines may lead us to place greater stock in Sharpe et al.’s results. Therefore, while it may seem intuitive that faster game play would increase the number of games played (a position that has been supported by laboratory studies), the implications of rate of play on games played remains unclear for live gambling venues.

Contrary to expectations (Ladouceur & Sévigny, 2006; Sharpe et al., 2005), faster machines did not result in longer playing times in either laboratory settings (Delfabbro et al., 2005; Ladouceur & Sévigny, 2006) or live gambling environments (Sharpe et al., 2005). In fact, Blaszczynski et al. (2001) found that those who played the slower machines (5 sec reel spin) actually gambled for longer than those playing the faster machines (3.5 sec reel spin). The amount of time spent playing a machine may, therefore, not be dependent on the speed at which people are playing but, perhaps, on other factors such as engagement, amount willing to spend, losses and wins, and reinforcement ratios or event frequencies.

It should be noted that there are other features that can influence the rate of play by encouraging people to place more bets. Electronic games can be configured in ways to alter the return to player

rates to resemble those of EGM. Leino et al. (2015) investigated the structural characteristics of video lottery terminals on gambling behaviour and found that the fixed average payback percentages for video lottery terminals ranged from 84.56 to 93.04% with an average return to player rate of 89.29%. Australian slot machines typically have a return-to-player rate of 85% to 90% (Frahn, Delfabbro & King, 2015). These return-to-player rates were positively associated with placing more bets. That is, higher return-to-player rates translated into a greater number of bets placed on the game. Further, games that had a smaller difference between minimum and maximum bet sizes; and/or provided the opportunity to bet on additional lines, bonus features or simultaneous games; were associated with greater number of bets placed. In their investigation of automated bingo machines, Harrigan and colleagues (2015) found that people could play anywhere between 4 - 9 cards simultaneously. While the rate of calling may be no different to traditional bingo where rate of play is determined by the speed of which the player can mark their cards; automated bingo are much faster by virtue of multiple cards in play, and was suggested to be more reflective of EGMs. That is, a player can complete a call in as little as 2 seconds or, potentially, 20 calls per minute if playing continuously. This speed of play is substantially faster than the traditional paper version. This suggests that through automation, games can be configured in ways that potentially increases the number of bets people are willing to place and the rate at which they can place them.

EXPENDITURE AND REINFORCEMENT RATES

Wagering is believed to be affected by the amount of time players have to make decisions. It is suggested that the ability to gather and integrate information and make responsible and informed decisions is compromised when available time is significantly reduced (Phillips & Amrhein, 1989). In addition, rate of reinforcement increases with game rate (Ladouceur & Sévigny, 2006). For example, manufacturers are able to define the win/loss ratios, game completion rates, and reset intervals of EGMs (Parke & Griffiths, 2006). Consequently, player experiences of loss are often brief while wins are reinforced frequently (Griffiths, 1991; Griffiths et al., 2006). As a result, players often have limited time to make informed decisions and may re-invest their winnings immediately (Griffiths, 1999; Griffiths et al., 2006). In contrast, traditional table games generally have slower play rates and lengthier reset periods per game. Consequently, reinforcement may occur less frequently and players may have more time to weigh relevant information during decision making in comparison with EGM play.

At present, there is some conflict between the findings of in situ and laboratory studies. Ladouceur and Sévigny (2006) found that those playing high-speed games wagered more money than a low-speed group when total time was held constant. In contrast, Sharpe et al. (2005) reported no significant differences in the amount lost between high and low speed games. In their study, Sharpe et al. had subjects gamble their own money while Ladouceur and Sévigny (2006) provided participants with funds. When people gamble their own money, it is likely that they have a greater sense of personal investment and may attempt to limit losses by using strategies that may not be affected by the speed of the game. It is possible that different decision-making processes may be engaged in laboratory settings where participants are provided with funds or credits with which to gamble. In such cases, they may be more likely to play at a faster rate and make larger bets, thus playing a greater number of games and losing more money.

Faster games may provide more frequent reinforcements than slower machines, which may influence perceptions of a game and how people play. Both Walker (2001) and Williamson and Walker (2000) have shown high frequencies of reinforcement to influence game play. Their participants chose to play machines with the most lines per game, while still wagering modest amounts. This implies that people tend to maximise the likelihood rather than the magnitude of

reinforcement (Walker, 2001; Williamson & Walker, 2000). That is, people are more concerned with how often they win than how large the win. EGMs are capable of maintaining rapid response rates, minimising the time between wagers for financial reflection. Traditional games usually require individuals to, for example, wait until all cards are dealt before making a bet and then wait for the dealer to present the outcome. This leaves more time between reinforcements, during which individuals can process information in order to make decisions. By automating many of these features, innovative products have the capacity to increase game rate and reduce information processing and decision time between games. Consequently, it is possible for players to lose their wagers at a much faster rate (Blaszczynski et al., 2001). Although the evidence regarding the relationship between game rate and expenditure in EGM play is currently mixed, it is important to examine the impact of increases in game rate and reinforcement frequencies in expenditure, in innovative versus traditional casino games.

Average expenditures have been shown to be influenced by other features beyond simply the speed or rate at which bets can be placed. For instance, in their exploration of structural characteristics of video lottery terminals, Leino et al. (2015) found that people would consistently gamble more than the minimum denomination of the game. That is, the majority of gamblers sought to multiply their outcomes by placing larger bets. They concluded that not only were these multiplier features common, but that people were consistently using them to place larger wagers. Innovative games can therefore incorporate features that make it easier for the consumer to multiply or increase their bet with relatively little consideration. As a result, gamblers may tend to place larger bets (and thus potentially gamble more money) on innovative products simply due to the ease of which the calculations are made and applied for them.

ENJOYMENT AND SATISFACTION

From a manufacturer's perspective, it is vital that people enjoy playing gambling products in order for them to want to play again. It is suggested that faster speeds may increase levels of excitement and entertainment, thus encouraging more persistent gambling activity (Blaszczynski et al., 2001; Ladouceur & Sévigny, 2006). In fact, there seems a relatively clear consensus in the literature that most people prefer faster games (Blaszczynski et al., 2001, 2005; Delfabbro et al., 2005; Ladouceur & Sévigny, 2006; Loba et al., 2001).

A preference for quicker games has been observed in experimental research. Delfabbro et al. (2005) found that faster games were more enjoyable and preferred by participants. Similarly, when given a choice, 91% of subjects in a study by Ladouceur and Sévigny (2006) preferred to play a faster paced game. Two studies by Blaszczynski et al. (2001, 2005) suggested that slower game rates were less satisfying and less enjoyable to both recreational and problem gamblers. These findings are in contrast to those of an earlier study by Loba et al. (2001) who observed that non-problem or recreational gamblers disliked a faster game, but that problem gamblers disliked slower games. Regardless, the dissatisfaction found with slower speeds has not been found to affect players' apparent intentions or gambling behaviours (Blaszczynski et al., 2005).

Despite speed of play not effecting how people gamble, there seems to be a clear consensus that people get more enjoyment and satisfaction out of faster games. However, studies thus far have only examined the influence of game speed on enjoyment for EGM play. Consequently, how increases to play rate due to automation may affect player enjoyment in innovative table games is currently unknown. However, these results do indicate that, for EGM play, there is a consistent preference for faster machines over slower machines.

DISSOCIATION AND LOSS OF CONTROL

A fast rate of play in EGMs is believed to substantially increase players' focus and immersion in the game due to consistent interaction between the person and machine (Dickerson, 1993; Ladouceur & Sévigny, 2006). This can result in dissociation; an unthinking state often associated with conscious or unconscious attempts to escape from reality (Dickerson, 1993). Characteristics of dissociation can include losing track of time, blacking out, not recalling where you are or what you have done, or feeling as though you are someone else (Griffiths et al., 2006). In a gambling context, dissociation most commonly occurs in the form of lost time, or losing track of expenditure or number of games played. Ladouceur and Sévigny (2006) suggest that dissociation is likely to increase with game-rate, and that this will result in lengthier play sessions, greater losses and reduced control.

Ladouceur and Sévigny (2006) found that speed of play did not affect concentration. Concentration was measured as the proportion of participants attending to a background auditory stimulus (ringing telephone) during an EGM gaming session. Overall, 40% of participants reported not hearing the telephone ring while playing and, as such, were deemed to be in a high state of concentration. Importantly, however, no significant differences were observed between the high-speed group (38.5%) and the low-speed group (41.2%). In addition, Ladouceur and Sévigny (2006) also measured loss of control by assessing whether players adhered to their personal limits; either time or monetary. Game speed had no effect on loss of control in regard to time, as both groups respected their pre-set limits. A difference in adherence to monetary limits was observed between the high and low speed groups (86% and 66%, respectively), however, the difference was not statistically reliable.

Dissociation may also be reflected in affected perception of time and events (Griffiths et al., 2006). Dissociation often results in people losing track of time or not being aware of their behaviour or actions (Griffiths et al., 2006). Ladouceur and Sévigny (2006) addressed whether EGM game rate affected the ability of participants to accurately recall how much time they had spent playing and the number of games played. While neither a high or low-speed group could correctly recall the amount of time spent playing, the high-speed group underestimated the number of games played five times more than those in the low-speed group.

While speed of play does not appear to affect concentration or perception of time, it may result in individuals being unaware of how many games they have played. However, it is currently unclear whether any increases in game speed made possible by automation within innovative table and casino products would be associated with similar increases in dissociation and wagering relative to traditional games. Immersion may be increased in innovative products due to the capacity for uninterrupted and continuous play. However, it is not currently known whether such an effect would be dependent upon increases in game rate.

CONCLUSIONS FOR INNOVATIVE PRODUCTS

It is suggested that, by slowing down the rate of play, gamblers have more time to consider their spending and subsequent actions (Loba et al., 2001). However, given the preference for high-speed games, slower games may result in a loss of interest, resulting in player abandonment (Ladouceur & Sévigny (2006). While rate of play has been shown to be positively associated with enjoyment on EGMs, the impacts of increased game-speed on dissociation and reinforcement are less clear (Blaszczynski et al., 2001, 2005; Delfabbro et al., 2005; Ladouceur & Sévigny, 2006; Loba et al., 2001). It is important to note that the findings of the studies outlined above may not inform outcomes associated with innovative products. These studies often compared EGMs and may not be easily

generalised to a comparison of traditional and computerised table and casino games. Additionally, inconsistent findings were reported between laboratory and field-based studies, suggesting that speed of play may operate differently under different conditions. It seems necessary to investigate the effects of game speed, comparing traditional to computerised games in both laboratory and field studies. For instance, it is possible that players who transition from traditional to innovative products may be accustomed to the time associated with traditional games and, consequently, game speed may not increase enjoyment, or may even affect player enjoyment adversely. Similarly, speeding up traditional games may have an effect on expenditure, time spent and dissociation despite conflicting findings in EGM literature.

SOCIAL CUSTOMISATION

Traditional casino gambling occurs in a social environment and attracts people from diverse backgrounds (Bernard, Dickens, & Shapiro, 2007). Table games often involve a social element as players share gambling experiences with other gamblers. In contrast, machine (EGM) gambling is often considered a more solitary or asocial activity, where the gambler is more isolated and can choose not to engage in social interactions (Griffiths, 1999; Griffiths et al., 2006). The rising asocial nature of gambling as a result of technological advancement has been predicted to increase the likelihood of gambling problems (Griffiths, 1999; Griffiths et al., 2006). Regardless of the level of direct social interaction, there is often an undeniable presence of others in gambling venues. Psychological behavioural theory and research suggest that the presence of others can alter people's behaviour, even without overt social interactions (Geen, 1991; Martinez, Le Floch, & Gaffie, 2005; Rockloff & Dyer, 2007; Rockloff, Greer & Fay, 2011; Triplett, 1898; Zajonc, 1965). As the popularity of gambling increases, it is important to investigate social aspects of gambling in order to understand the effects of innovative products on gambling behaviour. The two most widely cited social factors contributing to gambling behaviours are: social facilitation and social connectedness, each of which will be discussed in the following sections.

SOCIAL FACILITATION

Social facilitation refers to the influence of a social presence on individual behaviour and performance (Rockloff et al., 2011). Due to the mere presence of others, some behaviour can be facilitated, enhanced, energised or inhibited (Martinez et al., 2005; Rockloff & Dyer, 2007; Rockloff et al., 2011; Zajonc, 1965). In a gambling context, energised behaviour may result in greater risk taking, larger bet sizes or prolonged play (Martinez et al., 2005; Rockloff & Dyer, 2007; Rockloff et al., 2011). Zajonc (1965) outlined two paradigms under which social facilitation can be classified: audience effects and co-action effects. In a gambling environment, people are often subject to both audiences (bystanders spectating) and co-action (others gambling simultaneously).

Audience effects refer to the influence of passive spectators on behaviour or performance on a task (Zajonc, 1965). Zajonc (1965) conducted a comprehensive review of the effects of audiences on performance. Findings indicated that, for simple or attentional tasks, the presence of an audience significantly improved performance of participants. However, when engaging in novel or complex tasks, audiences impaired learning ability resulting in slower performance. Despite this, when asked to recall learned information, those confronted with audiences performed considerably better than those who tried to do so alone. Such results suggest that, when required to perform tasks that are previously learnt, audiences can actually improve people's performance. Contrarily, people's ability to learn is significantly inhibited when faced with spectators. In a gambling context, spectators at table games are common as it can be exciting and stimulating for an individual to watch without

actively participating. If the gambler is familiar with the game they are playing, spectators would then be presumed to enhance their engagement and subsequent performance. However, an individual who was uncertain of the game's rules and subtleties may struggle to make adequate decisions in the presence of an audience. Audience effects may cause novice gamblers to avoid wagering in complex table games in fear of looking foolish or inexperienced. Innovative products may therefore allow those unfamiliar to engage in such games privately, without fear of judgement from others, resulting in players being more likely to take greater risks or gambles.

Co-action effects describe behaviour occurring when there are others engaging in the same action concurrently (Zajonc, 1965). Co-action or co-actors have received a greater amount of attention in gambling literature compared with the effect of audiences. Co-actors in a gambling setting refer to other gamblers in the vicinity whose presence and actions influence individual betting behaviour (Rockloff et al., 2011). (Hardoon and Derevensky (2001) examined gambling behaviour in children (9-13 years old) either playing together or alone on a roulette wheel game. Subjects played the game (1) alone (baseline), (2) in groups (group exposure), and then (3) alone again (post-test). Wagers significantly increased from baseline to group exposure, and were maintained during post-test. Given the absence of a control group, it is difficult to identify whether findings were a result of group play or more indicative of an order effect as children became more familiar with the game (Rockloff & Dyer, 2007). As an alternative to the potentially inhibiting effects of audiences, co-actors may generate competition; facilitating and energising gambling behaviour.

Martinez et al. (2005) investigated the effect of co-action in an adult sample via knowledge of other players betting behaviour. Using a computer simulated roulette wheel, subjects were told that other players had either (1) lost, (2) won, or (3) made only small gains. Those who were told of either wins or loses made riskier bets than those in the control condition whom had been given no information regarding prior participant's results. While this study did not assess the physical presence of other gamblers in real-time, it did portray the effect that information regarding other gamblers results has on energising betting behaviours (Rockloff & Dyer, 2007; Rockloff et al., 2011).

Rockloff and Dyer (2007) expanded on these findings. In their study, participants played a computer simulated EMG with a sample receiving false feedback suggesting others were playing and winning simultaneously in adjacent rooms. Players were allocated either to a control condition (no feedback), sound condition (winning bell), sight condition (pop up banner on computer screen), or the sound and sight condition (both winning bell and pop up banner). Those who received both sight and sound information placed more bets and lost more money than those in the other conditions. Results indicated that both sight and sound information associated with co-actors' success reduced final payouts and bet sizes, and increased persistence through greater numbers of trials. Additionally, gambling pace was significantly slowed among those exposed to both visual and auditory feedback. These results demonstrate that information regarding the performance of others can intensify gambling behaviour, particularly persistence.

None of the aforementioned studies investigating co-action have investigated the influence of the physical presence of multiple others on gambling behaviour. While information about the behaviours of others has been shown to alter gambling behaviour, Rockloff et al. (2011) examined whether the magnitude of co-action effect would increase with the number of co-actors. Larger crowds in gambling venues are expected to amplify player losses by increasing speed and persistence and accelerating the pace in which individuals experience losses (Rockloff et al., 2011). Given that EGMs broadcast wins via flashing lights and sounds, an increase in the number of gamblers may result in false perceptions of winning expectancies if other player are seen winning. As such, Rockloff et al. investigated how gambling behaviour was affected in the presence of other gamblers simultaneously

gaming alongside a participant, and whether the magnitude of the effect increased with the number of other players. Participants were required to play a computer simulated EGM while in the company of a simulated crowd via video conference and a live confederate who gambled concurrently with the participant. Players were given $20 to gamble with and allocated to one of three conditions: (1) alone, (2) in a simulated group of 5 plus 1 live player (6 co-actors), or (3) in a simulated group of 25 plus 1 live player (26 co-actors). Players in the 26 co-actor condition had higher betting speeds and greater losses than those in the 6 co-actor condition, with no significant differences found between the groups on bet size or number of trials played. However, when compared to the alone (control) condition, co-actor conditions bet faster, persisted for a greater number of trials, and had lower final payouts. In support of their previous findings, bet sizes in the alone condition were larger than in the co-actor conditions, suggesting that people decrease their bet sizes to heighten the number of wins displayed to others. That is, to maximise the number, or frequency, of wins rather than maximising the value of wins. Results indicated that larger crowds influence gambling intensity by creating greater betting persistence. Innovative products may allow for greater numbers of people gambling simultaneously. With greater numbers of co-actors, the perception of competition or winning expectancy may be higher, resulting in greater gambling persistence than traditional versions.

While the studies discussed above demonstrate how social facilitation affects behaviour, it is also important to understand the underlying mechanisms that may drive these effects (Geen, 1991) proposed that the social facilitation effect could be understood in the context of two theoretical explanations: *the arousal hypothesis*, and *attentional effects*.

The arousal hypothesis suggests that the presence of others results in an adverse affective state (Geen, 1991). That is, the presence of co-actors or audiences can create the expectation among players that others will negatively evaluate their performance, and the prospect of public failure results in negative performance apprehension (Geen, 1991). Consequently, there is a drive to promote a positive self-image, resulting in changes to behaviour (Rockloff & Dyer, 2007). For gamblers, the presence of others may create fear of being seen as novice, foolish, unlucky, or being otherwise judged negatively, and may increase persistence despite mounting losses or, alternatively, avoidance of the game (Rockloff & Dyer, 2007; Rockloff et al., 2011). Interviews with problem gamblers have demonstrated a desire to appear skilful or lucky (Wood & Griffiths, 2007). Accordingly, the presence of others may facilitate gambling intensity designed for self-presentation purposes (Rockloff et al., 2011). Hardoon and Derevensky (2001) observed that participants increased their wagers as a means of impressing one another when playing. The broadcasting of EGM wins throughout the venue may arouse competitive instincts and, as a result, gambling behaviours may intensify to make a positive impression and avoid being perceived as a failure (Rockloff et al., 2011). Automated table games are likely to yield similar results given the ability for wins to be broadcast to others in near proximity.

Attentional effects refer to the influence of co-actors or audiences on cognitive information processing. Geen (1991) suggests that increased presence can increase cognitive load by creating uncertainty or distraction. High cognitive load limits the ability to attend competently to the task at hand, resulting in a narrowing of attention to a few salient features of the task (Payne, 1976). As discussed earlier in this review (see Chapter 4: Task Complexity), focusing on only a few elements of a task often results in other important factors being neglected (Payne, 1976). The presence of an audience in a gambling venue may increase gamblers' focus on the game at hand to avoid distractions by onlookers (Rockloff & Dyer, 2007). However, if gamblers are unable to do this effectively, important information regarding the play at hand may be missed, leading to an increase in losses or riskier gambling decisions. It is likely that innovative products will enhance on-task concentration as external distractions would be lessened given that interaction is solely between the

gambler and a machine. While this may reduce the possibility of mistakes, it may also lead to dissociative states, resulting in players losing track of time, number of games played, or losses.

SOCIAL CONNECTEDNESS

While social facilitation generally refers to the influence of passive or non-direct interactions with others, social connectedness describes the degree to which people feel connected to others through direct interaction. Casino games, particularly table games, provide gamblers with multiple opportunities to connect with others and to share their experiences (Bernard, et al., 2007). For many, the community atmosphere that many gambling environments create is important to their enjoyment of the gambling experience. Cotte and Latour (2009) interviewed 20 casino gamblers residing in Las Vegas, Nevada. Respondents stated that gambling provided them with social connections with people whom they did not know and who shared similar interests, creating a sense of community. Most agreed that social visibility was vital to the experience and that the nature of such social contact can alter the subjective meaning of the game. Players suggested that, rather than a solitary or lonely experience, social contact (with both players and casino employees) created a warm and welcoming atmosphere, which enhanced enjoyment. Players reported enjoying the familiarity and superficiality of interactions, with one participant suggesting that casinos allowed the benefit of social interactions without becoming deeply involved in their lives (pg. 751). Similar finding were reported from interviews with regular poker players who gambled both online and in casinos (Barrault, Untas & Varescon, 2014). Barrault and colleagues (2014) found that most commonly, live-poker was associated with greater social benefits. Players stated that they enjoyed the atmosphere whilst playing against real opponents using real apparatus. Further, participants stated that they would prefer live poker (over online poker) but play online simply due to ease of accessibility and convenience. While online poker may not be directly comparable to innovative products, these results may indicate that poker players have a preference for an authentic poker experience and thus, if given a choice at the casino, would be more likely to choose a traditional poker table over an automated table. Automation of table games may reduce the level of interaction as players are not gambling with or against each other but, rather, playing with or against a machine. As such, gamblers who enjoy the social aspects of gambling may experience lower levels of enjoyment and satisfaction, potentially reducing player engagement.

It is unclear as to how altering the social nature of traditional gambling may affect gambling behaviour. For instance, some authors suggest that those alone are more likely to experience greater problems depending on their motive for gambling (e.g., Parke & Griffiths, 2006). Socially motivated gambling (i.e., gambling to socialise and have fun) is considered to create a safety net, reducing excessive gambling and risk of developing gambling problems. In contrast, when the primary goal of players is to win money, gambling alone is believed to increase the likelihood of developing gambling problems (Griffiths, 1999; Griffiths et al., 2006). Those who gamble alone have been shown to be more likely to make riskier decisions and place larger bets, and gamble more frequently (Bernard, et al., 2007). Given that EGM play is often asocial or solitary, innovative products may provide more opportunities for isolated play among those who would otherwise play table games. Automation of traditional games may then result in greater risk taking and susceptibility to gambling problems given the reduction in social interaction.

Conversely, gambling with peers or for social reasons could also contribute to gambling problems by initiating game play or encouraging riskier gambling. Thomas, Allen, Phillips, and Karantzas (2011) found that socially motivated gambling was unrelated to EGM gambling frequency and problems. They suggest that social motivation may have an indirect effect on the development of gambling problems as it provides an incentive to initiate play. For example, someone who is lonely

may gamble in order to connect with others but may instead find that other mechanisms (e.g., dissociation or mastery) facilitate escapism and encourage more intense play (Thomas et al., 2011). There is also evidence to suggest that gambling with friends and peers increases risk-taking behaviour (Smith, Chein, & Sternberg, 2014). Smith et al. (2014) found that when people believed they were being watched by a peer, they gambled more often than those gambling alone. They concluded that the presence of peers increases risk taking even when information about the probability of winning or losing is available. The influence of peers on gambling has also been demonstrated in a study by McDougall, Terrance and Weatherly (2011) who explored how a gambling confederate can change gambling behaviour. Results showed that the number of hands played and the total wagered by the participants varied according to the confederates bet size. Based on these findings, having private betting screens and more isolated gambling may reduce risk-taking behaviour by removing the influence of the presence and behaviours of peers.

CONCLUSIONS FOR INNOVATIVE PRODUCTS

The psychological theories of behaviour and empirical research discussed in this section have provided substantial evidence for the social effects on gambling behaviour. Both social facilitation and social connectedness can change how a game is played and experienced through overt or passive interactions with others by increasing gambling persistence and enjoyment. Given the similarities of structural characteristics of EGMs and innovative products, it would be expected that co-actors and audiences would have similar effects on behaviour when playing innovative products. Due to the broadcasting of wins to others, automated table games are expected to increase gambling persistence as gamblers strive to appear lucky or skilful to fellow gamblers. Whether these behaviours differ from traditional versions however, remains unknown. Additionally, it is unclear as to whether reduced social involvement seen with a shift away from traditional forms would reduce enjoyment levels when playing automated versions. Where in table games successes and failures are often shared and sometimes linked with other players, automated gaming has led to human-machine interactions instead (Bernard, et al., 2007). While audiences and co-actors may lead to greater gambling persistence, it is unclear as to whether direct social interaction has any effect on gambling behaviour other than enjoyment. As gambling in isolation is likely to increase gambling frequency and the risk of developing gambling problems, creating an asocial environment in casinos via the introduction of innovative products may lead to a rise in gambling related harm. Conversely, it could also reduce riskier gambling by removing the influence of peers on gambling decisions. In order to fully understand the potential impact of innovative products, further investigation is needed regarding how social facilitation and interaction impact gambling behaviour differentially for traditional and automated games.

DISCUSSION

With the innovation of gambling products comes a necessity to understand how newly emerging digitalised gaming products may affect gambling behaviour. Understanding the impact of automating gambling products will provide opportunities to minimise potential harm associated with enhanced gaming technology. This review investigated the potential effects of innovative products on gambling behaviour using the VICES framework. The VICES framework defines five dimensions along which automated or digitised versions of casino or table games may differ from traditional gambling products and which may impact gambling behaviour. The five dimensions of VICES are: visual and auditory enhancements; the illusion of control; cognitive complexity; expedited play; and social customisation.

Research examining EGMs has provided evidence that manipulations of structural characteristics including game rate (speed), animations, sounds, features, options, and the presentation of real-time information have significant effects on gambling behaviours and experiences (Chau & Phillips, 1995; Dixon et al., 1998; Dixon et al., 2007; Ladouceur & Mayrand, 1984; Ladouceur & Sévigny, 2005; Langer, 1975; Loba et al., 2001; Spenwyn et al., 2010; Stark et al., 1982). To date, the impact of introducing similar structural characteristics into innovative gambling products has not been investigated. However, it is anticipated that the automation of traditional gaming products may generate patterns of behaviour similar to those observed among EGM players.

Electronic, digitised or otherwise automated games have the capacity to incorporate an array of sophisticated and dynamic visual and auditory effects that can provide the player with an exciting and stimulating experience (Griffiths & Parke, 2005; Parke & Griffiths, 2006). In addition, electronic games can integrate simulated effects that are event-dependent and may make wins more salient while reducing the impact of losses on player behaviour (Dixon et al., 2007; Griffiths & Parke, 2005; Parke & Griffiths, 2006). Such dynamic stimulation heightens arousal and increases gambling persistence as individuals feel the need to chase wins or beat the machine. Increased arousal in gambling experiences can result in increased wagering and risk taking behaviour (Stark et al., 1982) accelerated betting (Dixon et al., 2007; Stark et al., 1982; Spenwyn et al., 2010) and heightened levels of enjoyment and satisfaction (Loba et al., 2001; Singh, 2006) which, in turn, may lead to longer game playing sessions and greater losses.

Real-time visual presentation of information and auditory feedback have also been linked to perceived skill as presenting players with information about, for example, hot and cold streaks or lucky numbers may create the illusion of control over random outcomes (Griffiths & Parke, 2005). Illusions of control are influenced by the level of gambler engagement, perceived choice, and the frequency of events (Langer, 1975). However, given that event frequencies and payout ratios are functions of software design for electronic games, some players may question the fairness of algorithms and their ability to win against a machine. Conversely, electronic gambling may also eliminate uncontrollable factors (such as other players at the table) that might influence game outcomes. For example, in blackjack, the number of players at the table determines the cards that each player is dealt. While not affecting long-term probabilities, this may influence the individual's perception of control. An increase in perceived control or skill may lead to greater risk taking and, ultimately, losses (Chau & Phillips, 1995; Dannewitz & Weatherly, 2007; Weatherly & Flannery-Woehl, 2009).

While innovative gaming products have the capacity to increase perceptions of skill and illusions of control, it is important to acknowledge that, with few exceptions, the outcomes of wagers are not directly affected by players' decisions. However, the introduction of real-time digitised game information, additional game features and options, and player feedback made possible by the automation of traditional casino and table games may inject 'apparent complexity' into games of chance. This apparent complexity is likely to affect gambling behaviour in two ways. First, the introduced complexity may lead players to perceive games as being more enjoyable due to a belief that there is some skill to be obtained and that, with a better understanding of 'the system', a player's choices may ultimately produce more wins. In this case, player persistence and, therefore, losses are likely to be increased (Johnson & Bruce, 1997). Second, increased complexity may impede players' ability to attend to important information and produce poorer decision-making.

As task complexity increases, individuals may fail to adequately process all available information and decision-making is often impaired (Bedny et al., 2012; Liu & Li, 2012). For example, adding features to digitised versions of Roulette such as virtual wheels, free-spins, double up features,

touchscreens, and multiple bet or credit facilities, in addition to information about the player's performance or hot and cold numbers may heighten the attractiveness of some games (Sharpe et al., 2005), but has the potential to increase task complexity (Nadkarni & Gupta, 2007). For novices, the availability of game variants and extra features may create confusion or ambiguity and may impair decision-making or the ability to comprehend the games rules (Johnson & Bruce, 1997; Sung et al., 2009).

Although findings regarding game complexity are currently mixed, rate of play has been consistently identified as factor contributing to problematic gambling behaviour (DSS, 2013). EGMs have been recognised as the leading games played by problem gamblers, in part due to the intensity and speed at which they can be played (DSS, 2013). Traditional table and casino games typically constrain betting speed as factors such as dealers, game refresh rate, and other gamblers can limit the rate between wagers and outcomes, allowing time for reflection over financial investments. Digitised and automated versions of traditional games allow manufacturers to increase the rate at which games can be played, minimising time for information processing and reflection. Literature investigating rate of play in EGMs suggests that machine speed may not affect gambling behaviour directly but rather enjoyment and satisfaction, which may then lead to prolonged play and greater losses (Blaszczynski et al., 2001; 2005; Delfabbro et al., 2005; Ladouceur & Sévigny, 2006; Loba et al., 2001). Altering game rate does not necessarily mean people will gamble faster but provides them with an opportunity to do so. Conflicting findings regarding rate of play and gambling behaviour may suggest that, in live gambling venues, rate of play may be influenced by multiple factors including environmental, social and mechanical elements. As previously discussed, there may be numerous explanations for incongruences between laboratory and live gambling environments (e.g., distraction, perceived realism, and perceived personal investment) and thus further investigation is recommended.

Socialisation as a motive for play may also vary between traditional table and casino games and innovative and automated products. Gambling on traditional games often creates opportunities for social connectedness and inclusion either directly or indirectly. Research has indicated that while individuals playing at tables may be more likely to be gambling alone (Bernhard et al. 2007), the presence of the dealer and other gamblers can enhance feelings of community and social cohesion (Bernhard et al., 2007; Cotte & Latour, 2009). Innovative products provide opportunities for those who prefer traditionally social games (such as roulette, blackjack, craps, or bingo) to play in isolation. Reducing social connectedness may place players at greater risk of developing harmful gambling behaviours (Martinez et al., 2005; Rockloff & Dyer, 2007; Rockloff et al., 2011). Like EGMs, innovative computerised gaming products can also broadcast wins to others in the vicinity using sounds and graphics and may encourage gambling persistency and artificially increase players' expectations of the likelihood of winning (Rockloff & Dyer, 2007; Rockloff et al., 2011). Generally, people playing traditional games among a group of players can see others wins, observe how the wins occur, and can understand the process involved with the outcome. This is often not the case with electronic or computerised gambling as players are typically presented with personal and private screens. Thus, it is likely that innovative products will facilitate riskier game play by promoting erroneous beliefs about the good fortune of other near-by players. In addition, the availability of private and individual gaming interfaces in computerised versions of traditional games may act to remove barriers to entry for novice players who may otherwise avoid complex or unfamiliar traditional games out of fear of appearing foolish or inexperienced.

At present, there is insufficient literature pertaining specifically to innovative gambling products as technological advancements are relatively new to the gambling market. Consequently, there is currently no clear or agreed definition of what constitutes an innovative product and there has not

yet been a comprehensive review detailing the products that are already available to consumers and how readily accessible these products are. For the purpose of this review, the term 'innovative products' has been used to refer to digitalised forms of traditional games (e.g., casino table games, bingo, wagering). However, there is need for a validated definition and detailed description of the structural characteristics of innovative gambling products. Much of the literature considered in the previous sections has been extracted from investigations of EGM gambling behaviour and may not be easily generalised to the effects of automating traditional gaming products. Although this information may provide a basis for understanding innovative product design, the extent to which innovative products will impact gambling behaviour remains unknown at this time.

Digitalised gaming products are likely to become increasingly common in venues across Australia (Bernhard et al. 2007). Products that facilitate continuous, rapid play with frequent and substantial reinforcement can contribute to the development of gambling problems (Blaszczynski et al., 2001). Innovative products have the capacity to alter the way gambling industries operate, creating new social norms, perceptions and gambling behaviours. Technological influences are expected to have large effects of the development and maintenance of gambling behaviours (Griffiths, 1999; Griffiths, 2003; Griffiths et al., 2006). Consequently, acquiring a comprehensive understanding of the extent to which innovative products may influence gambling behaviour is a critical first step in developing strategies to minimise potential harm. By investigating these products using the VICES framework outlined in this review, we hope to gain insight into the dynamic and holistic impacts of innovative products on gambling behaviours.

PHASE 2: NATIONAL ENVIRONMENTAL SCAN

INTRODUCTION

Technology offers new and exciting ways for manufacturers to enhance gambling products in order to attract and retain consumers. Not only has this technology been used to advance slot machines and develop online gambling environments; but has provided a new market for the automation and enhancement of traditional games. Increasingly, casino table games and community style or novelty games are becoming readily available to both operators and consumers in automated or enhanced form.

Despite the prevalence of innovative products in the marketplace, there has been minimal investigation targeted at identifying and defining what may be considered an innovative product. In order to explore how these products may result in different patterns of behaviour compared to traditional versions, it is vital to ascertain what constitutes an innovative product and the characteristics that make these products unique. The national environmental scan was conducted in order to determine what products are currently available and their characteristics; as well as provide preliminary insight into potential target audiences.

METHOD

The national environmental scan required researchers to assess the characteristics of innovative products available to Australian consumers and venue operators. In order to ensure a systematic and comprehensive survey of all available innovative products in the marketplace; the scan was conducted in three separate stages. Stage one consisted of in-venue visits to Australian casinos to survey products already available to Australian consumers. Stage two required researchers to attend the Australasian Gaming Exhibition to catalogue innovative products being displayed and promoted to Australian venue operators. Stage three involved scanning industry print and online media to catalogue products being developed and released by manufacturers.

For products to be included in the scan they were required to be versions of traditional games that had been enhanced, modified or digitized to incorporate technological features. More specifically, the scan was focused on products that were either semi-automated (partially digitized but still required a croupier), fully automated (no croupier required but relied on mechanical parts) or fully digitized (no croupier or mechanical parts). The scan included games that would traditionally be free from automation, digitization or technological enhancements, or products that were novel compared to their traditional counterparts. The scan included enhanced or automated versions of casino style games (i.e., baccarat, roulette, blackjack, craps etc), community style games (bingo and keno) and novelty games (such as dominoes and pachinko); but excluded electronic gaming machines.

As per the literature review of this report, product characteristics were collected and catalogued according to the VICES framework. Each element of the VICES framework was assessed according to specific criteria identified from the literature review to be associated with automated gambling products. Information regarding game type, product identification, number of players accommodated and perceived target audience was also collected. Table 1 displays how innovative product features were identified and assessed to meet the criteria of the VICES framework.

Table 1. Environmental scan criteria to catalogue innovative product features in accordance with the VICES framework

Preliminary description	• Product name • Manufacturer • Game type • Innovative status • Number of simultaneous players
Visual/Audio Enhancements	• Nature of displays • Use of animation • Use of audio stimulus
Illusion of Control	• Player feedback • Communal Player Aide Data (game statistics) • Active vs Passive Control of Mechanisms
Cognitive Complexity	• Structural characteristics (options, features, functions and information additional to basic game play) • Task Complexity (number of choices available to players, number of decisions required by players)
Expedited Play	• Concurrent games at once • Speed of typical game play • Game refresh rate • Game down-time • Maximum and minimum expenditure per game • Frequency of reinforcement
Social Customisation	• Privacy • Facilitation of social interaction • Spectators/audience • Competition (shared or independent game mechanism, communal jackpots or prizes)
Other information	• Number of units on site (venue-visits only) • Source • Target audience • Any other features not otherwise indicated above

DESIGN

The national environmental scan used a national cross sectional design. We ensured that the sample was not skewed by seasonal events or influences, and included products operating and distributed under varying legal jurisdictions.

PROCEDURE

Each stage of the environmental scan required a researcher to assess innovative products according the criteria outlined in Table 1. During stage one of the environmental scan, a researcher visited gambling venues across Australia and surveyed products already available for public consumption. Due to the impracticalities of surveying all Australian venues that offer gambling products, venue visits were limited to Australian Casinos. Casinos included in the scan were: Star Casino Sydney, Jupiter's Casino Gold Coast, Casino Canberra, Treasury Casino Brisbane, Crown Melbourne Casino, Adelaide Casino, and the Crown Perth Casino. When on site, the researcher would systematically survey the casino floor for products that met the inclusion criteria. Observations were then made regarding how the game worked and features relevant to the VICES catalogue criteria; and instantaneously recorded using a handheld digital voice recorder. The researcher also considered the potential audiences being targeted by these products. Directly following the venue

visit, observations were entered into a computer database. The researcher did not participate in any gambling activities whilst surveying innovative products in casinos.

Stage two required the researcher to attend the 2014 Australasian Gaming Exhibition to survey products available to Australian gaming operators. A systematic scan of manufacturers' exhibits was conducted to identify any products that could be considered innovative according to the criteria mentioned above. Data was collected by assessments of machine features, exhibit displays, and consultations with manufacturers marketing staff. Observations were recorded using a handheld digital voice recorder and catalogued according to the VICES framework criteria. Recordings were then transcribed and entered into the computer database. The researcher also collected advertising materials from product exhibitions such as catalogues, flyers and other print media to be included in stage three of the scan.

Stage three of the environmental scan involved reviewing trade and manufacturer media from the past ten years (mid-2004 to mid-2014) to identify and catalogue innovative products. Industry media included websites, online journals and magazines, hard copy magazines and journals, and advertising materials collected from the Australasian Gaming Exhibition. A second researcher was required to systematically scan each source for products that met the inclusion criteria. Features either detailed within an article, advertisement or clearly observable to the researcher from photographs or images were catalogued according to the VICES framework in the computer database. Based on both visual and textual features of industry media, observations surrounding the potential target audiences were also catalogued. Images were collected for later reference where possible. As many of these resources were distributed or manufactured internationally, stage three included innovative products identified from a global marketplace. Table 2 provides details of the online, print and advertising media included in stage three of the scan.

Table 2. Trade and manufacturer media included in stage three of the environmental scan

Online	● Ainsworth ● Aristocrat ● Aruze ● Bally Technologies ● Casino Journal ● Casino Life ● eGame Review (EGR) ● Gaming and Leisure Magazine ● Gaming Floor Magazine ● Global Gaming Business (GGB) ● Interblock ● InterGame Online ● International Gaming Technology ● Novomatic ● Totally Gaming
Print Media	● Casino Enterprise Management ● Casino International ● Casino Life Magazine ● EGR Magazine ● Euroslots Magazine ● GGB Magazine ● InterGaming Magazine ● Slot Managers
Catalogues and Advertising	● Aruze ● Interblock ● Bally Technologies ● Zitro

ANALYSIS

As features of particular types of gambling products differed substantially, for the purpose of obtaining a detailed and coherent understanding of innovative products, casino style games and community style/novelty games were assessed separately. Information gathered from each stage of the environmental scan was collated and subject to a thematic analysis to identify trends in innovative product characteristics. This was conducted by the second researcher to ensure consistency in product feature classifications. Features were identified based on their relative coherence to the VICES criteria. Product features that were most frequently observed were considered prominent characteristics of innovative products. Limited information pertaining to target audiences of innovative products was available; which prohibited the use of thematic analysis to identify trends. Instead, data collected regarding audiences was combined for all products to provide a general description of marketing strategies that aim to target specific groups for the consumption of innovative products.

RESULTS

COMPREHENSIVE SURVEY OF INNOVATION CASINO STYLE PRODUCT FEATURES

Thematic analysis based on type of casino style game showed that currently in Australia, roulette was the most prevalent game featured in innovative form. These findings were consistent across all stages of the environmental scan. The popularity of roulette was also highlighted by its inclusion in every innovative multi-game system identified. Blackjack was shown to have the second highest prevalence score for the Australasian Gaming Exhibition (AGE) and industry media scan. No Australian casino featured any innovative blackjack products. Baccarat was the third highest rated casino game in innovative form and was the second most frequent product available in Australian casinos matched on big wheel products. Baccarat was also featured on all but two of the multi-game systems identified by the environmental scan. The industry media scan also identified Sic Bo, Poker and Craps to be featured frequently in innovative form but this increased prevalence was not reflected in Australian casino product distribution nor at the AGE. Multi-games were highly prevalent, particularly in Australian casinos and industry media, and predominantly incorporated roulette and baccarat with slots or other casino, community or novelty games. See Table 3 for the frequency of game type by each stage of the environmental scan.

Table 3. Variety of casino game type in innovative form by each stage of the environmental scan

Game Type	Casino	AGE	Industry Media	Total
Baccarat	4	1	9	14
Blackjack	-	2	19	21
Big Wheel	4	1	2	7
Craps	1	-	7	8
Poker	-	-	10	10
Roulette	13	3	27	43
Sic Bo	-	1	8	9
Unspecified	-	-	3	3
Multi-game	5 • 2 Roulette/Baccarat • 2 Roulette/Baccarat /Sic Bo • 1 Roulette/Keno/ Poker*	1 • 1 Roulette/ Baccarat/Sic Bo /Blackjack	13 • 1 Roulette/Slots • 1 Roulette/Blackjack/Bingo • 1 Roulette/Baccarat • 4 Roulette/Baccarat/Sic Bo • 1 Roulette/Baccarat/Sic Bo/ Big Wheel • 1 Roulette/Baccarat/Sic Bo/ Craps • 1 Roulette/Baccarat/Sic Bo/ Slots • 1 Roulette/Baccarat/Virtual Horses • 1 Roulette/Baccarat/Sic Bo/ Craps/Blackjack • 1 Roulette/Baccarat/Sic Bo/ Blackjack/Poker/Slots/ Bingo	19

**Numbers signify different products for each venue rather than the number of total products in each venue. Some venues have multiple tables of the same product or one system running multiple tables.*

Innovative products were assessed with regard to the level of automation and how many players could gamble simultaneously. Automation was defined by three levels: semi-automated, fully-automated or fully-digitized. Semi-automated and fully-digitized products seemed to have similar prevalence rates, but Australian casinos tended to have more fully-digitized products than semi-automated. Products were most likely to be considered fully-automated; not requiring a croupier but involving mechanical or automated parts. This was reflected in larger numbers reported for products having mechanical apparatus (such as mechanical roulette wheels or vibrating dice domes/cylinders) than both manual (physical cards, wheel or die) and virtually digitized game components. Some products despite not requiring a croupier (due to being fully-automated or fully-digitized) still reported having a digital model or animated croupier or host. While not as common, many of the products could run live streamed games with footage of live croupiers or hosts while all betting was electronic. The most commonly reported form of croupiers or hosts were live, physically present croupiers required for semi-automated products. See Appendix 1 for examples of innovative products by level of automation and different types of mechanical components.

Each product varied in the number of people it could accommodate simultaneously. Most commonly observed throughout each stage were products marketed or configured to accommodate between 1 and 10 people. Innovative casino products that could have between 11 and 30 simultaneous players

were the second most prevalent table sizes identified by the scan. Many of the products offered limitless expansion; allowing venue operators to adapt the numbers based on demand or allocation for space. The popularity of tables that seat between 1-10 simultaneous players corresponds to table sizes similar to those of traditional games. It appears that manufacturers market a more conservative table size to accommodate space and table restrictions of venue operators, allowing them the decision or option to expand if they choose. Australian casino operators appeared to take advantage of the ability to expand their systems as many of their products fell within the range of 31-70 simultaneous players. See Table 4 for the full thematic analysis of the level of automation and simultaneous player features for casino style innovative products.

Table 4. Thematic analysis of the level of automation and number of simultaneous players' characteristic of innovative casino products

	Casino	AGE	Industry Media	Total
Level of Automation				
Semi-Automated	4	-	33	37
Fully-Automated	15	8	37	60
Fully-digitized	9	3	27	39
Mechanical Game Components	8	5	24	37
Physical/Manual Game	5	-	20	25
Video/Virtual Components	-	-	25	25
Live Croupier/Host	2	-	13	15
Live Streamed Croupier/Host	24	1	6	7
Digital Croupier/Host	-	3	7	10
Digital Animated Croupier	-	2	12	14
Number of Simultaneous Players				
1-10	23	9	74	106
11-20	19	-	10	29
21-30	21	-	2	23
31-40	3	-	-	3
41-50	5	-	-	5
51-60	5	-	-	5
61-70	2	-	-	2
Up to 50	-	-	2	2
Up to 99	-	-	1	1

The majority of innovative products consisted of a combination of individual and shared screens. Some products only had individual screens but these were usually semi-automated products that used physical gaming apparatus and a live croupier. Stand-alone machines that were fully-digitized were also likely to only have an individual display as they were not linked to a main station or other individual machines. As researchers were not able to engage with products and were reliant on the descriptions provided within industry media, it was difficult to ascertain what information was provided on individual screens. From the data collected, individual displays were predominantly touchscreen and provided gamblers with game views and outcomes, individual betting, and game history and/or statistics. Shared screens offered similar features but additionally displayed footage of the host or croupier (either streamed live, animated or a video model). Most of the products also included some form of animated, graphic or visual enhancements on either individual or shared displays that were often event dependent. Visual features unique to innovative products included 3D

images and adaptive or configurable visual features; for instance, graphics that could be changed dependent on the season, sponsors or current themes and events. One of the most advanced technologies identified in the course of the scan was the use of holograms. See Appendix 1 table for an image Interbocks' holographic gaming lounge as an example of a visual/audio enhancement to a traditional product. Holographic images were used in products by Interblock for displaying the virtual host and game play. The 3D images are comprised of two superimposed two dimensional pictures of the same image seen from different reference points to create an illusion of real dealers and games. These are displayed on a central stage and can incorporate anywhere from 60-100 clips of different men or women in varying outfits that suit different seasonal themes or styles. This technology, whilst currently patented only to Interblock, provides some insight into the future of innovative products. As seen with some traditional casino games (e.g., big wheel), many innovative products included LED signage and had illumination or lighting effects. There were less opportunities to observe sound effects, but for those products that incorporated sound, it was often event dependent and tended to be intricate or detailed musical pieces. Some industry media articles suggested that more involved animations were incorporated in lieu of distracting sound effects. Table 5 presents the full thematic analysis for visual and auditory enhancements of innovative casino products.

Table 5. Thematic analysis of visual and auditory features of innovative casino products

Features	Casino	AGE	Industry Media	Total
Individual Screen	**17**	**9**	**62**	**88**
Game View	9	1	7	17
Betting	10	-	1	11
History	2	-	-	2
Statistics	2	-	2	4
Touchscreen	**7**	**5**	**19**	**31**
Shared Screen	**14**	**6**	**44**	**64**
Game View	**9**	**3**	**8**	**20**
Game statistics/history	2	2	3	7
Croupier	-	3	2	5
Player decisions	-	3	4	7
No Shared Screen	1	3	4	8
Standalone Unit	4	1	2	7
Animations	**9**	**8**	**28**	**45**
Event dependent	2	5	10	17
3D Graphics	-	-	4	4
Adaptive/Configurable	-	1	7	8
Lighting/Illumination	-	-	8	8
Minimal Animations	1	2	2	5
LED signage	-	-	7	7
Sound	**1**	**3**	**10**	**14**
Event dependent	1	3	6	10

Features of innovative products that provide gamblers with increased feelings of control were also assessed. Features that enhance an illusion of control referred to player feedback, game statistics and information, and player control. Results from the thematic analysis are presented in Table 6.

Communal player aide data such as game statistics and history featured frequently in many of the innovative products regardless of the type of game. Player feedback was reported far less frequently than other forms of player data. Many of the products allowed for players to control game initiation with some providing physical control of gaming apparatus. For instance, the Aruze Lucky Big Wheel allowed players to use a handle located at each player station to initiate the game and spin the wheel. If players were to pull quickly on the lever, the wheel would spin fast. Conversely, if they pulled slowly, the wheel would spin slowly. Regardless of the speed the lever was pulled, the outcomes were determined by a random number generator. Players who controlled the wheel was determined either by taking turns or was the person who placed the highest bet. See Appendix 1 for an image Aruze Lucky Big Wheel as an example of an illusion of control enhancement to a traditional product.

Table 6. Thematic analysis of innovative casino product features that enhance the illusion of control

Features	Casino	AGE	Industry Media	Total
Game History	4	6	29	39
Game Statistics	8	4	27	39
Player Feedback	-	1	5	6
Game initiation Control	1	3	14	18
No Game initiation control	-	1	1	2
Player physical control over game component	-	2	9	11
Random outcomes	-	-	5	5
No Additional Control Features	3	4	2	9

Assessments of cognitive complexity involved determining the structural and task characteristics that increased the options or features available to the gamblers. This also included features that may make the experience easier and simpler to understand. Much of the data pertaining to complexity was derived through industry media as obtaining such information is difficult when observing others engaging with the product. Many products were observed to include strategic betting and additional betting options (i.e., betting on single or double zero roulette wheels; placing wagers on banker, player or tie). Unique to innovative products is also the inclusion of side betting and progressive jackpots, which were shown to be common features of innovative products sourced from industry media. No side bets or jackpots were observed to accompany any of the innovative products identified in Australian casinos. The industry media scan also observed multiple games that reported addition features such as the ability to double wins using a “double spot feature”. Many of the products contained help menus, strategic betting guides or other informative material such as “dealer’s tips” to aide gamblers in engaging with the product and making their wagering decisions. Some products had customisable displays, additional language settings and followed similar rules as traditional versions of the game. Many of the games surveyed through casino visits and the AGE did not appear to include any additional complexity features. Table 7 shows the complexity features thematic analysis of casino style innovative products.

Table 7. Thematic analysis of the features associated with cognitive complexity identified in innovative gambling products

Features	Casino	AGE	Industry Media	Total
Strategic Betting	7	2	8	17
Side bets	-	2	26	28
Progressive Jackpots	-	-	21	21
Additional Betting Options	4	1	30	35
Additional features	-	-	13	13
Display customisation	-	3	3	6
Help Menu/betting guides	-	4	17	21
Language Settings	-	-	7	7
Same Rules	-	1	4	5
No Additional Complexity Features	4	7	1	12

In measuring expedited play, researchers were interested in assessing elements of innovative products the increased the speed of the game and encouraged accelerated wagering. Results from the thematic analysis are presented in Table 8. Findings suggest that innovative products have the potential to encourage significantly faster rates of play. Many of the products surveyed allowed for time between bets and subsequent rate of play to be configured by the venue operator. It was uncommon for reports to be made associated with the specific time configurations of machines (particularly as most were operator configurable). Those that did, reported innovative products that were able to provide 60-80 gamers per hour with 10 second time limits for making bets or initiating game play. Many of the products allowed for control over game initiation (see Table 6 Illusion of Control) or game timer, however, if players failed to begin game play the game would automatically run every 20-30 seconds. Few sources overtly stated that products were faster than their traditional counterparts. It is difficult to ascertain to what degree innovative products may be faster than traditional forms as findings are reliant on details reported in industry media sources or observed by researchers on site. From the findings, it seems appropriate to suggest that innovative products have the potential to have faster game rates given the ability to venue operators to configure many products as they choose.

In terms of expenditure, minimum and maximum betting amounts were predominantly operator configurable and many of the products were multi-denominational. Traditional forms of table games such as blackjack or poker have tables allocated for particular denominations. In innovative products, players can wager whatever they like rather than being required to visit a different table. Many products allowed for time scheduling of particular denominations permitting operators to allocate denominations based on particular times of the day or week. Some innovative products included additional features that accelerated play rate with minimal consideration. For instance, some products include fast bet options such as re-bet and high bet features that allow gamblers to automatically repeat a bet or place the highest wager on the table.

One of the major features of innovative products related to expedited play was the high frequency of multi-games. Many products offered additional games at the single terminal that were able to be played simultaneously. As mentioned earlier, many of these products were purely multigame products that clearly incorporated numerous games for players to choose (see Table 3 for the prevalence of multigame products). Many other products were marketed or presented as an individual game (i.e., purely roulette or baccarat) but included other games for gamblers to play at

the same station. Often, innovative products that offered multigame options allowed for players to play more than one type of game simultaneously, significantly increasing the rate of play.

Table 8. Thematic analysis of factors associated with expedited play relevant to innovative products

Features	Casino	AGE	Industry Media	Total
Faster than traditional	-	-	10	10
60-80 Spins Per Hour	-	-	3	3
10 sec time limit	-	3	4	7
20-30 Secs between games	2	4	8	14
Configurable time between bets	1	-	17	18
Manual control over game timer	6	1	-	7
No faster than traditional	-	1	-	1
Instant Payouts	-	-	3	3
Configurable Min/Max spend	-	-	20	20
Multi-denomination	-	-	16	16
Time scheduled availability of denominations	-	-	9	9
Re-bet/High bet button	-	1	8	9
Multigame	12	1	18	31
Concurrent games	-	1	13	14

Social customisation referred to features that either enhanced or decreased the degree of social interaction associated with the product. The social nature of innovative products was based on the level of privacy, the ability for social interaction and audience spectatorship, and how involved the players were with one another in terms of competition. A large proportion of products included private betting as wagering tended to be conducted on gamblers individual playing screen. Many products seemed to incorporate a community style by having a central game (often displayed on a shared screen) and occasionally involved public access to players' hands or decisions (but not bets). Few products included player interaction either through communal style jackpots or direct, one on one competition with some products reported to have similar social characteristics as traditional versions. One of the social characteristics unique to innovative products is the ability for different types of gamblers to gamble together at one station on multigame products. Where once a roulette and slots player may have been required to gamble in isolation in different parts of the casino, innovative products allow them to gamble together. This may enhance the social nature experienced by those who enjoy gambling with friends but have different preferences for modes of gambling. See Table 9 for the full thematic analysis.

Table 9. Frequency of social customisation factors associated with innovative products

Features	Casino	AGE	Industry Media	Total
Private Betting	13	8	16	37
Public game play	-	2	1	3
Public Players bets	-	-	1	1
Public Players hands (but not bets)	-	3	9	12
Community Style	-	1	13	14
Communal Jackpots	2	2	5	9
Bet against other players	-	-	2	2
Comparable to Traditional Version	5	-	9	14
Minimal privacy	-	1	2	3

COMPREHENSIVE SURVEY OF COMMUNITY AND NOVELTY STYLE GAMES

Compared to casino style innovative products there were far less community or novelty games in automated form. Community and novelty games included any games that were not considered to be traditional casino table games or EGMs that appeared to be technologically enhanced. No innovative versions of community or novelty games were identified at the AGE and therefore all findings pertaining to these types of innovative products refer strictly to results from casino visits and the industry media scan. Table 10 provides the prevalence of community and novelty style innovative products as sourced from Australian casinos and industry media. Casino visits identified few innovative products with all but one being located at the same venue; the Crowne Casino in Perth, Western Australia. Western Australia have different legislative restrictions than other states regarding EGM type games. Community style and novelty innovative products are largely underrepresented throughout other states of Australia, with Jupiter's casino on the Gold Coast being the only other venue to have a keno product. The most popular community or novelty game in innovative form identified by the scan was automated or digitized bingo. Multigames were also quite prevalent that combined community games such as bingo and keno with novelty games (pop n poker), casino games (roulette, blackjack and poker), or slots. Various novelty games were identified that had been adapted into innovative form. Dominoes and pachinko featured only in casino venues and were not found in any of the industry media surveyed. Manufacturer and trade material identified two other novelty games not offered in Australian casinos. Spoils of war is a game based on a children's card game (similar to casino wars) where players are pitted against the computer and to win, must hold a card with a higher value than the dealer. Race card derby was a virtual horse race where gamblers place wagers on the horse they thought would win. Novelty games and keno were far less common than bingo and multigame products.

Table 10. Frequency of community/novelty games in the form of innovative products

Game Type	Casino	Industry Media	Total
Bingo	1	7	8
Dominoes	1	-	1
Keno	2	-	2
Pachinko	1	-	1
Race Card Derby	-	1	1
Spoils of War	-	1	1
Multi-game	1 • 1 Keno/Roulette/Poker	5 • 1 Bingo/Slots • 1 Keno/Bingo/Pop n Poker • 2 Bingo/Roulette • 1 Bingo/Roulette/Blackjack	5

* Note: Numbers signify different products for each venue rather than the number of total products in each venue. *Some venues have one system running multiple stations or have multiple numbers of the same product.*

Majority of these games were comparable to EGMs as they were standalone units that were predominantly fully-digitized; requiring no croupier, host or mechanical parts. For standalone units, each station allowed for one player but multiple machines could be banked together as seen in pokie lounges to increase simultaneous play. Products that were fully-automated were similar to innovative casino products as they consisted of a number of expandable units connected to one automated playing system. Fully-automated innovative products generally used some form of automated ball shuffler (similar to the vibrating dice dome/cylinder for casino dice games). This was more prevalent for multigame systems. Some standalone units also included automated or mechanical game components for number selection; for example a mechanical drum to select balls for bingo (and roulette on multigame systems). Table 11 shows the thematic analysis for automation and player characteristics for community and novelty innovative products. See Appendix 1 for images of fully digitalised bingo machines, a bubble game generator for Bingo/Keno, and an automated mechanical drum.

Table 11. Level of Automation and the number of simultaneous players for innovative community and novelty games

	Casino	Industry Media	Total
Level of Automation			
Semi-Automated			
Fully-Automated		3	3
Fully-digitized	6	9	15
Number of Simultaneous Players			
Standalone	6	11	17
10-12		1	1
Expandable		3	3

Given the majority of these products were standalone, most of them had individual playing screens that were either touchscreen or used keypads for bet selections (similar to EGMs). See Appendix 1 for examples of individual player screens for electronic bingo. Animations were found to be a feature on many of the products with some reportedly including 3D graphics and illumination. The auditory enhancements were more difficult to identify with minimal products being reported to include sound effects. This does not necessarily mean that innovative community and novelty games did not

include auditory enhancements as these features may not have been mentioned within industry media descriptions. See Table 12 for the full thematic analysis.

Table 12. Thematic analysis for the auditory and visual features of innovative community and novelty products

Game Type	Casino	Industry Media	Total
Individual Screen	6	12	18
Touchscreen		1	1
No touchscreen	1		1
Keypad entry	2		2
Animations	1	6	7
3D Graphics		1	1
Illumination		1	1
Shared display		2	2
Sound effects		3	3
Event dependent		1	1
Individual Screen	6	12	18

Table 13 provides the thematic analysis results for illusion of control, cognitive complexity and expedited play features of innovative community and novelty products. Features that increase control or the complexity of the game were far less prominent for community and novelty products compared to casino products. Minimal innovative products offered statistics or other information to aide game play decisions and did not incorporate any additional control features compared to their traditional counterparts. Due to not engaging with the products, no additional complexity features were identified for products surveyed during casino visits. From the media scan, some products reported bonus features, jackpots and the option to purchase additional balls to extend game play. While the ability to purchase additional balls is a feature of complexity, it can also increase a perception of control as players can make a choice that may provide an opportunity to win. Expedited play was also difficult to assess as like with casino style products, judgements on speed were required to be made based on observing others engaging with the products or overt descriptions within industry media. Majority of these products were manually initiated rather than being controlled by a timer (comparable to EGMs). Similarly to casino style products, the most prominent feature relating to expedited play was multigame functions. Not only could players often choose to play a variety of games simultaneously, many of the bingo systems allowed players to wager on multiple cards concurrently. For instance, most machines allowed players to play up to four bingo cards with some offering as many as eight simultaneous cards. Minimal information was provided regarding expenditure, however one product reportedly allowed players to wager up to $80AUD on one bingo card. For a machine that allows four simultaneous cards and a maximum spend per card of $80.00AUD; gamblers may be able to wager up to $320AUD on one game.

Table 13. Thematic analysis for features associated with an illusion of control, cognitive complexity and expedited play found in innovative community and novelty products

	Casino	Industry Media	Total
Illusion of Control			
Statistics	-	1	1
No Additional Control features	6	9	15
Cognitive Complexity			
Bonuses/jackpots	-	6	6
Purchase additional balls	-	5	5
No Additional Complexity Features	6	1	7
Expedited Play			
Fast paced	-	2	2
Multigame	1	5	6
Concurrent games	-	3	3
Multiple “hands/cards”	-	5	5
Manual game control (timer)	6	1	7

Generally these types of products did not offer a great amount of social interaction. Players predominantly played on private units with only a minimal number of products offering communal or shared prizes. Traditionally, games like keno and bingo offer shared displays or community style betting. In contrast, innovative products have players gambling in isolation, independent of other players. Like casino style innovative products, multigame systems allow for players who engage in different modes of gambling to play their preferred game in the same area of the casino. See Table 14 for the thematic analysis.

Table 14. Thematic analysis of social features associated with community and novelty innovative products

Social Features	Casino	Industry Media	Total
Private Betting	5	13	18
Shared prizes	1	2	3
No shared prizes	2		2

PROPOSED TARGET AUDIENCES

Unlike EGMs where particular machines may be designed to appeal to particular demographics using relevant themes, innovative products did not seem to be targeted to any one group of consumers. The majority of the advertisements or featured articles within industry media seemed more focused on appealing to venue operators by detailing product specifications and features. Conclusions based on product features and advertising characteristics did allow from some observational suggestions to be proposed for how these products are being marketed to consumers. “Luxury” casino products marketed namely by Interblock seemed to target a male demographic as they used bold colours that gave a sense of prestige and class with busty female models in immodest outfits as hostesses or croupiers. The use of digital or animated female models was not isolated to products marketed by Interblock as many other manufacturers featured attractive female croupiers or hostesses. Animated or digital hostesses could also be configured to appeal to particular ethnic marketplaces. For instance, configurable language features and adaptive animations could allow operators to alter machines to suit an Asian market (rather than using Caucasian, English speaking

hosts). For casino style products, there did not seem to be a particular age group targeted by marketing initiatives. In contrast, community and novelty style products seemed to be targeted at enticing a younger demographic of players using cartoon characters and novelty bonus rounds that were deemed fun for all ages. As bingo and similar games tend to be more popular with older gamblers, manufacturers may be trying to broaden the market for these types of games by attempting to appeal to younger gamblers who may otherwise gamble on EGMs.

The automation of products was often marketed as making the gambling experience easier and more enjoyable. They used automation to suggest that novices or inexperienced gamblers would be comfortable engaging with innovative products as wagering was private and offered the chance to learn without fear of judgement. These marketing strategies were not isolated specifically for novices as many used automated features to encourage experienced or seasoned gamblers to use these products instead of traditional forms. It was often suggested that those who engage with traditional versions would enjoy the additional features that automated versions offered that increased the complexity of their favourite games. Similarly, products were proposed to appeal to all types of gamblers by encouraging participation by both casino and slot players. They used the automation and digital features to suggest that EGM players would enjoy the technological enhancements that they find appealing with EGM play on a range casino and community style games. Conversely, those who enjoyed casino style games were encouraged to play automated versions that were suggested to enhance the experience compared to traditional versions. Community style products were predominantly targeted at slot players given that many of these products were essentially EGMs.

DISCUSSION

Innovative products offer a more diverse and immersive experience compared to their traditional counterparts. Based on the VICES framework, innovative products show significant enhancements that may alter gambling behaviour and attract a far more diverse audience than traditional versions. Automated casino games provide gamblers the opportunity to wager privately whilst often maintaining the social interactions characteristic of traditional table games. This could be cause for concern as the fear of having betting behaviours judged by others is removed by the availability of private wagering. In contrast to traditional versions, innovative products allow for instant calculation of winnings and gamblers are no longer required to wait for others to collect winnings or place bets. For those who wish to avoid social interaction with a croupier, digitized or automated forms offer private, isolated betting comparable to EGM play. Technological enhancements allow for features to be added that increase immersion and encourage elevated play by automatic betting functions, reducing the time between games and reinforcing betting behaviours with intricate graphics, animations and sound. Products that allow for multi-denominations and offer multiple games also reduce the need for players to move to another table, allowing endless game play at the one location. This may reduce the opportunities for gamblers to consider their gambling behaviour. Casino style innovative products offer all the features of traditional versions in size and functionality but with additional enhancements similar to EGMs to excite and encourage elevated play.

Conversely, community style and novelty innovative products have been designed to replicate EGMs and as such, may result in similar patterns of gambling behaviour given the overlap in features associated with excessive gambling. These products are predominantly single player and require minimal interaction other than with the machine. Having no obvious additional complexity or control features resembles the simplicity associated with the ever popular EGM. Speed is also comparable to EGMs as it is user based rather than set to be scheduled on a timer. It may be that these products are designed to persuade those who enjoy community and novelty style games to gamble in a casino environment.

Market and advertising tactics did not seem to be targeted to one market in particular rather trying to encourage varying audiences to engage with innovative products. As these products are relatively new to the marketplace, it may be that rather than trying to appeal to one demographic, manufacturers are targeting a broader market in order to establish and identify those engaging with innovative products. Once a dominant market is identified, the adaptability of innovative products allows for features to be tailored to accommodate specific target audiences.

NEXT STEPS

Having established the characteristics associated with various types of innovative products, it is important to ascertain what features may be most appealing to consumers. In order to identify features that may be instrumental in initiating innovative products consumption, there is a need to identify those who are engaging with these product and those who may potentially use these products in lieu of traditional versions. It will then be possible to use the characteristics identified in the environmental scan to ascertain which are the most appealing and how these features may be used to entice new users.

PHASE 3: NATIONAL SURVEY

INTRODUCTION

The literature review and environmental scan reported in the previous sections of this report provided a comprehensive examination of the emerging innovations to traditional gambling products and how the features and impact of these products (such as electronic table games and online wagering) are being represented by the VICES theoretical framework. The information from these first two phases was implemented in the design of a cross-sectional national survey to understand gamblers usage, play preferences, attitudes, and behaviours in relation to automated table games and innovative wagering products. The design and analysis of this third phase of the research was also driven by the VICES framework: visual/audio enhancements, illusion of control, complexity, expedited play, and social customisation.

METHOD

PARTICIPANTS

Research studies conducted within the gambling field have frequently used online panels as a method of recruiting participants (Hing, Russell, Nuske, & Gainsbury, 2015; Gainsbury, Russell, Hing & Blaszczynski, 2012). This method was chosen for the present survey, since it allowed access to a large cohort of gamblers with some experiences in using innovative products.

The recruitment of participants for the national online survey was done through an ISO-accredited Australian commercial panel provider. A total of 71,364 panel members aged 18 years and over were invited to participate in the survey. The sample was screened so as to limit participation to those who had *gambled in the last 12 months on poker machines, casino table games, horse racing or sports betting*. A sample of 10,988 were screened out based on this criteria (15.4% of those invited).

In total 13,748 people (19.3% of invited, 22.8% of eligible invited) completed the survey, composed of 6,101 males and 7,647 females respondents; aged 18-98 (M = 46.9, SD = 15.8). The cultural identities of respondents were: 75% Australian, 7.6% English, 3.4% Chinese, and 14% other identities. A further 317 people (2.3%) identified as Aboriginal or Torres Strait Islander. Figure 1 shows the Problem Gambling Severity Index (PGSI) status of participants who completed the survey, which had a relatively strong representation of high-risk players: 13.8% problem gamblers, 14% moderate-risk gamblers, 20% low risk gamblers, and 50.7% non-problem gamblers.

See Appendix 2 for a detailed breakdown of the demographics of participants.

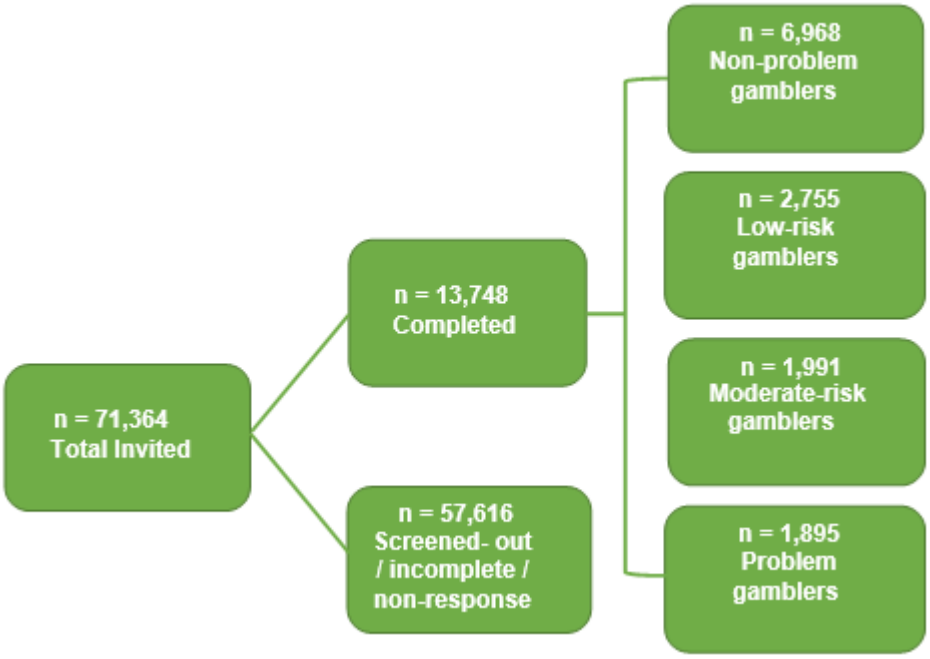

Figure 1. Participant Recruitment

SURVEY DESIGN

Participants screened into the online survey who had *gambled in the last 12 months on poker machines, casino table games, horse racing or sports betting* were asked questions about two types of innovated gambling products: automated tables games, and sports betting / wagering. Sports betting and wagering questions were centred around online offerings, since these modes of play are the most popular alternatives to in-venue betting.

In the automated table game section, participants were asked if they had gambled on automated versions of traditional table games such as Roulette, Baccarat, or Blackjack at a casino or other venue. 'Automated table games' (ATGs) were described in the survey as 'automated games which use games-cabinets or kiosks, similar to electronic Pokies to deliver traditional casino-style games'. Participants who had gambled on ATGs were then asked about their patterns of play and preferences, including:

- Which ATGs they have played (Roulette, Baccarat, Blackjack, Big Wheel, Sic Bo, or Other)
- Which ATG they play most often
- Of the ATG played most often, their preference for the traditional or electronic table game version - if both were available
- Venue type they play ATGs most frequently
- Frequency of ATGs play
- Expenditure on ATGs in a non-winning session
- Expenditure on traditional table games in a non-winning session
- Average time spent playing ATGs
- Average time spent playing traditional table games

- On a 4-point rating scale the ratings of the importance of the features of the ATG played most often, capturing the VICES framework – visual/audio enhancements, illusion of control, complexity, expedited play, and social customisation.

Those who had not played ATGs were asked:

- The main reason why they haven't played ATGs
- Average expenditure on traditional table games
- Average time spent playing traditional table games
- On a 4-point rating scale, the importance of gambling product features, capturing the VICES framework – visual/audio enhancements, illusion of control, complexity, expedited play, and social customisation.

The next section asked participants whether they had bet on sporting events or races (dog or horse) in the last 12 months (excluding the Melbourne Cup). Participants who had bet on sports in the last 12 months were asked about their patterns of play, products purchased, and online wagering, including:

- Frequency of betting on racing or sport events
- Racing or sporting events prefer to wager on
- Preferred method for placing bets
- Purchase of non-traditional gaming products (fractional bets, exotic betting, novel wagering, betting exchange)
- Whether they have placed bets using an internet website or smart phone (or tablet) application

In the Environmental Scan detailed in the previous chapter, we did not find sports betting or wagering in automated forms within Casinos. The Environmental Scan, however, did not cover mobile or online sources of betting, whereas the National Survey had the capability to examine these innovated products.

Participants who had placed bets using an internet website or smart phone/tablet application were then asked:

- On a 4-point rating scale, the importance of convenience, privacy, ability to experiment with betting products, and security on their decision to use online wagering products. An 'other specify' was provided for participants to rate other self-nominated factors in their decision making.
- On a 4-point rating scale, the importance of features to their online gambling experience, capturing the VICES framework – visual/audio enhancements, illusion of control, complexity, expedited play, and social factors.

Participants who did not bet on sports or racing events in the last 12 months were asked:

- The main reason why they have not bet on sporting events or racing in the last 12 months
- On a 4-point rating scale, the likelihood that different features would influence their decision to wager on sporting events or racing using online products. These features captured the VICES framework – visual/audio enhancements, illusion of control, complexity, expedited play, and social factors. They also covered non-traditional gaming products – fractional bets, exotic betting, novel wagering, and betting exchange.

The entire sample were then asked about their gambling behaviour (PGSI, Ferris & Wynne, 2001) and other basic demographic questions.

DATA ANALYSIS

In addition to basic descriptive statistics, the results were analysed using chi-square tests of independence, correlations, independent t-tests, and ANOVAs.

Data Cleaning

Prior to analysis, the data was reviewed and cleaned. Cleaning involved a review of the 'other specify' responses, which were handled by: 1) back-coding to an existing code, 2) creating a new code, or 3) removal of erroneous responses that were not relevant to the question (i.e. due to the respondent not understanding the question).

The first survey question asked whether respondents had gambled on automated table games. A total of 178 respondents who selected playing an 'other type' of ATG had their data removed for all ATG questions (only) due to the 'other type' of ATG being invalid. The invalid responses were those answering for Pokie Machines (n = 106), 'none' or no response given (n = 56), Keno (n = 5), sports betting (n = 3), Bingo (n = 2), Lotto (n = 2), online poker (n = 2), poker at an unspecified-venue (n = 1), and Two Up (n = 1).

The data for a further 144 respondents were erroneous or highly suspicious, and were excluded from the whole of the analyses for the following reasons:

- Main purported ATG was played 'online' (total n = 39): Blackjack (n = 19), Roulette (n = 14), Poker (n = 4), Big Wheel (n = 1), Baccarat (n = 1)
- Main purported ATG was poker played in venue (total n = 28): Australian casino (n = 10), International casino (n = 9), Australian club or venue (n = 8), cruise ship (n = 1)
- No Main ATG provided (n = 33)
- Main purported ATG was invalid (total n = 26): Pokie Machine (n = 22), Keno (n = 1), Lotto (n = 1), sports betting (n = 1), non-electronic Big Wheel at casino (n = 1)
- Main purported ATG played on a cruise ship (total n = 18): Blackjack (n = 9), Roulette (n = 7), Big Wheel (n = 1), Poker (n = 1). Researchers could not find corroborating evidence that these ATGs are available on cruise ships.
- Main purported ATG was blackjack played at a friend's house (n = 1)

After cleaning, a total of 13,604 participants provided valid responses on their ATG play. The results from these survey respondents are reported on in the following results section.

RESULTS

AUTOMATED TABLE GAMES

ATG Playing Behaviour and Preferences

Almost one-third of the participants (n = 4,295, 31.6%) had gambled on an automated table game (ATGs). Roulette was the most common ATG played, followed by Blackjack and to a lesser degree the Big Wheel, Baccarat, Sic Bo, and other types (see Figure 2). Other types of ATGs played mentioned by respondents were Poker (n = 10), Craps (n = 2), and Casino War (n = 1). The average number of ATGs played were between 1 and 2 types (M = 1.5, SD = 0.9). These findings reflect the previous environmental scan in that electronic roulette and blackjack where the most common innovated games available in venues.

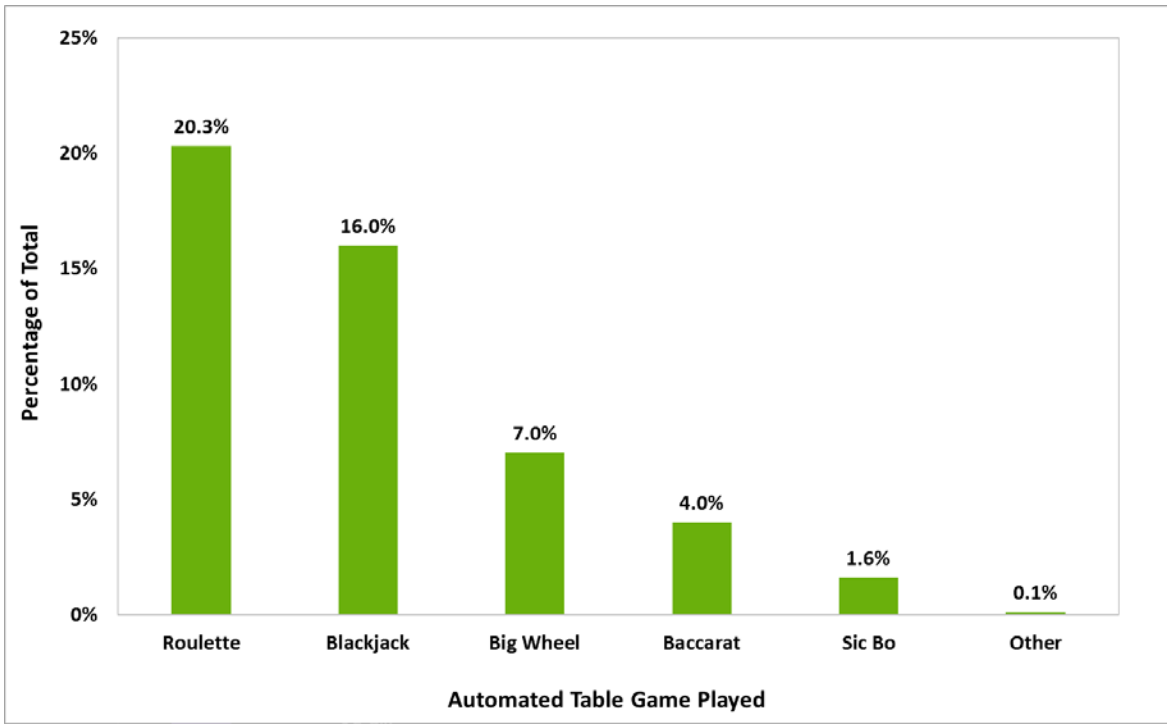

Figure 2. Automated Table Games Played

Base: Total played an ATG (n=4,295).

Q2. Which of the following automated table games have you played? Select all that apply. (Multiple response, with 'Other (please specify)'.

Of those who have played ATGs, the types most often played were Roulette (47.9%) and Blackjack (34.6%). See Figure 3 for a distribution of the main ATGs played.

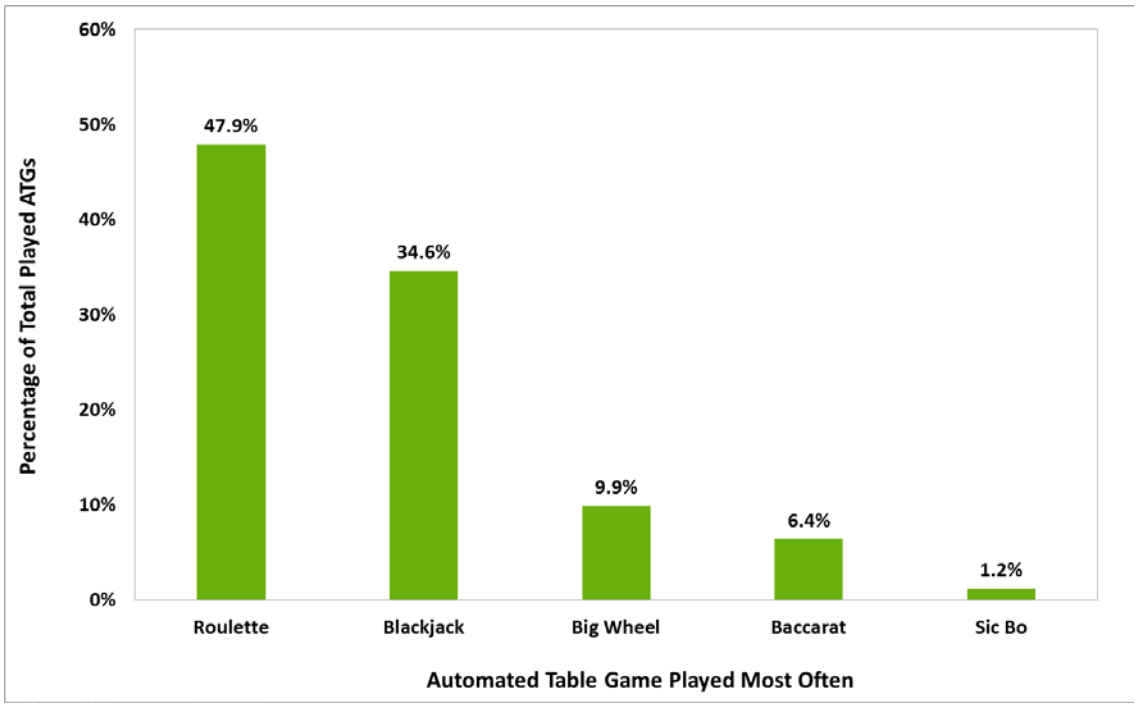

Figure 3. Automated Table Game Played Most Often

Base: Total played an ATG (n=4,295).

Q3. Which automated table game do you play most often? Select one option only.

As well as being asked about their ATG play, participants were asked about traditional table games (TTGs). Just over half of participants had gambled on traditional table games (TTG; 53.9%), which was substantially higher than play on ATGs (31.6%). It is noted that the reported figures on TTG play in this report exclude 178 cases which had missing data on TTG play. As shown in Table 15 below, nearly 90% of ATG gamblers have also played TTG (87.1%), indicating that most ATG gamblers are not exclusive to this innovated mode of play.

Table 15. Automated Table Game (ATG) and Traditional Table Game (TTG) Play

Traditional Table Game Play	Played an ATG		Not Played an ATG		Total
	N	%	N	%	N
Played a TTG	3,741	87.1	3,499	38.3	7,240
Not Played a TTG	554	12.9	5,632	61.7	6,186
Total	4,295	100	9,131	100	13,426

Base: Computed from Q1b (Yes/No played ATG), and Q8, Q10, Q13, and Q14 (all on the selection of response option 'I don't play traditional table games). Total sample (n=13,426). Missing data for n=178 who did not answer Q8, Q13, Q10 and Q14.

Q1b. 'Automated games' use games-cabinets or kiosks, similar to electronic Pokies, to deliver traditional casino-style table games. Have you gambled on automated versions of traditional table games such as Roulette, Baccarat or Blackjack at a casino or other venue?

Q8. Try to think of a time when you DID NOT WIN money on TRADITIONAL (non-automated) table games. About how much money did you spend on traditional table games during this session?

Q10. On average, how much time do you spend on TRADITIONAL (non-automated) table games when you play?

Q13. On average, how much money do you spend on traditional table games when you play?

Q14. On average, how much time do you spend on traditional table games when you play?

Figure 4 below shows the proportion of the sample that have played ATGs and/or TTGs. The largest proportion of the sample have gambled on neither ATGs nor TTGs (41.9%), followed by a nearly equal proportion of those who had gambled on both (27.9%) or only TTGs (26.1%). A small percentage of the sample had only gambled on ATGs (4.1%).

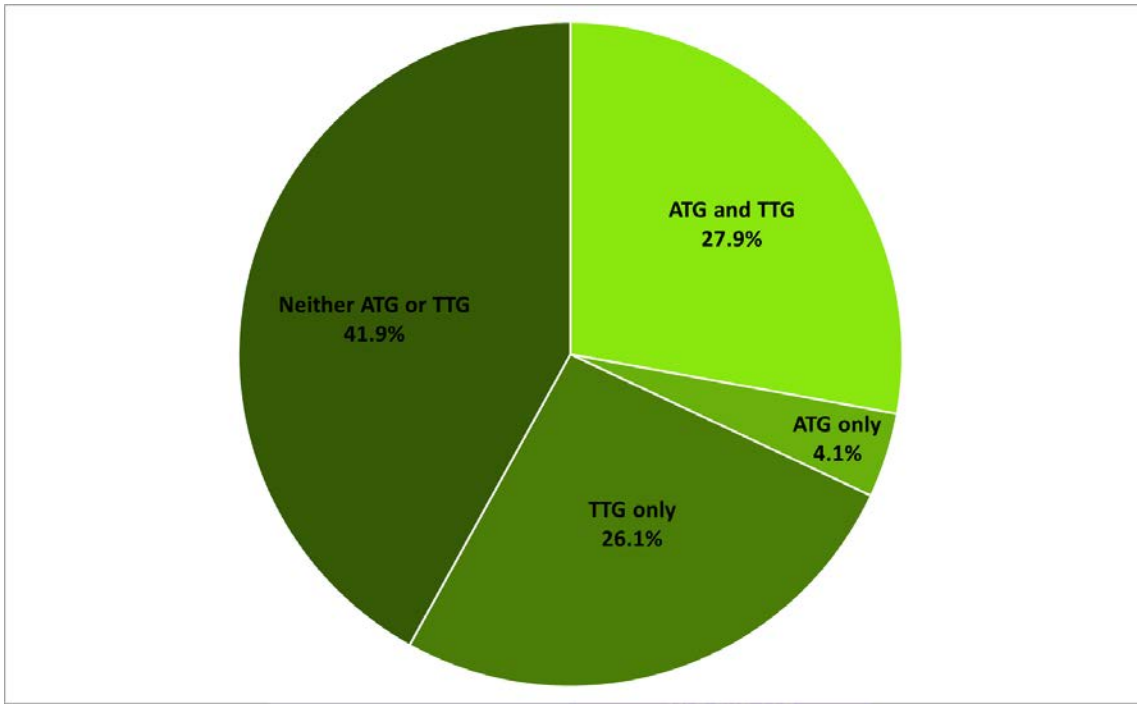

Figure 4. Sample Playing Status on Automated Table Games (ATG) and Traditional Table Games (TTG)

Base: Playing status computed from Q1b (Yes/No played ATG), and Q8, Q10, Q13, and Q14 (all on the selection of response option 'I don't play traditional table games). Total sample (n=13,426). Missing data for n=178 who did not answer Q8, Q13, Q10 and Q14.

Q1b. 'Automated games' use games-cabinets or kiosks, similar to electronic Pokies, to deliver traditional casino-style table games. Have you gambled on automated versions of traditional table games such as Roulette, Baccarat or Blackjack at a casino or other venue?

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Q10. On average, how much time do you spend on TRADITIONAL (non-automated) table games when you play?

Q13. On average, how much money do you spend on traditional table games when you play?

Q14. On average, how much time do you spend on traditional table games when you play?

Appendix 3 reports on demographic differences in ATG and TTG play to identify potential market segments for these products. These findings are discussed later in the report.

When asked about preference for automated versus traditional table games, a higher percentage preferred the traditional version of the game (59.0%) than the automated version that they played most often (41.0%). As shown in Figure 5, the relative preference for traditional versions over automated varied by the type of game; with only blackjack being non-significantly preferred in an electronic form. Otherwise, those who played electronic Roulette, Baccarat, or Sic Bo had a stronger preference for the traditional version of those games.

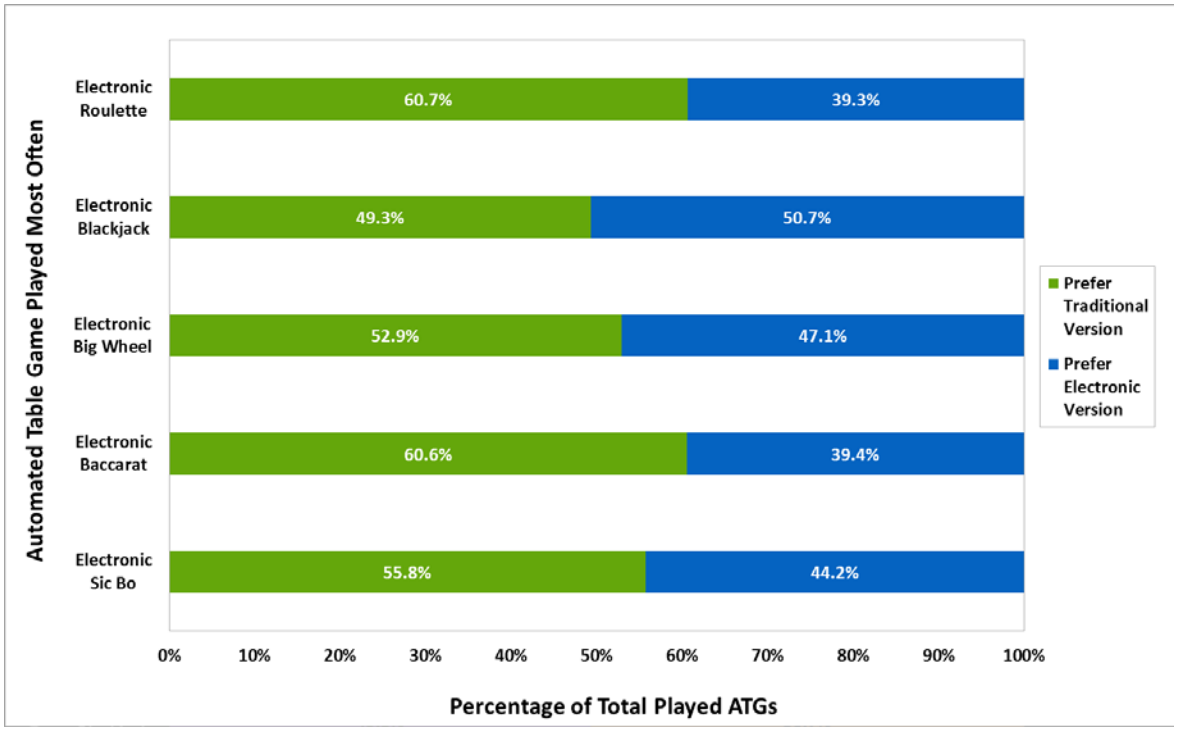


Figure 5. Preference for Traditional versus Automated Table Games – Main ATG Played

Base: Total played an ATG (n=4,295).

Q4. Thinking about the automated table game you play most often, [Q3 ANSWER HERE], would you generally prefer to play a traditional table version or electronic version if both were available?

When asked where they played ATGs most frequently, the majority answered in Australian Casinos (67.1%), followed by Australian Clubs or Venues (27.6%). Unsurprisingly, overseas Casinos were only nominated by a few respondents (5.1%) as the most frequent venue for ATG gambling.

Almost half of participants who have played automated table games only played a few times a year (45.1%). About one in four ATG gamblers play at least once a month (24.7%) and about one out of ten gamble on ATGs at least once a week (12.6%). See Figure 6.

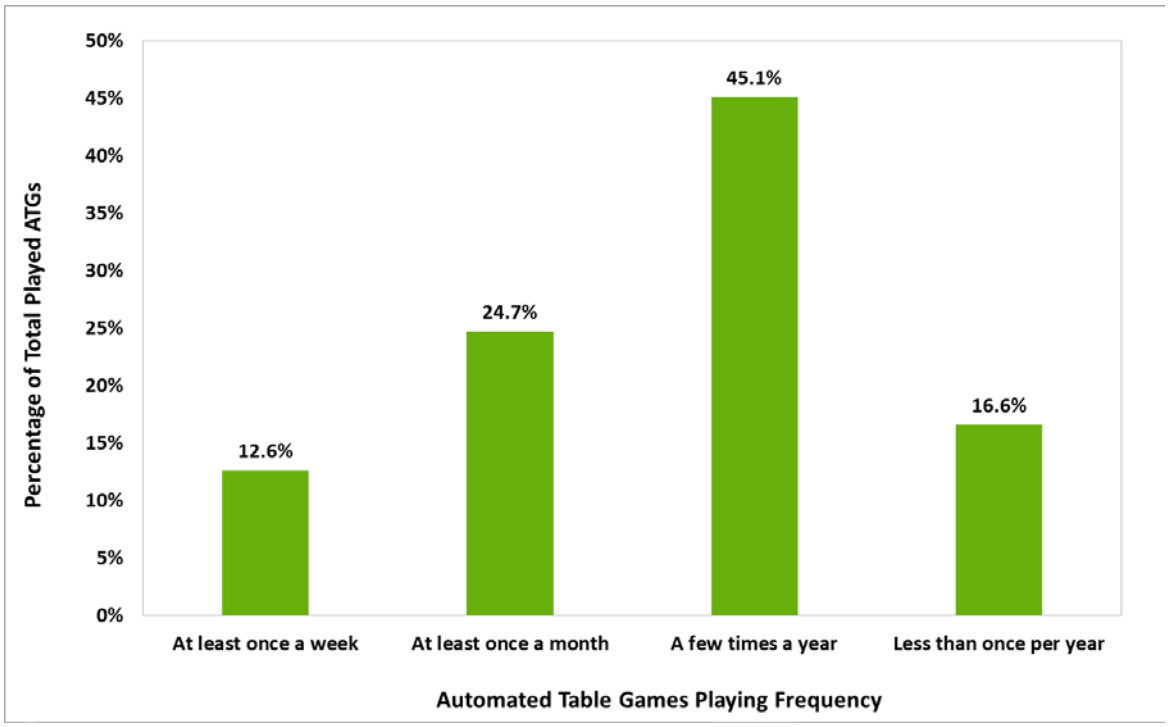


Figure 6. Automated Table Games Playing Frequency

Base: Total played an ATG (n=4,295).

Q6. Approximately how often do you play automated table games?

These findings were consistent for nearly all types of ATGs played, with the exception of electronic baccarat where over one-third (35.0%) played at least once a week and another two-fifths (19.7%) played at least once a month (see Figure 7).

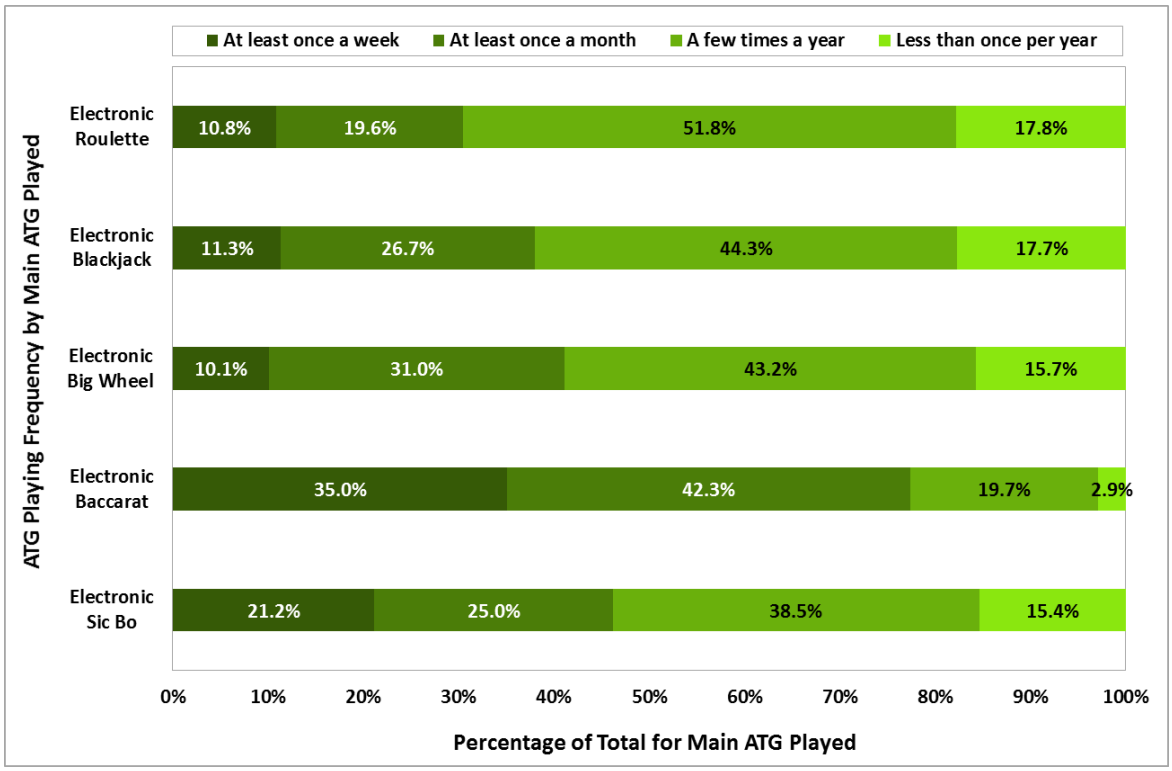


Figure 7. Playing Frequency by Main ATG Played

Base: Total played an ATG (n=4,295). ATG played most often: Electronic Roulette (n=2,057), Electronic Blackjack (n=1,486), Electronic Big Wheel (n=426), Electronic Baccarat (n=274), Electronic Sic Bo (n=52).

Q6. Approximately how often do you play automated table games?

Per Figure 8, a greater percentage of ATG players reported losing more than $100 in a non-winning session on a traditional table game (13.7%) than an automated table game (8.8%). Likewise, more lost between $50-100 on a traditional table game (23.7%) versus an automated table game (19.6%).

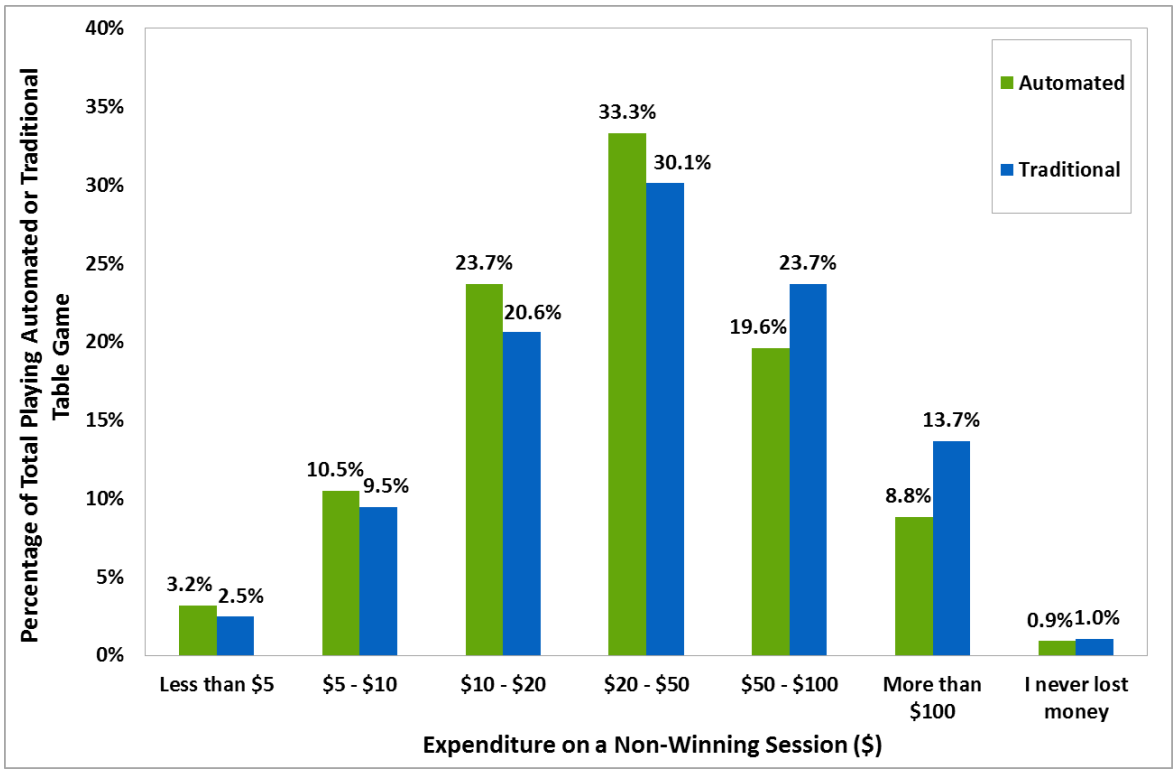


Figure 8. Expenditure on a Non-Winning Session ($) – ATG players

Base: Total played an ATG (n=4,295). Total played ATG and Traditional Table Games (n=3,741). Note: Excludes players answering 'I don't play traditional table games' on Q8.

Q7. Try to think of a time when you DID NOT WIN money on automated table games. About how much did you spend on the automated table games during this session?

Q8. Try to think of a time when you DID NOT WIN money on TRADITIONAL (non-automated) table games. About how much money did you spend on traditional table games during this session?

Among ATG players, there were differences in expenditure based on the ATG played (see Figure 9). Baccarat and Sic Bo players spent greater amounts on a non-winning session ($50 and above) than the other three game types (Roulette, Blackjack, and Big Wheel).

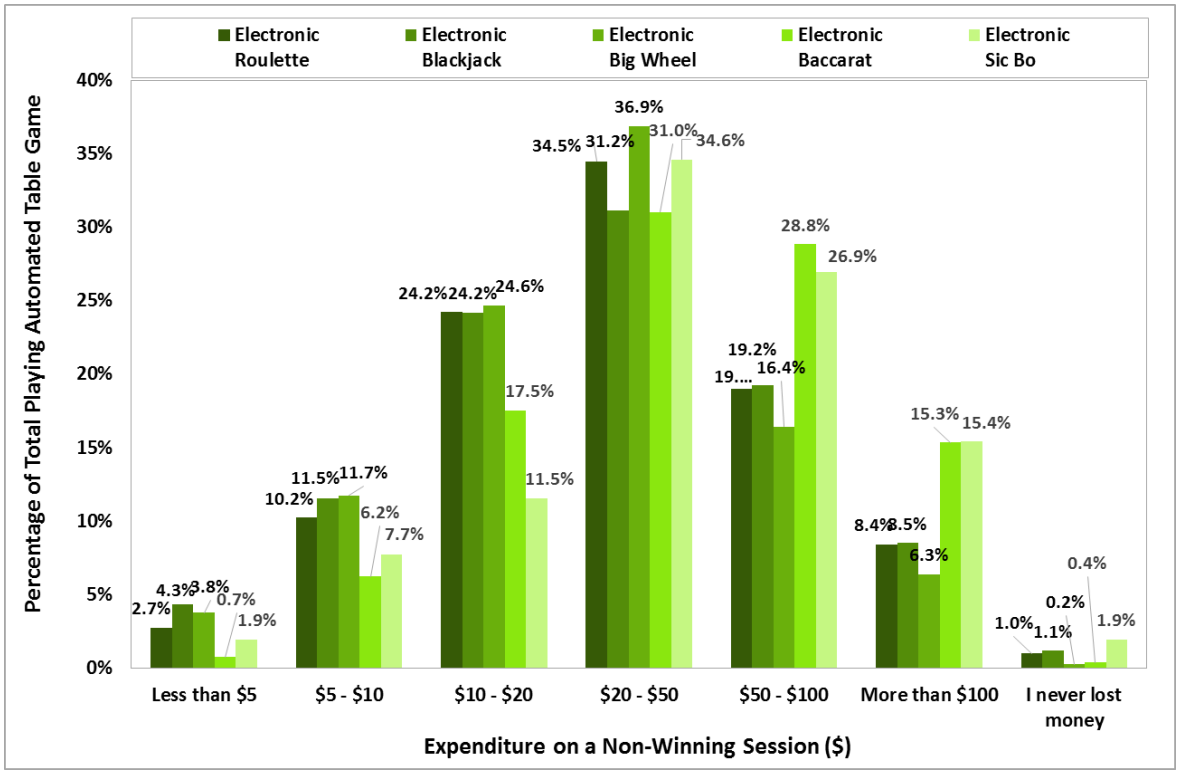


Figure 9. Expenditure on a Non-Winning Session ($) by Main ATG Played

Base: Total played an ATG (n=4,295). ATG played most often: Electronic Roulette (n=2,057), Electronic Blackjack (n=1,486), Electronic Big Wheel (n=426), Electronic Baccarat (n=274), Electronic Sic Bo (n=52).

Q7. Try to think of a time when you DID NOT WIN money on automated table games. About how much did you spend on the automated table games during this session?

As shown in Figure 10, a higher proportion of ATG players spent $50 or more on a traditional table game session (36.9%) than on an automated table game session (22.0%). An independent t-test was conducted with expenditure on TTGs as the dependent variable (ordinal from 1=less than $5 to 6=more than $100) and revealed on average ATG players spent significantly more money on a traditional table game (M=4.04, or around $20-$50) than non-ATG players (M=3.41, in the $10-$20 range), $t(7,063) = 20.16$, $p < .001$.

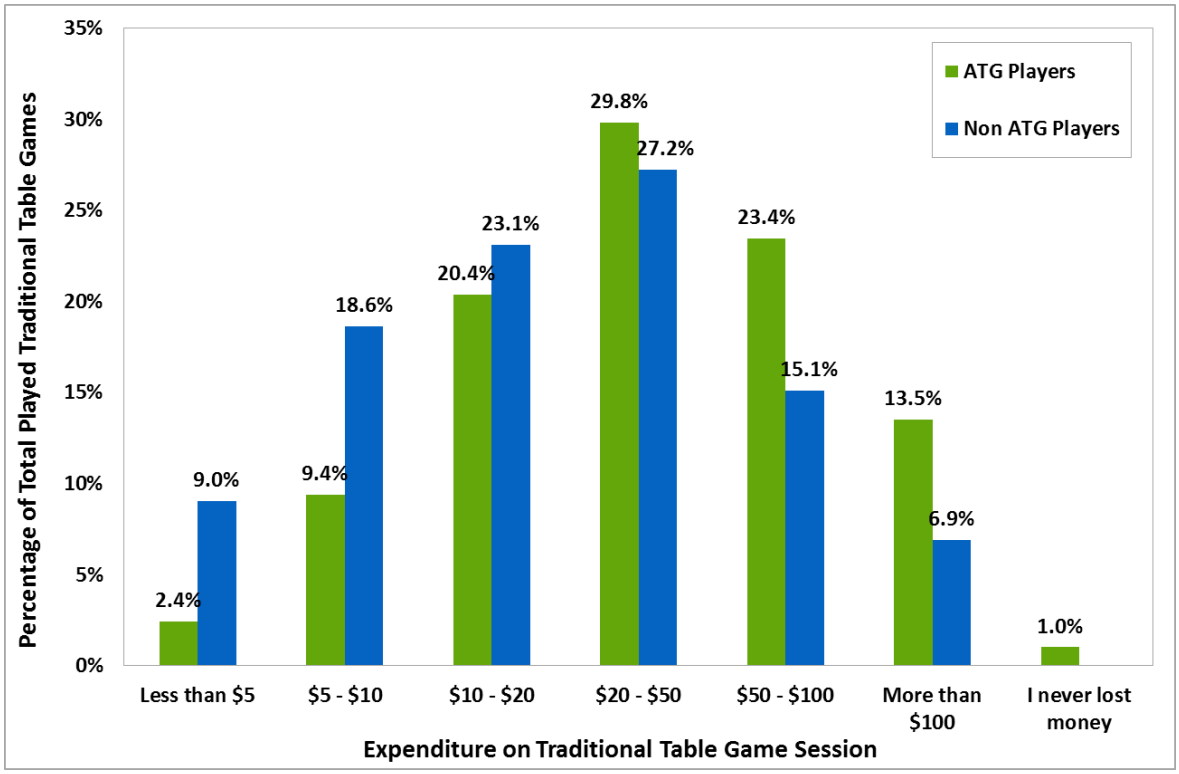


Figure 10. Expenditure on a Traditional Table Game Session – ATG and Non-ATG Players

Base: Total played Traditional Table Games (n=7,240): ATG players (n=3,741) and non-ATG Players (n=3,499). Note: Excludes players answering 'I don't play traditional table games' on Q8.

Q8. Try to think of a time when you DID NOT WIN money on TRADITIONAL (non-automated) table games. About how much money did you spend on traditional table games during this session?

For ATG players, the average session time spent playing automated versus traditional table games is similar, with the majority spending less than 1 hour playing (69.2% automated versus 65% traditional; see Figure 11).

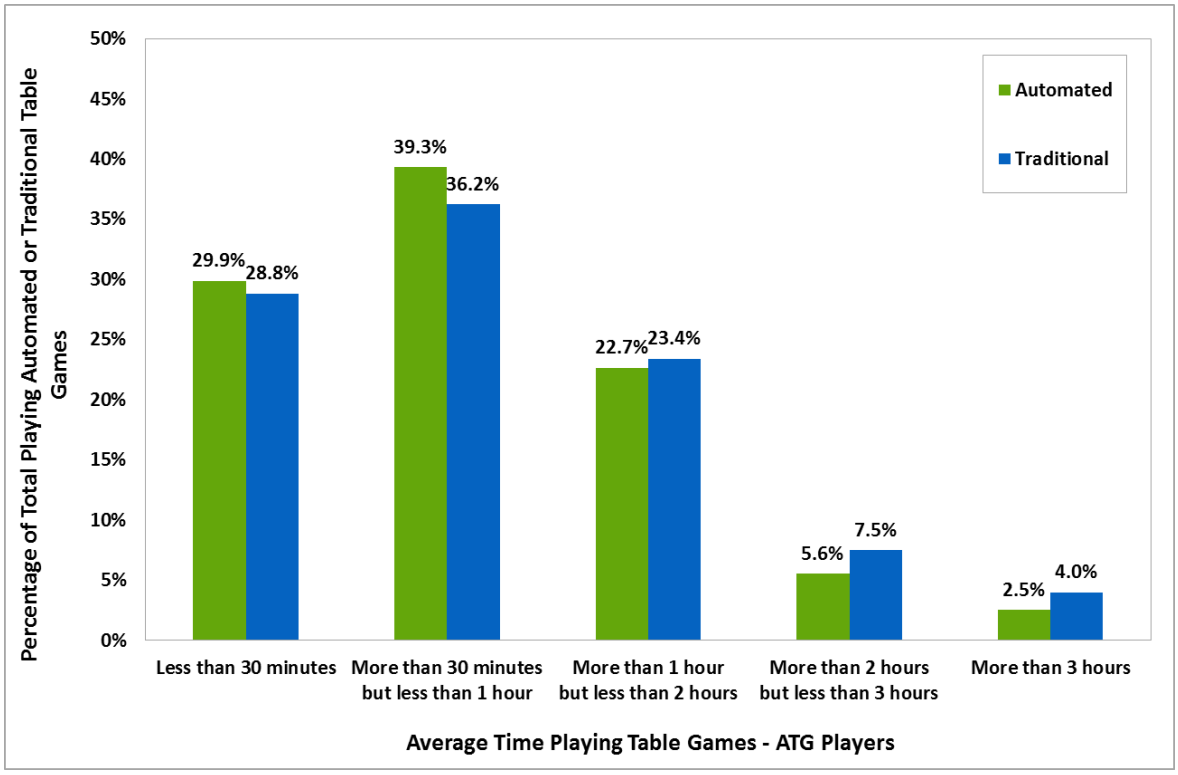


Figure 11. Average Time Playing Automated and Traditional Table Games – ATG Players

Base: Total played Traditional Table Games (n=7,240), excludes players answering 'I don't play traditional table games' on Q10; ATG players (n=3,741) and non-ATG Players (n=3,499).

Q9. On average, how much time do you spend on automated table games when you play?

Q10. On average, how much time do you spend on TRADITIONAL (non-automated) table games when you play?

All ATGs types show the same pattern in time spent playing, where modal play is more than 30 minutes but less than 1 hour. Baccarat notably has relatively few sessions (12.8%) that are less than 30 minutes long, and Electronic Sic Bo tended to have relatively more sessions that lasted more than an hour (see Figure 12).

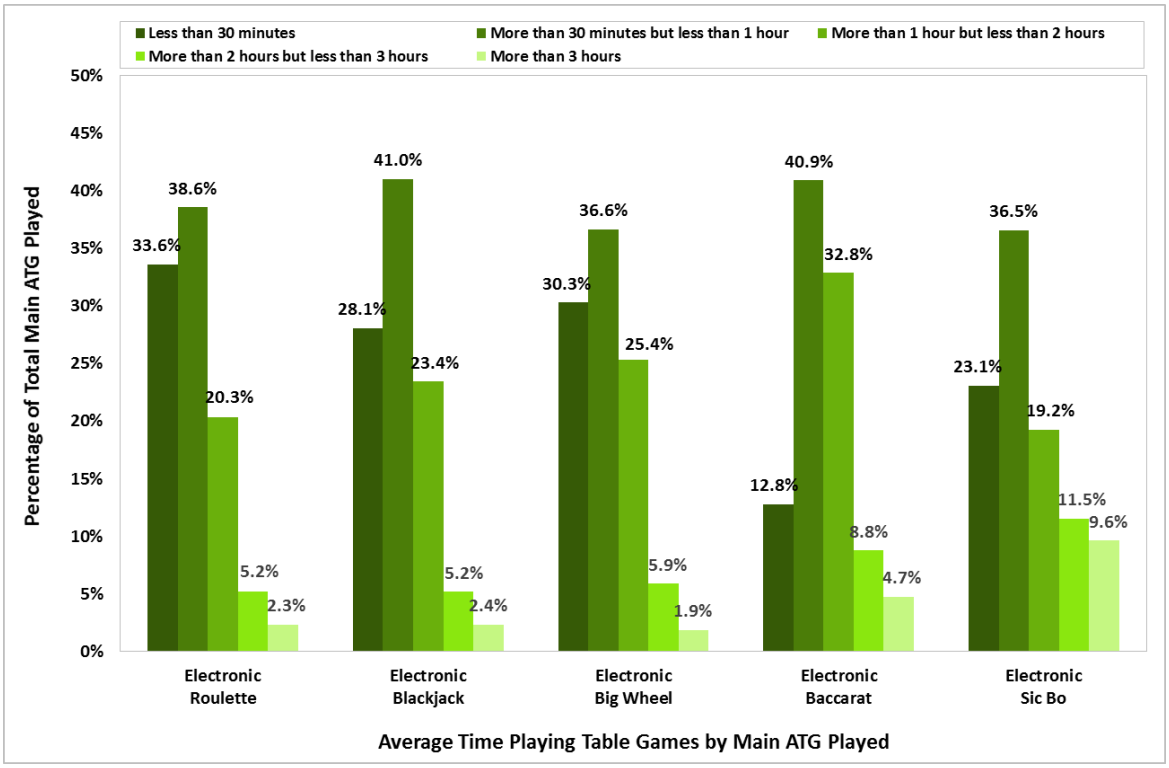


Figure 12. Average Time Playing Automated Table Games by Main ATG Played

Base: Total played an ATG (n=4,295). ATG played most often: Electronic Roulette (n=2,057), Electronic Blackjack (n=1,486), Electronic Big Wheel (n=426), Electronic Baccarat (n=274), Electronic Sic Bo (n=52).

Q9. On average, how much time do you spend on automated table games when you play?

Figure 13 shows a comparison of the average time spent playing traditional table games between those who *have* and *have not* played ATGs. The proportion of those spending more than an hour on average playing traditional table games was nearly three times higher for those who have also played ATGs (34.9%) than those who had not played an ATG (13.7%). An independent t-test was conducted with time spent playing TTGs the dependent variable (1=30 minutes or less, 2=30 minutes to 1 hour, 3=more than 1 hour) and revealed on average ATG players spent significantly more time playing traditional table games (M=2.06, or around 30-60 minutes) than non-ATG players (M=1.54, or around 30 minutes), $t(7,238) = 28.91$, $p < .001$

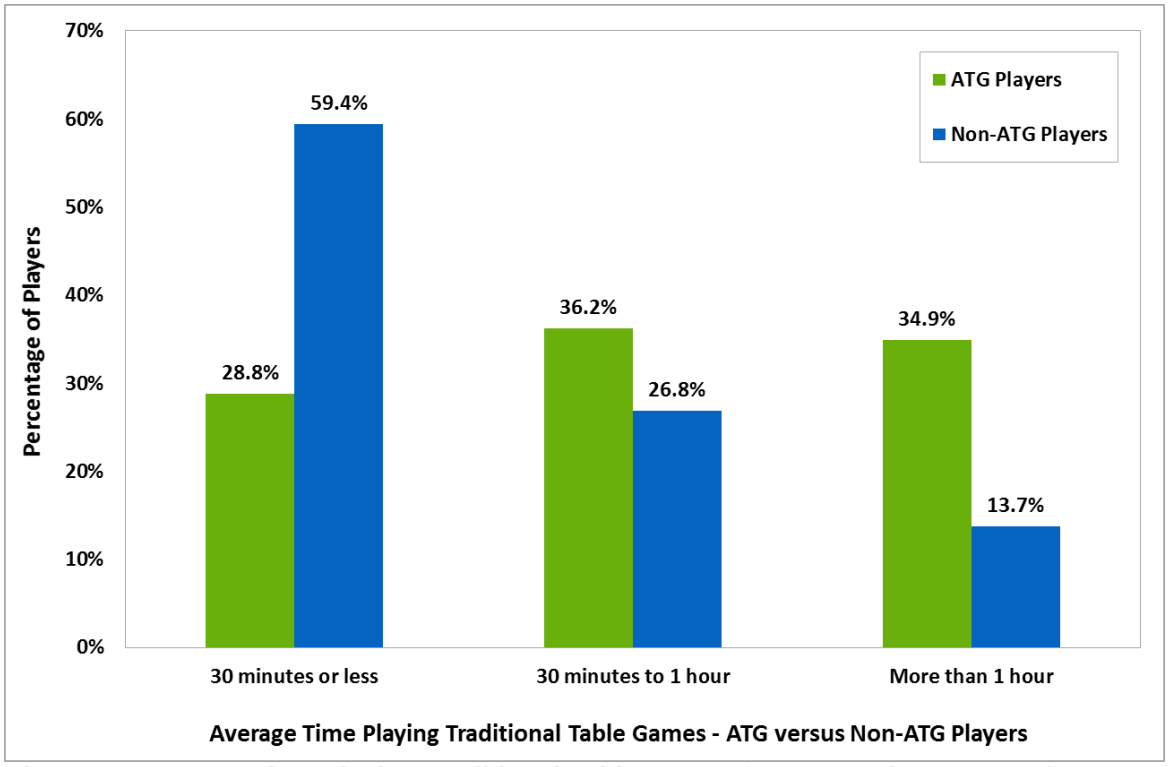


Figure 13. Average Time Playing Traditional Table Games for ATG and Non-ATG Players

Base: Total playing traditional table games (n=7,240): ATG players (n=3,741) and Non-ATG Players (n=3,499). Note: Excludes players answering 'I don't play traditional table games' on Q10. The 'More than 1 hour' category combines three categories: More than 1 hour but less than 2 hours + More than 2 hours but less than 3 hours + More than 3 hours.

Q10. On average, how much time do you spend on TRADITIONAL (non-automated) table games when you play?

Per Figure 14, the main reason for participants not having played automated table games was a preference for other forms of gambling (54.3%), followed by ATGs not being available (19.9%), and preferring traditional table games (14.9%). Other reasons included: not being interested (3.1%) and that they don't gamble or don't gamble often (1.9%). The remaining 5.7% of 'other reasons', each contributing less than 1% of the total, were reasons such as: not liking gambling, can't afford it, won't win/results are rigged, haven't seen an ATG, waste of money, and a lack of trust.

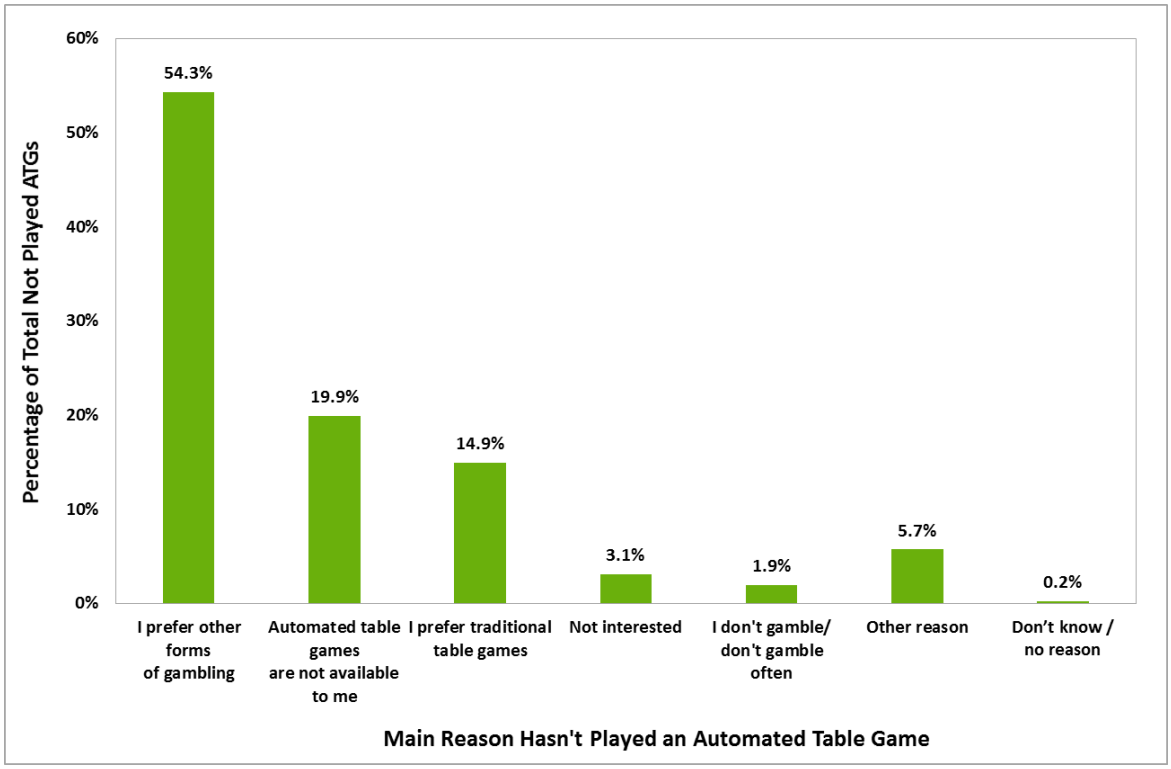


Figure 14. Main Reason Hasn't Played an Automated Table Game

Base: Total has not played ATG (n=9,309).

Q12. What is the main reason that you haven't played automated table games? Select one option only.

VICES Framework – The Importance of Product Features

To measure the five dimensions of the VICES Framework, ATG players were asked to rate how important a list of game features were to the ATG they played most often (from 1 = Not at all important, 2 = A little important, 3 = Moderately important, to 4 = Very Important). Likewise, non-ATG players were asked to rate how important (on the same scale) the features were to them in a gambling product.[3] We factor analysed the polychoric covariance matrix of responses to all importance items, to account for the ordinal scale and non-normal distributions of the Likert items. Contrary to expectations, inspection of the principle components of the relationship matrix confirmed that items loaded on a single factor, rather than multiple factors. That is, responses on the importance of ATG features conformed strongly to a uni-dimensional structure. This advised against further exploratory or confirmatory factor analysis to uncover a multi-dimensional structure that related to the VICES framework. Accordingly, rather than aggregate responses on the individual

[3] Due to a questionnaire coding error, Non-ATGs players were not asked about two visual/audio enhancement features: graphics and animations, multiple displays.

VICES dimensions, we analysed the grand mean of all items. Similar analyses were conducted, and similar results found, for items administered to non-ATG players regarding feature they *would* find important.

Table 16 shows the average importance ratings of features of the gambling products when grouped together in the theoretical VICES framework. Importance of all features were rated higher by the ATG players (for the main ATG they play) than the non-ATG players.

Table 16. Mean Importance of Gambling Product Features by VICES

VICES	Feature of Gambling Product	Mean Importance	
		Main ATG Played*	Non ATG Players**
Visual / Audio Enhancements	Graphics and animation	2.69	No data
	Multiple displays	2.51	No data
	Use of in-game sound effects	2.37	1.72
Illusion of Control	Real-time player feedback	3.04	2.45
	Game statistics	2.92	2.17
	Having help options or game instructions	2.84	2.49
	Having control over the game mechanism	2.83	2.35
	Having decisions to make during the game	2.82	2.27
	Being able to personalise the gaming environment	2.53	1.96
Complexity	Having multiple betting options	2.88	2.19
	Having progressive jackpots available	2.86	2.39
	Being able to choose between different games from a single location	2.54	2.00
	Additional mini-games	2.25	1.72
Expedited Play	Having winnings paid out instantly	3.22	2.92
	Having the computer calculate winnings and losses	2.95	2.32
	Less down-time between games	2.69	2.01
	Having faster games	2.65	1.94
	Being able to make additional side bets and having these tracked by the computer	2.52	1.69
	Being able to play multiple games simultaneously	2.30	1.57
Social Factors	Privacy	3.12	3.04
	Having a live dealer (croupier)	2.57	1.97
	Socialising when you play	2.56	2.14
	Having an automated dealer (croupier)	2.36	1.41

**Main ATG Played Base: Total played ATG (n=4,295). Q11. Thinking about the automated table game you play most often, [Q3 ANSWER HERE]. Please rate how important each of the following features are to you.* Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

***Non ATG Players Base: Total not played ATG (n=9,309). Q15. Please indicate how important each of the following features are to you in a gambling product.* Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

On average the top important features of ATGs played most often were: instant pay out (mean = 3.22), privacy (mean = 3.12), and real-time player feedback (mean = 3.04).

Figure 15 provides a visual presentation of the mean importance the VICES in order of importance.

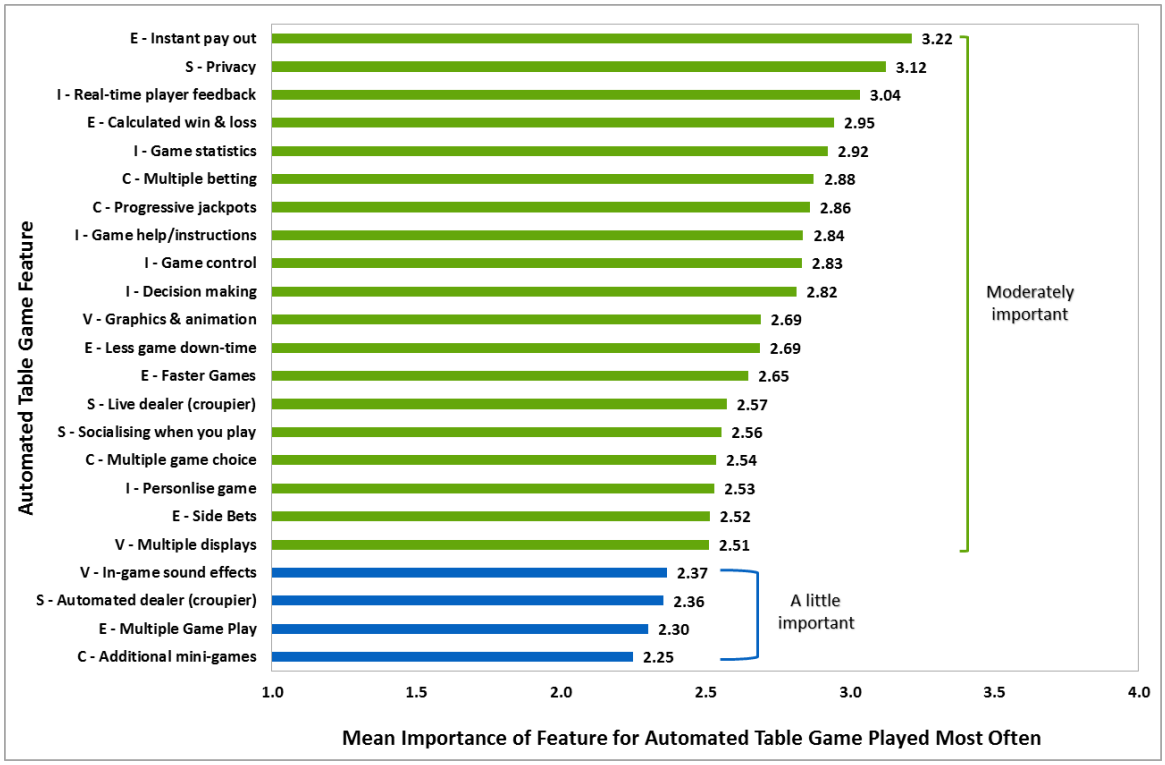


Figure 15. Mean Importance of Feature for Automated Table Game Played Most Often (VICES)

Base: Total played an ATG (n=4,295).

Q11. Thinking about the automated table game you play most often, [Q3 ANSWER HERE]. Please rate how important each of the following features are to you. Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

Non-ATG players also considered gambling product features that offered privacy (mean = 3.04) and instant pay out (mean = 2.92) to be on average most important of all the features, but still only moderately important (see Figure 16).

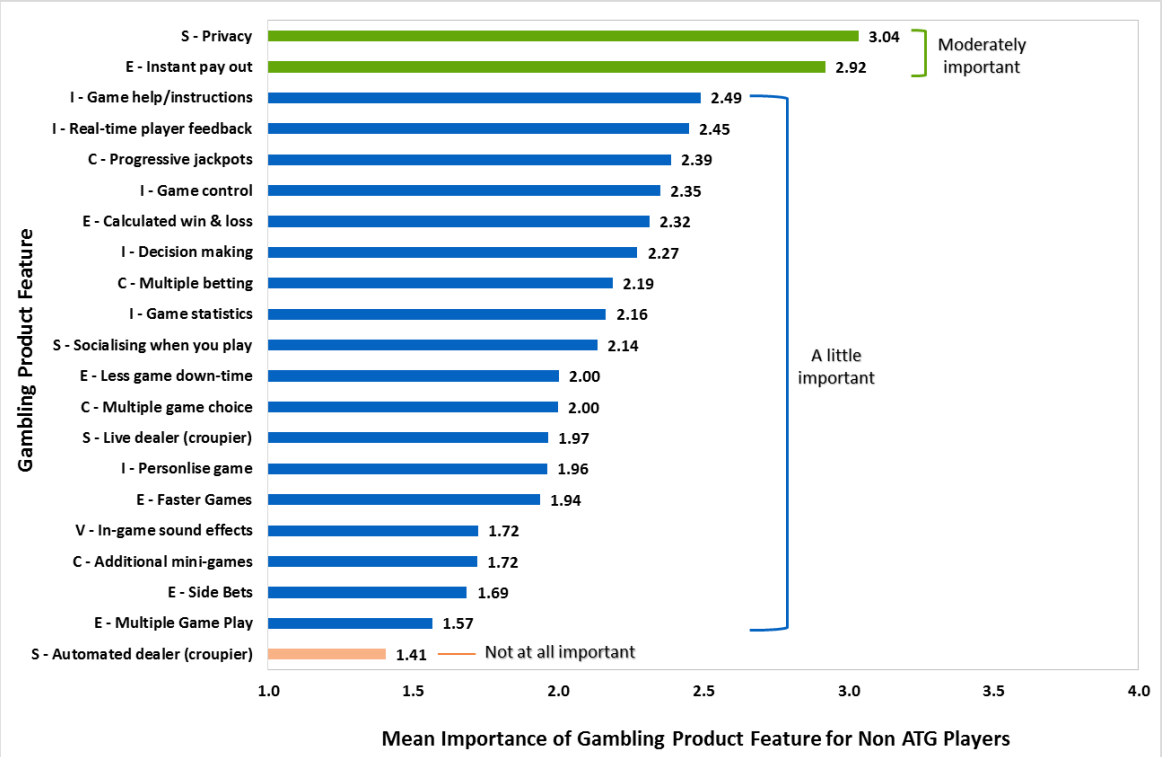


Figure 16. Mean Importance of Gambling Product Features for Non-ATG Players (VICES)

Base: Total not played an ATG (n=9,309).

Q15. Please indicate how important each of the following features are to you in a gambling product. Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

On average ATG players rated all features of the ATG game they played with a higher importance than non-ATG players rated features of gambling products in general.

Figure 17 compares the importance ratings by product features for the five main types of ATGs played, with electronic Baccarat standing out with higher importance ratings for the visual / audio enhancement features of 'in-game sound effects' and 'multiple displays' and some features of expedited play (faster games, multiple game play, side bets, automated dealer).

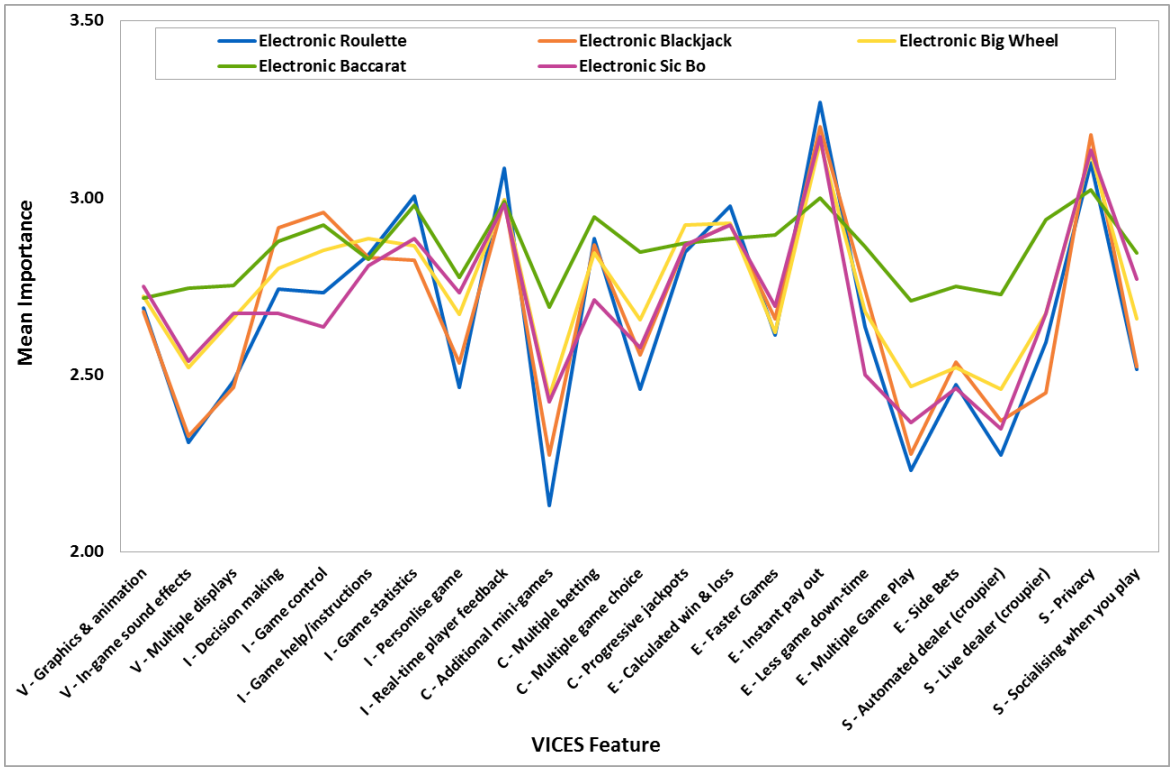


Figure 17. Mean Importance of Feature for Automated Table Game by Main ATG Played (VICES)

Base: Total played an ATG (n=4,295). ATG played most often: Electronic Roulette (n=2,057), Electronic Blackjack (n=1,486), Electronic Big Wheel (n=426), Electronic Baccarat (n=274), Electronic Sic Bo (n=52).

Q11. Thinking about the automated table game you play most often, [Q3 ANSWER HERE]. Please rate how important each of the following features are to you. Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

ATGs and Problematic Gambling Severity

Table 17 shows a breakdown for the Automated and Traditional Table Game survey data by the Problem Gambling Severity. The key findings were:

- The proportion of play on ATGs increases by PGSI risk level.
- The proportion who play the ATGs typically available in venues (roulette, blackjack, big wheel, baccarat, and sic bo) generally increases by PSGI, especially for less commonly played automated table games.
- A higher proportion of problematic gamblers have Blackjack as their main ATG played than the other PGSI groups.
- A higher proportion of problematic-gamblers compared to people with lower-risk nominated automated table games in preference over traditional table games (44.4%).
- Frequency of playing ATGs was higher by increase in PGSI.
- Average time playing ATGs was higher by increase in PGSI, when play was 1 hour or more.
- Average time playing Traditional Table Games were similar across PGSI group.

- The main reasons for not having played ATGs were similar across PGSI group.

Table 17. Automated and Traditional Table Game Play by Problematic Gambling Severity

Survey Data	No problem (%)	Low-Risk (%)	Medium-Risk (%)	Problem (%)	Overall (%)
Has gambled on an Automated Table Game	**19.5**	**30.0**	**39.2**	**69.0**	**31.6**
ATG PLAYERS	**1,343**	**818**	**740**	**1,297**	**4,198**
Types of ATGs played					
Electronic Roulette	61.6	67.8	68.5	62.8	64.4
Electronic Blackjack	47.0	49.9	52.3	54.0	50.7
Electronic Big Wheel	16.3	18.3	21.8	30.9	22.2
Electronic Baccarat	3.8	5.6	11.2	27.4	12.7
Electronic Sic Bo	2.0	2.8	5.4	9.3	5.0
Electronic Other	0.4	0.2	0.3	0.3	0.3
Mean number of ATGs played	1.31	1.45	1.59	1.85	1.55
ATG played most often					
Electronic Roulette	50.0	54.4	48.8	41.7	48.1
Electronic Blackjack	37.8	34.8	35.3	30.8	34.6
Electronic Big Wheel	9.5	8.1	9.7	11.4	9.8
Electronic Baccarat	1.7	2.0	5.4	14.2	6.3
Electronic Sic Bo	1.0	0.7	0.8	1.9	1.2
Preference Traditional versus Automated Table Game					
Traditional	59.9	60.4	61.4	55.6	58.9
Automated	40.1	39.6	38.6	44.4	41.1
Venue Type Plays ATG Most Frequently					
Australian Casino	65.8	66.9	64.7	69.6	67.0
Australian Club or Venue	28.5	29.2	30.7	24.3	27.7
International Casino	5.5	3.8	4.5	6.0	5.1
Other Venue Type	0.1	0.1	0.1	0.1	0.1
Frequency Playing ATGs					
At least once a week	3.1	5.3	11.2	27.4	12.5
At least once a month	14.1	19.9	25.9	38.1	24.7
A few times a year	54.7	57.6	49.7	28.5	46.3
Less than once per year	28.1	17.2	13.1	6.0	16.5
Expenditure on Automated Table Game in Non-Winning Session					
I never lost money	1.6	0.9	0.7	0.5	1.0
Less than $5	5.7	2.4	2.2	1.8	3.2
$5 - $10	16.2	10.9	6.4	6.6	10.5
$10 - $20	31.9	20.7	17.0	20.9	23.7
$20 - $50	31.3	41.0	34.6	30.0	33.3
$50 - $100	10.7	18.8	28.0	24.3	19.5
More than $100	2.7	5.4	11.2	15.9	8.8
Expenditure on Traditional Table Game in Non-Winning Session					
I never lost money	1.4	0.9	0.8	0.4	0.9
Less than $5	2.7	1.5	1.4	2.2	2.1
$5 - $10	10.2	7.0	5.0	8.9	8.2
$10 - $20	20.6	13.7	13.4	19.5	17.7
$20 - $50	26.1	30.4	26.5	22.9	26.0
$50 - $100	14.5	22.6	26.1	21.8	20.4
More than $100	5.5	9.4	17.4	16.7	11.8
I don't play traditional table games	18.9	14.5	9.5	7.6	12.9
Average Time Playing Automated Table Games					
Less than 30 minutes	44.9	32.0	25.8	15.7	30.0

Survey Data	No problem (%)	Low-Risk (%)	Medium-Risk (%)	Problem (%)	Overall (%)
More than 30 minutes but less than 1 hour	37.5	43.6	42.3	36.6	39.3
More than 1 hour but less than 2 hours	14.8	18.0	23.9	32.9	22.6
More than 2 hours but less than 3 hours	1.9	5.0	5.9	9.3	5.5
More than 3 hours	0.8	1.3	2.0	5.5	2.6
Average Time Playing Traditional Table Games					
Less than 30 minutes	28.8	25.1	22.7	23.0	25.2
More than 30 minutes but less than 1 hour	30.9	31.4	29.5	33.7	31.6
More than 1 hour but less than 2 hours	16.8	19.7	25.4	21.5	20.3
More than 2 hours but less than 3 hours	3.3	6.5	8.2	8.9	6.5
More than 3 hours	1.3	2.8	4.7	5.4	3.5
I don't play traditional table games	18.9	14.5	9.5	7.6	12.9
NON-ATG PLAYERS	**5,558**	**1,906**	**1,150**	**582**	**9,196**
Main Reason Have Not Played ATGs					
I prefer other forms of gambling	52.3	57.2	59.1	54.0	54.3
Automated table games are not available to me	19.5	20.2	20.6	20.1	19.8
I prefer traditional table games	13.8	16.0	16.0	20.5	15.0
Not interested	4.7	1.0	0.7	0.5	3.1
I don't gamble / don't gamble often	2.8	0.9	0.3	0.2	1.9
Other	6.8	4.5	3.3	4.4	5.7
Don't know / no reason	0.2	0.3	0.1	0.2	0.2
Average Expenditure on Traditional Table Games					
Less than $5	3.7	2.7	2.7	4.8	3.4
$5 - $10	7.6	7.3	4.8	6.8	7.2
$10 - $20	9.2	9.7	5.8	10.1	8.9
$20 - $50	9.4	12.6	12.7	9.7	10.5
$50 - $100	4.1	7.6	9.3	9.0	5.8
More than $100	1.5	2.5	6.1	7.5	2.6
I don’t play traditional table games	64.5	57.5	58.7	52.2	61.6
Average Time Playing Traditional Table Games					
Less than 5 minutes	2.7	2.0	2.0	2.9	2.5
5 – 15 minutes	9.7	10.4	6.1	11.2	9.5
15 – 30 minutes	10.8	11.7	8.5	13.6	10.9
30 minutes – an hour	8.9	12.5	13.9	10.1	10.3
More than an hour	3.5	5.9	10.8	10.1	5.3

Base: Total sample with PGSI data (n = 13,394). PGSI: Non problem (n = 6,901), low-risk (n = 2,724), moderate-risk (n = 1,890), problem (n = 1,879).

The importance ratings for features of the main ATG played were consistent in their profile between non-problem, low risk and moderate risk gamblers – increasing slightly with problematic gambling severity (see Figure 18).

Problematic gamblers rated some particular features; including the visual/audio enhancement, cognitive complexity, expedited play, and social factors; as being more important to their main ATG played than gamblers with a lower gambling severity. Specific game-features of greater importance to problem gamblers included having multiple displays, additional mini-games, faster games, side-bets, multiple game play, and all social features; such as privacy.

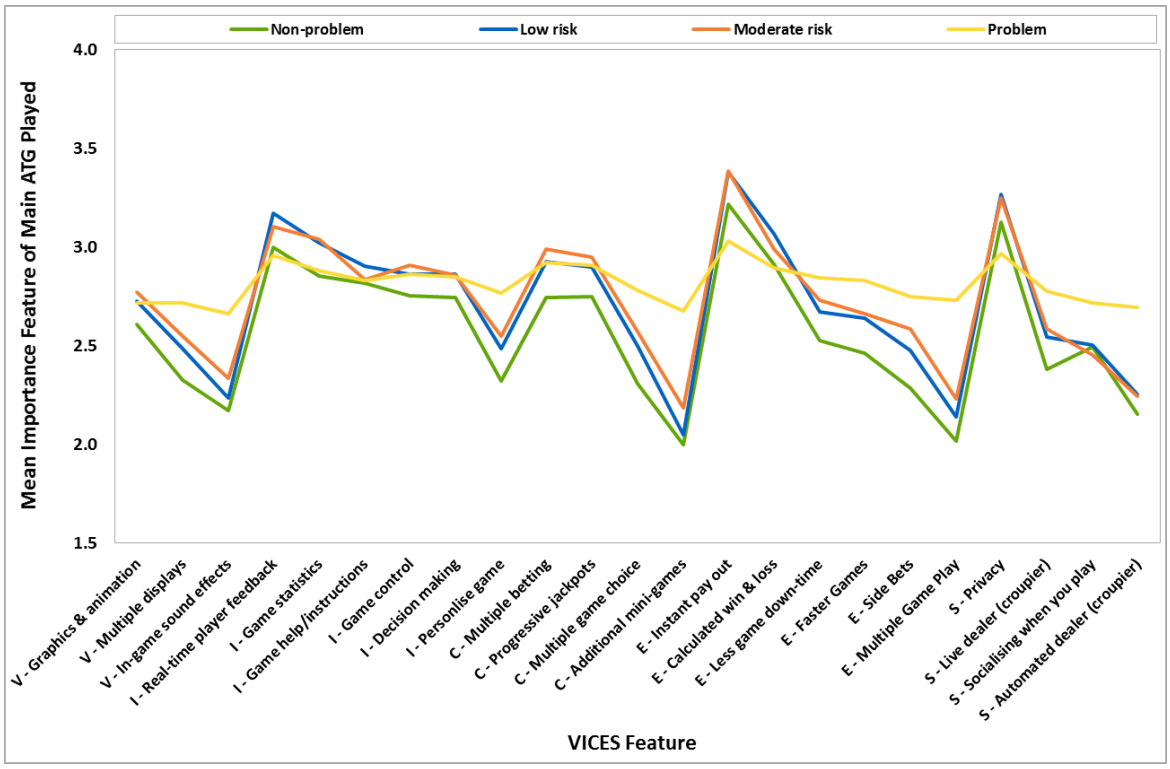


Figure 18. Mean Importance of VICES Features of Main ATG Played by PGSI

Base: Has played an ATG and has PGSI category (n=4,198). PGSI: non-problem (1,343), low-risk (n=818), moderate-risk (n=740), problem (n=1,297).

Q11. Thinking about the automated table game you play most often, [Q3 ANSWER HERE]. Please rate how important each of the following features are to you. Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

Importance ratings for gambling product features for **non-ATG players** show the same profile across the VICES for all gambling severity groups, with importance ratings increasing by problem gambling severity.

However, unlike importance for ATG game-players, the problem gambling segment for non-ATG players didn't show substantive differences from the lower severity groups on the importance of specific gambling product features (see Figure 19).

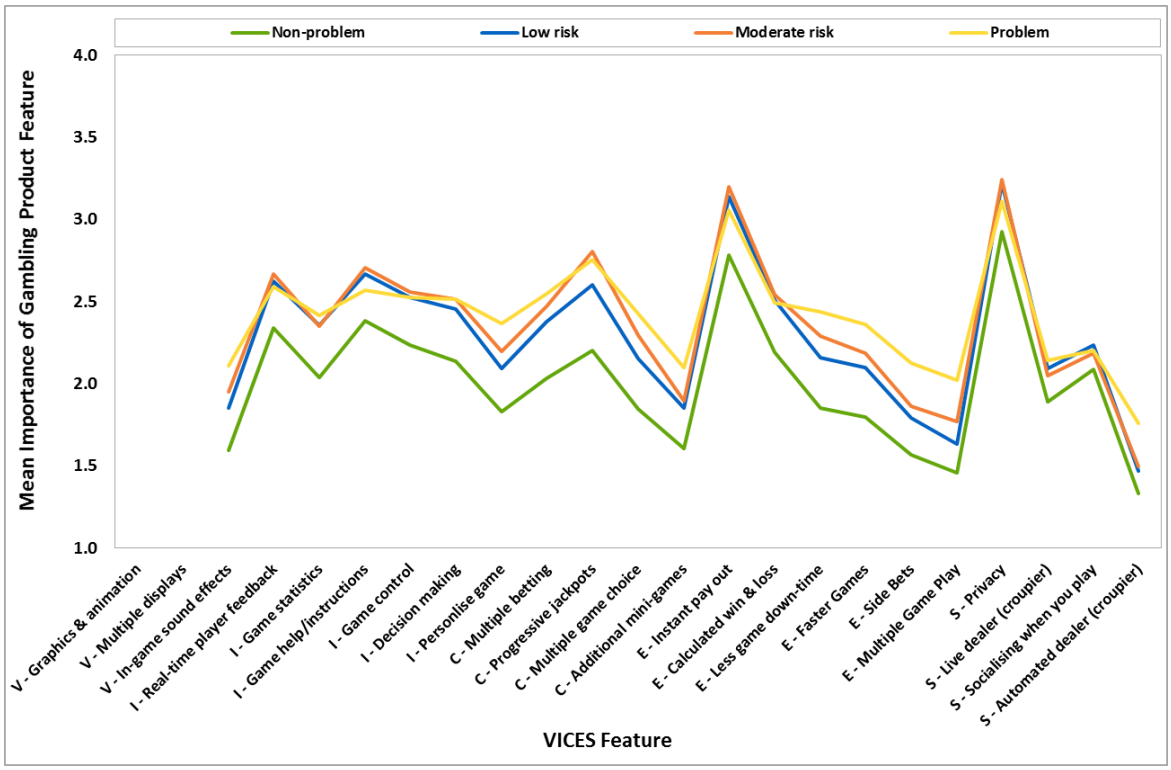


Figure 19. Mean Importance of VICES Features of Gambling Product for Non-ATG Players by PGSI

Base: Has not played an ATG and has PGSI category (n=9,196). PGSI: non-problem (5,558), low-risk (n=1,906), moderate-risk (n=1,150), problem (n=582).

Q15. Please indicate how important each of the following features are to you in a gambling product. Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

See Appendix 4 for a detailed table of the mean importance ratings for the VICES features for ATG and Non-ATG Players by Problem Gambling Severity.

ATGs and Demographic Differences

A series of chi-square tests of independence were run to reveal any significant demographic differences in ATG play. As per Table 18, the following significant demographic differences in having gambled on an ATG were found:

- Higher percentage of males (38.5%) than females (26.1%) had gambled on an ATG.

- The proportion of players gambling on automated table games increased with gambling severity status. Almost 70% of problematic gamblers had gambled on ATGs (see Figure 20).

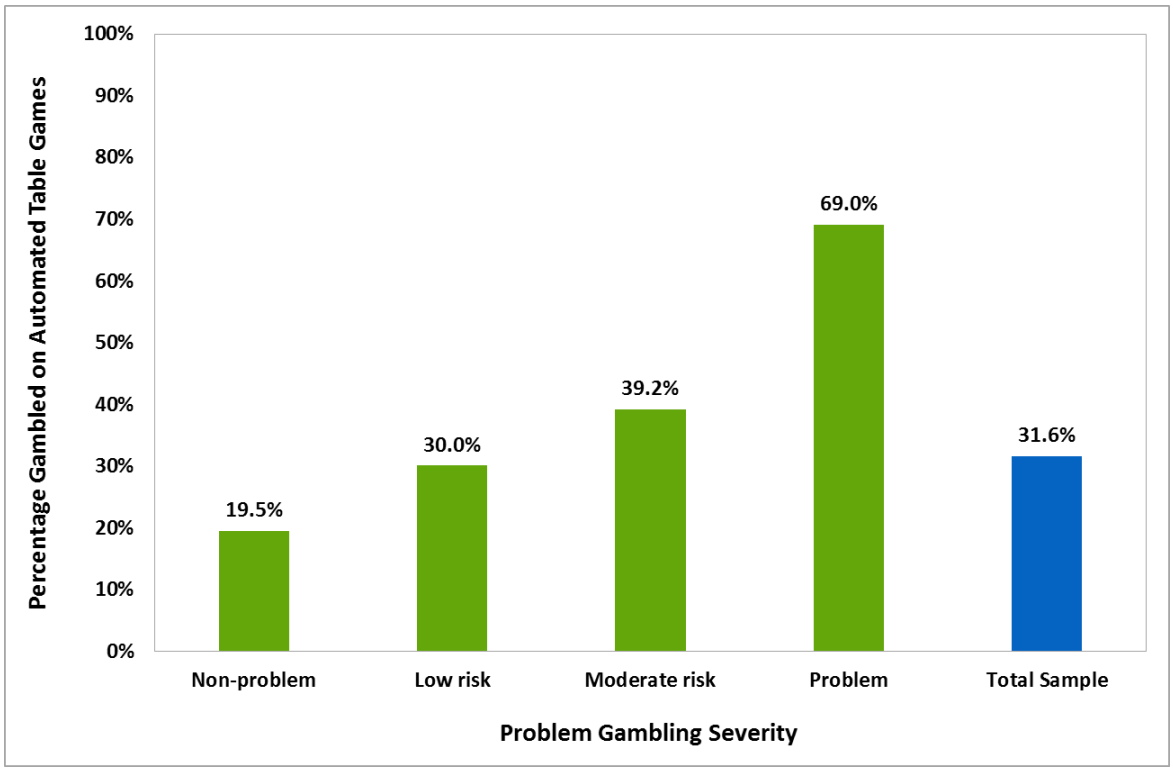


Figure 20. Percentage Gambled on Automated Table Games by Problem Gambling Severity

Base: Total (n=13,604). PGSI: Non problem (n=6,901), low-risk (n=2,724), moderate-risk (n=1,890), problem (n=1,879).

Q1b. 'Automated games' use games-cabinets or kiosks, similar to electronic Pokies, to deliver traditional casino-style table games. Have you gambled on automated versions of traditional table games such as Roulette, Baccarat or Blackjack at a casino or other venue?

- An independent groups t-test found that participants who had gambled on ATGs were younger (M = 40.24 years, SD = 14.11) than those who had not gambled on ATGs (M = 50.11 years, SD = 15.49), $t(9100) = 36.74$, $p = <.001$.
- Participants living in Western Australia were more likely to play ATGs (40.6%) and those in the Northern Territory were the least likely (21.3%).
- A higher percentage of participants living in an urban area have gambled on ATGs (36.8%) than those living in regional towns or cities (27.4%) or rural areas (18.8%).
- A higher percentage of participants who are employed have gambled on ATGs (38.9%) than participants who are unemployed (20.1%).
- Participants identifying as Aboriginal and/or Torres Strait Islanders had a higher percentage of ATG play (53.1%) than those not identifying as an Aboriginal and/or Torres Strait Islander (31.1%).
- More participants with a non-Australian cultural background gambled on ATGs (38.2%) than people nominating an Australian background (29.1%).
- The highest percentage of ATG play amongst participants were those who were single (39.1%) or in a de facto relationship (35.6%).
- The highest percentage of ATG play was amongst participants with a university education (38.7%) and the lowest for participants with an education level of year 11 or below (20.5%).

- The chi-square test reveals that as personal and household level increase then so does the proportion of those who have gambled on ATGs.
- A non-parametric Spearman's rho correlation analysis between ATG Play (1=Yes, 2=No) and income levels (1=$0-$599 weekly ($0-$31,199 per year to 5=$2,000 or more weekly ($104,000 or more per year) supports the above finding with those having played an ATG having a significantly higher annual personal income (r_s = -.186, $p < .001$) and a significantly higher annual household income (r_s = -.155, $p < .001$).

No differences were found in ATG play between those born in Australia (31.8%) and those born Overseas (30.4%).

Table 18. Ever played an Automated Table Game (ATG) - Chi-square tests of independence by demographics

Demographic	Played ATG (%)	Pearson χ^2	N	*df*	*p*
Gender		241.47	13,604	1	.000
Male	38.5				
Female	26.1				
PGSI		1748.46	13,394	3	.000
No problem	19.5				
Low-risk	30.0				
Moderate risk	39.2				
Problem	69.0				
Age Group		1209.55	13,604	5	.000
18-25 years	48.4				
26-35 years	49.3				
36-45 years	38.6				
46-55 years	27.1				
56-65 years	17.5				
65+ years	12.7				
State		85.92	13,412	7	.000
NSW	33.6				
VIC	32.2				
QLD	27.4				
SA	26.6				
WA	40.6				
TAS	26.0				
ACT	32.7				
NT	21.3				
Area Type		230.63	13,554	2	.000
Urban	36.8				
Regional town or city	27.4				
Rural	18.8				
Country of Birth		1.89	13,604	1	0.88
Australia	31.8				
Overseas	30.4				
Cultural Background		94.01	13,604	1	.000
Australian	29.1				
Non-Australian	38.2				

Demographic	Played ATG (%)	Pearson χ^2	N	*df*	*p*
Employment Status		519.38	13,391	1	.000
Employed	38.9				
Unemployed	20.1				
Aboriginal or Torres Strait Islander		67.99	13,604	1	.000
Yes	53.1				
No	31.1				
Education Level		332.44	13,558	3	.000
Year 11 below	20.5				
Year 12	30.2				
TAFE / Trade Certificate	26.5				
University	38.7				
Marital Status		204.17	13,604	5	.000
Single (never married)	39.1				
Widowed	16.7				
Divorced/Separated	22.3				
Married	30.2				
De facto	35.6				
Other	20.8				
Annual personal income		481.34	13,377	4	.000
$0-$599 weekly ($0-$31,199 per year)	22.8				
$600-$999 weekly ($32,000-$51,999 per year)	34.6				
$1,000-$1,499 weekly ($52,000-$77,999 per year)	42.9				
$1,500-$1,999 weekly ($78,000-$103,999 per year)	41.5				
$2,000 or more weekly ($104,000 or more per year)	43.6				
Annual household income		318.80	13,164	4	.000
$0-$599 weekly ($0-$31,199 per year)	22.7				
$600-$999 weekly ($32,000-$51,999 per year)	25.3				
$1,000-$1,499 weekly ($52,000-$77,999 per year)	31.8				
$1,500-$1,999 weekly ($78,000-$103,999 per year)	35.9				
$2,000 or more weekly ($104,000 or more per year)	41.4				

Base: Total played an ATG (n=4,295).

Q1b. 'Automated games' use games-cabinets or kiosks, similar to electronic Pokies, to deliver traditional casino-style table games. Have you gambled on automated versions of traditional table games such as Roulette, Baccarat or Blackjack at a casino or other venue?

A closer look at the differences in play on ATGs by cultural background revealed that of those not identifying as Australian, Vietnamese participants had the highest participation in ATG play (72.0%), followed by people from Indian (63.7%), Chinese (57.9%), and Malaysian (57.7%) backgrounds. These groups were participating in ATG play twice as much or more than Australians (29.3%) and others from a European background. See Figure 21 below for a breakdown of percentages gambling on ATGs by cultural background.

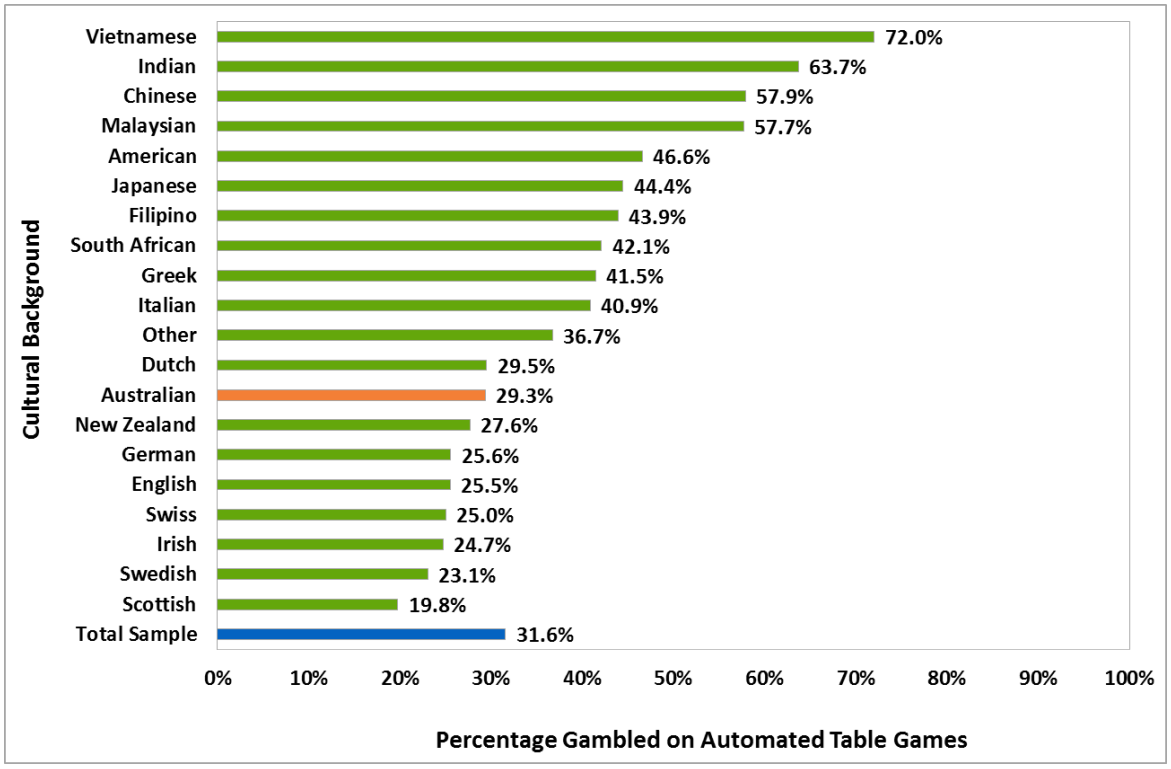


Figure 21. Percentage Gambled on Automated Table Games by Cultural Background

Base: Total (n=13,604). Cultural background: Australian (n=10,207), English (n=1,030), Chinese (n=463), Italian (n=235), Indian (n=234), New Zealander (n=217), Greek (n=123), Irish (n=97), American (n=88), German (n=86), Scottish (n=86), Vietnamese (n=75), Filipino (n=66), Dutch (n=61), Malaysian (n=52), South African (n=38), Japanese (n=18), Swedish (n=13), Swiss (n=12), Other Unspecified (n=403).

Q1b. 'Automated games' use games-cabinets or kiosks, similar to electronic Pokies, to deliver traditional casino-style table games. Have you gambled on automated versions of traditional table games such as Roulette, Baccarat or Blackjack at a casino or other venue?

ONLINE BETTING AND WAGERING

Of the total sample who have gambled in the last 12 months, 46.1% (n = 6,336) had bet on sports or wagered on hose/dog racing (excluding the Melbourne Cup) during this period. More than half of participants (58.2%) who had bet on sports/wagered or horses/dogs in the last 12 months also placed bets online; either through computer websites or smart phone/tablet applications.

Descriptive analyses drawing out the differences between traditional and the innovative-online sports wagering/betting will be reported on in this section.

Sports Betting / Race Wagering Preferences

Participants who had bet on sporting events or racing were asked which events they preferred to wager on, allowing multiple events to be selected an 'other' events to be specified. As shown in Figure 22, more than three-quarters of participants who have bet on sports or wagered on horses/dog in the last 12 months prefer to wager on horses (76.3%), followed by football (31.7%) and greyhounds (24.8%). 'Other' types of events specified by participants, which each accounted for less than 1% of responses, were: soccer, tennis, motor racing, basketball, baseball, golf, boxing, American football, and ice hockey.

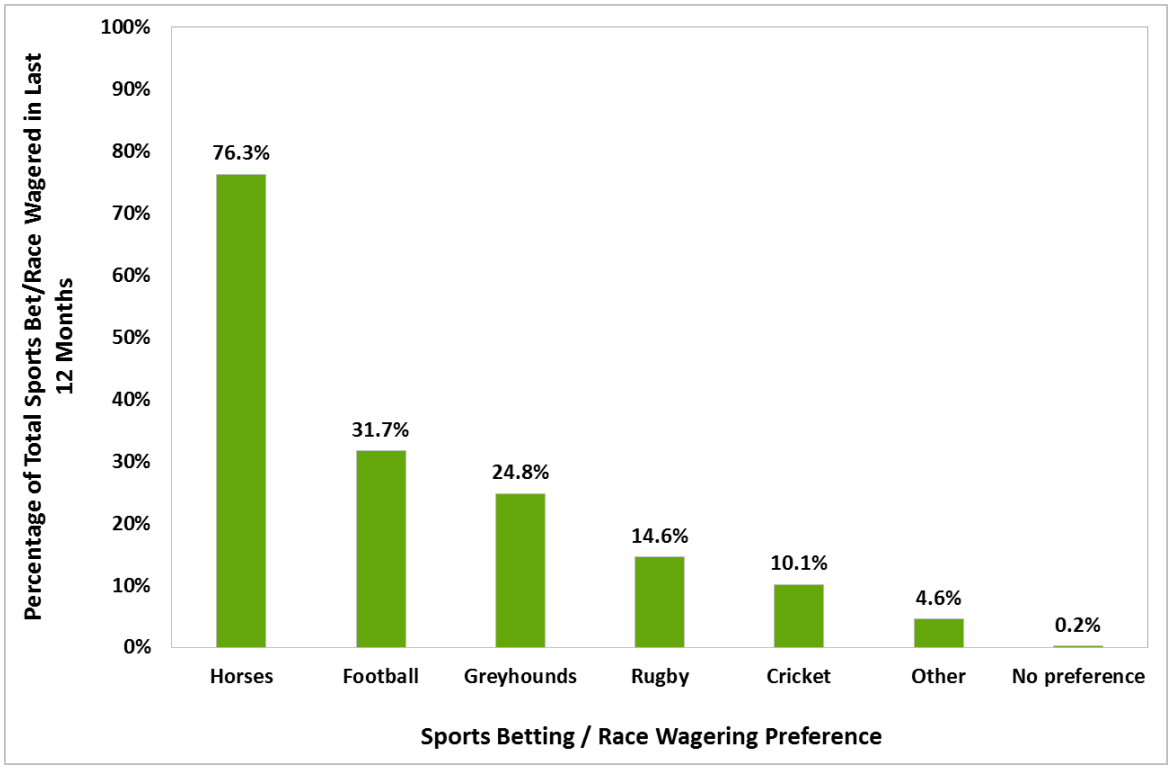


Figure 22. Sports Betting / Race Wagering Preference

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336).
Q18. Which events do you prefer to wager on? Select all that apply.

As shown in Figure 23, people who have not bet online (and therefore bet via another medium, such as a venue or via the telephone) most often prefer to gamble on horses, football or greyhounds. Although people who have bet online (either via an internet website or smart phone/tablet device) also favour horses, football and greyhounds, they are relatively more likely to pick rugby cricket or other sports as their preferred game.

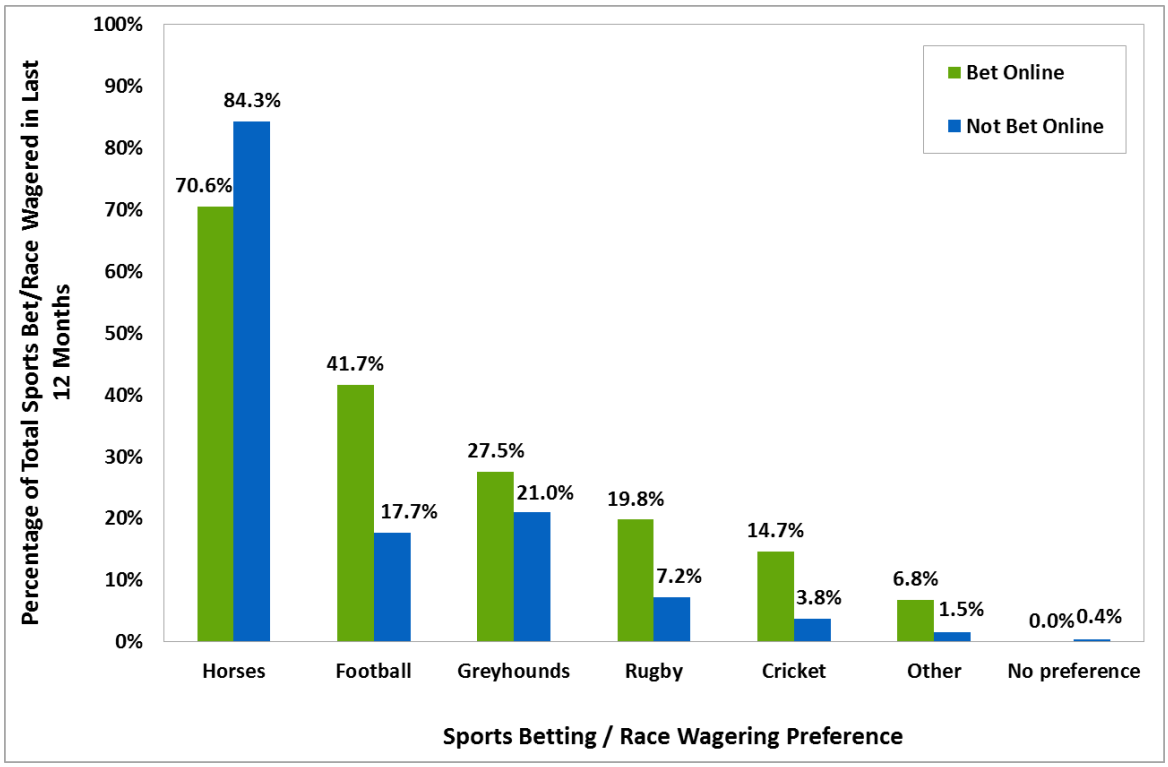


Figure 23. Sports Betting / Race Wagering Preference by Online Betting Status

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336). Bet online via internet website or smart phone/tablet application: Yes (n=3,685), No (n=2,651).

Q18. Which events do you prefer to wager on? Select all that apply.

Preferred Method of Betting / Wagering

One-third of sports bettors/race wagerers preferred placing bets via an online website (32%), which is well above preferences for other modes of betting. One-tenth preferred betting via their smart phone or tablet application (11.6%).

The most commonly preferred physical venues for betting/wagering were TAB outlets (21.5%) and hotel/club/pub (17.0%). See Figure 24 below.

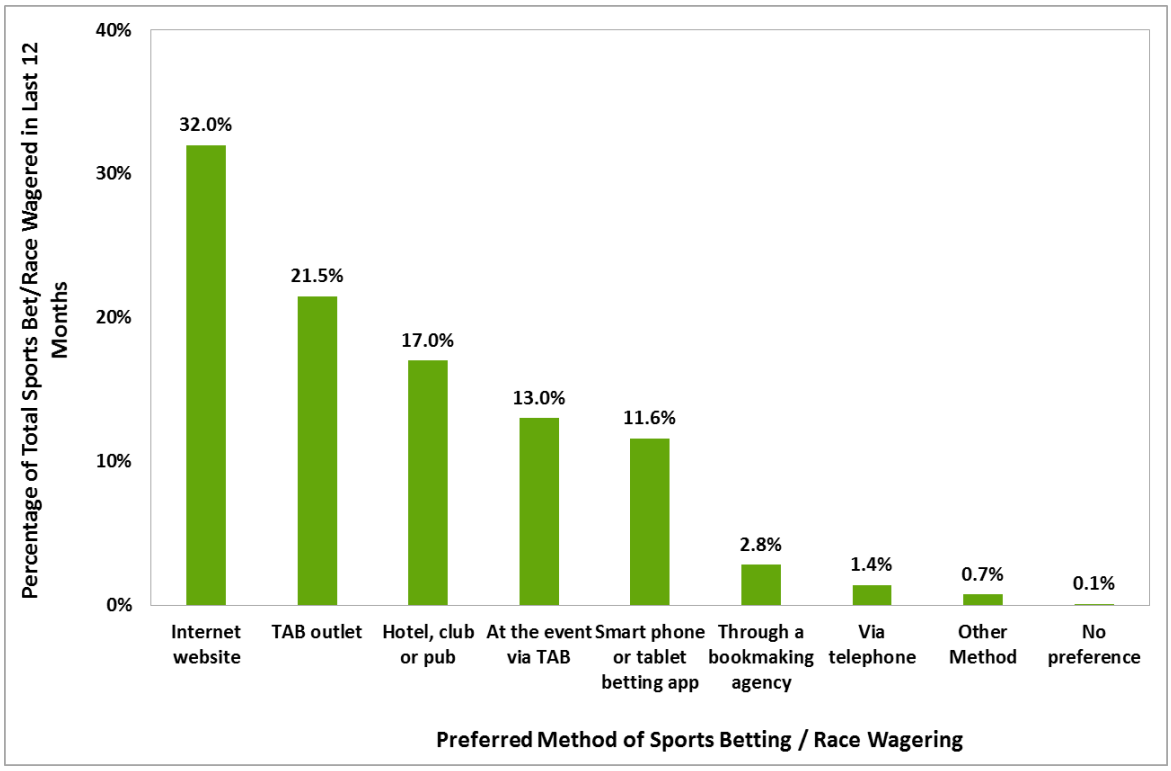


Figure 24. Preferred Method of Sports Betting / Race Wagering

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336).
Q19. What is your preferred method for placing bets? Select one option only.

Figure 25 below compares main preferences for betting/wagering between online and non-online bettors. Not surprisingly, the two main preferences for those betting online were via Internet websites (51%) and smart phone/tablet applications (19.6%). Whereas, for those not betting online their preference was split between traditional venues: TAB outlet (35.5%), hotel/club/pub (30.2%), and at the event via TAB (22.3%).[4]

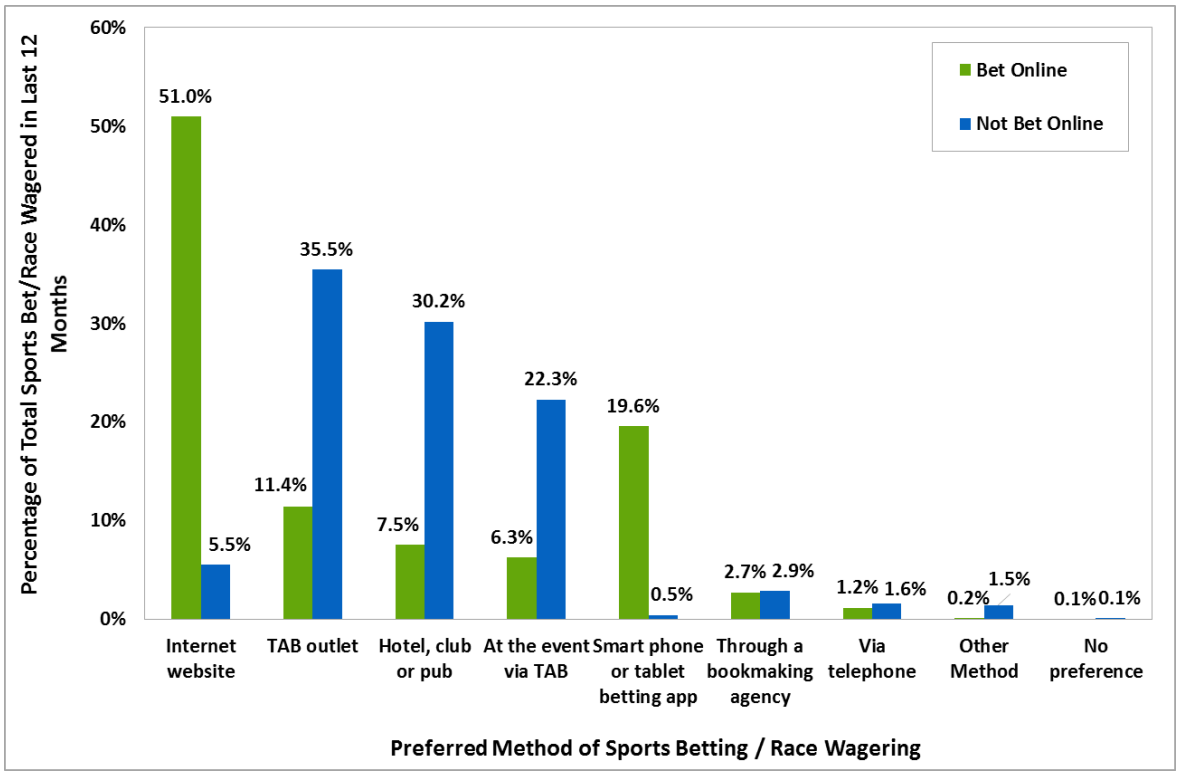


Figure 25. Preferred Method of Sports Betting / Race Wagering by Online Betting Status

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336). Bet online via internet website or smart phone/tablet application: Yes (n=3,685), No (n=2,651).

Q19. What is your preferred method for placing bets? Select one option only.

Q21. Do you ever place bets using an Internet website or smart phone (or tablet) application?

[4] As per Figure 25, 5.5% of non-online bettors selected Internet websites as their preferred method of betting, which appears inconsistent with their previous response of having not placed bets online.

Frequency of Betting and Wagering

As shown in Figure 26, nearly 40% of participants betting on sports / wagering on horse/dog races in the last 12 months only bet a few times a year.

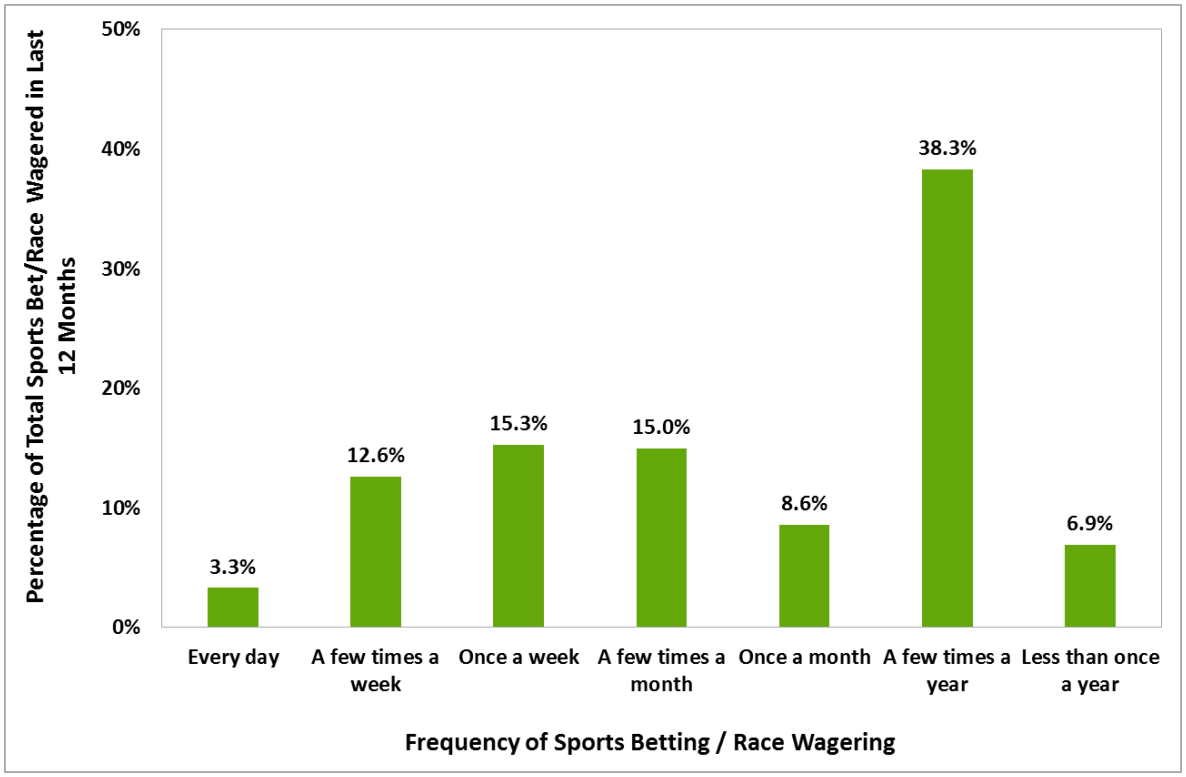


Figure 26. Frequency of Sports Betting / Race Wagering

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336).
Q17. How often do you bet on racing or sports events?

Online bettors gambled with greater frequency than in-venue bettors. In fact, just over two-fifths of online bettors gambled at least once a week or more, which was more than twice that of non-online bettors. See Figure 27.

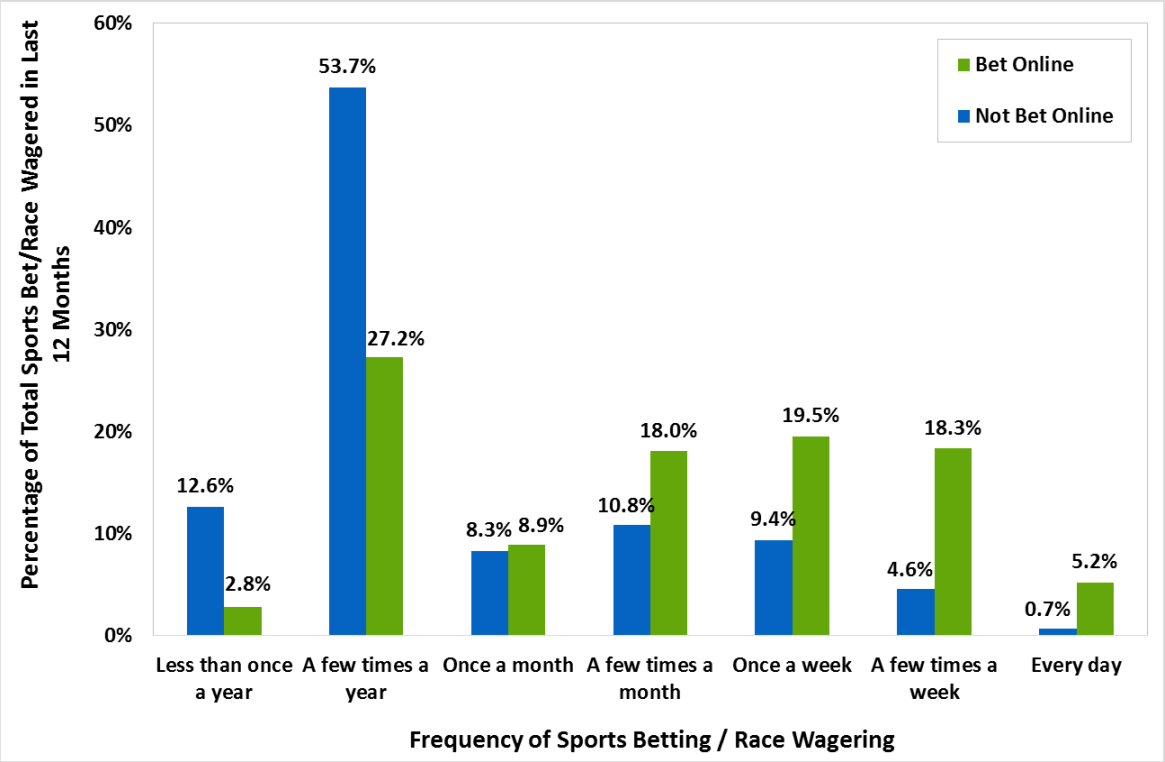


Figure 27. Frequency of Sports Betting / Race Wagering by Online Betting Status

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336). Bet online via internet website or smart phone/tablet application: Yes (n=3,685), No (n=2,651).

Q17. How often do you bet on racing or sports events?

Q21. Do you ever place bets using an Internet website or smart phone (or tablet) application?

Innovative Betting Products

Online betting services are increasingly offering greater diversity in betting products, including fractional betting, exotic betting (e.g. race order, trifectas), novelty betting (wagering on non-sporting events) and betting exchanges (with punters effectively acting as a bookmaker).

Participants who bets on sports / wagered on races were asked to select which of these betting products they had purchased. Just over 60% had purchased at least one of these betting products.

The most common products purchased were exotic bets (42.4%) and fractional bets (30%). Only a small percentage had gambled on novelty wager, such as a non-sporting event (7.5%), or a betting exchange (5.8%). See Figure 28 below.

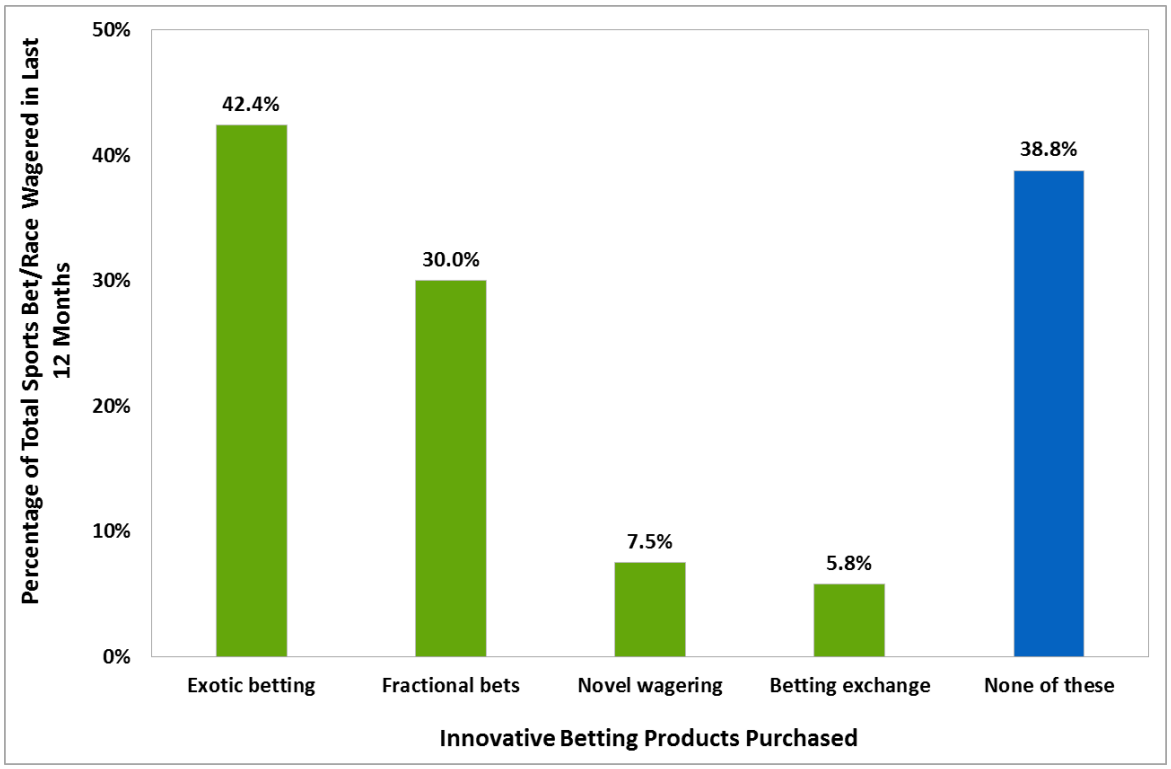


Figure 28. Innovative Betting Products Purchased

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336). Multiple response question, excluding 'None of these'.

Q20. Please indicate which of the following gaming products you have purchased. Select all that apply.

Online bettors have purchased more non-traditional wagering products (exotic bets, fractional bets, novel wagering, and betting exchange) than those who have not placed bets online. See Figure 29 below.

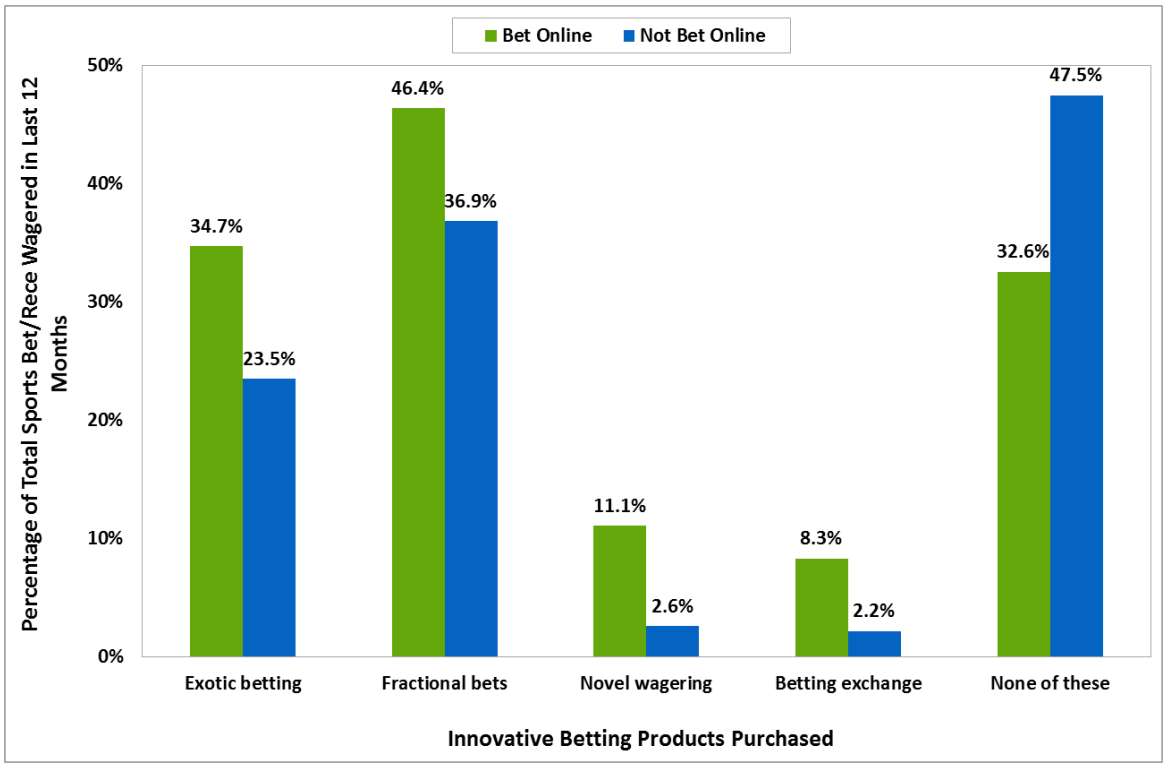


Figure 29. Innovative Betting Products Purchased by Online Betting Status

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336). Multiple response question, excluding 'None of these'. Bet online via internet website or smart phone/tablet application: Yes (n=3,685), No (n=2,651).

Q20. Please indicate which of the following gaming products you have purchased. Select all that apply.

Q21. Do you ever place bets using an Internet website or smart phone (or tablet) application?

The Influence of Features of Online Betting Products

Sports Bettors / Racing Wagerers who have Bet Online

Sports bettors / racing wagerers who have placed bets online were asked to rate the rate the importance of factors in their *decision to use* online betting/wagering products. Ratings were on scale of 1 = not at all important, 2 = a little important, 3 = moderately important, to 4 = very important. Aspects included convenience, privacy, ability to experiment with betting products, security, and to specify 'other' important factors in their decision. Using the VICES framework these products features were assigned to a VICES feature for reporting. For the purposes on this report, the importance ratings of these five features in decision to use online product and to their online gambling experience have been reported side-by-side.

Participants were also asked to rate the importance of product features in *their online gambling experience* that captured the VICES framework - visual/audio enhancements, illusion of control, complexity, expedited play, and social customisation.

Correlations were conducted between mean importance ratings of the VICES features, which found that endorsements of most features were significantly positively correlated with each other ($p < .05$). See Appendix 5 tables for correlation matrices between mean ratings of the VICES features by online bettors. The exception was convenience, which negatively correlated with 'animated simulations of races or sporting events', 'win/loss animations', and 'being able to personalise your account'. The importance of security was also negatively correlated with 'animated simulations of races or sporting events'.

As per Figure 30, the importance of security, convenience, and privacy in online bettors decision to use online wagering products were rated the highest (M = 3.61, 3.40, and 3.36, respectively). 'Ability to experiment with betting products' was rated a little lower in importance for decision making (M = 3.22). Other features rated closely as moderately important were: instant calculation of complex betting costs (M = 3.08) and the ability to bet on multiple events (M = 3.00).

Within the VICES framework, most features endorsed as moderately 'high-importance' fell under either Expedited Play or Social Factors. Features representing Illusion of Control and Complexity had similar ratings, and fell on the low spectrum of being moderately important. Visual/audio enhancements seen in online products (e.g. animation of events) held very little importance to online bettors.

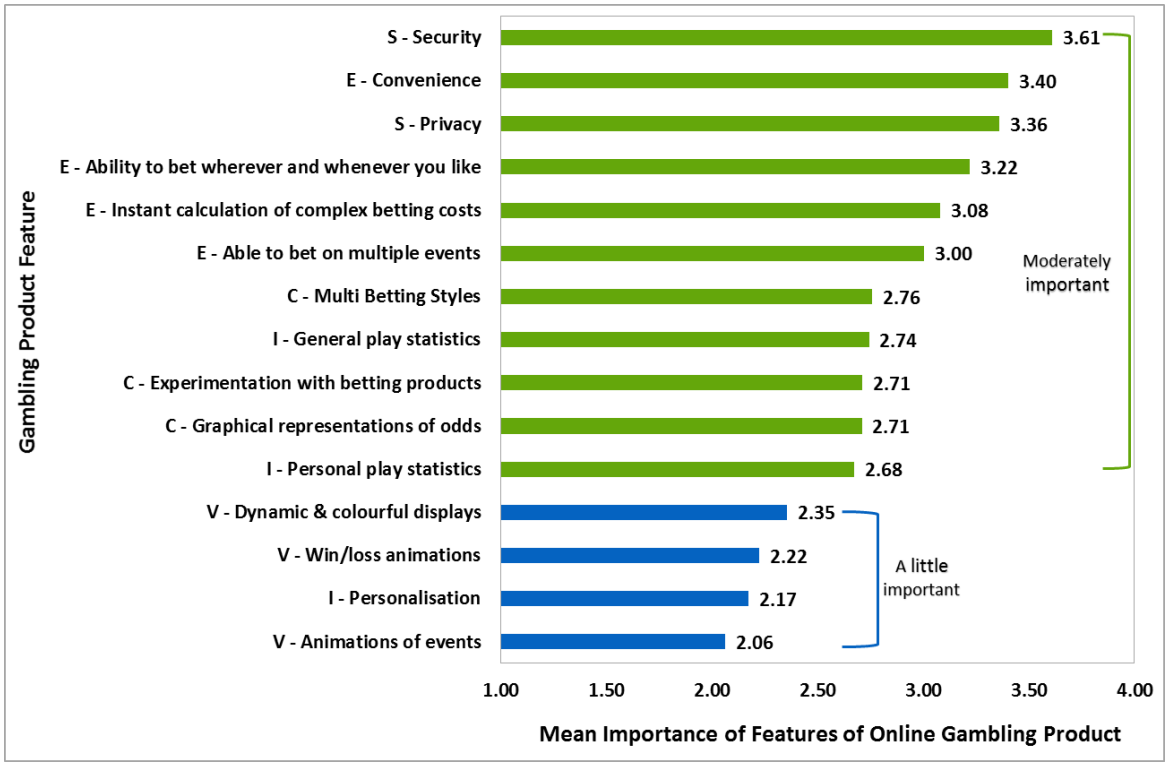


Figure 30. Mean Importance of Features in Online Gambling Product (VICES) – Online Bettors

Base: Total bet on sports events or racing in the last 12 months and has bet online via an internet website or smart phone/tablet application (n=3,685).

Q22: How important are each of the following in your decision to use online wagering products?

Q23. Please indicate how important each of the following features are to your online gambling experience. Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

As shown in Table 19, the majority of the 159 'other' unprompted responses for features of moderate importance in decisions to use an online product were focused on features outside of the VICES framework (73%). Of the VICES features, Expedited Play features had the highest mention (12.6%). Other VICES features accounted for less than 5% each of 'other' features of importance.

The most commonly mentioned 'other' features of importance were:

- Ease of use / accessibility (n = 28, M = 3.75)
- Better odds / returns (n = 20, M = 3.30)
- Easy deposit / withdrawal (n = 13, M = 3.85)
- Cheaper / better value (n = 9, M = 3.00)
- Bonuses, free bets etc (n = 7, M = 3.57)

Table 19. Importance of 'other' unprompted features in decision to use an online product: categorised into VICES framework

VICES Feature	N	% Total	Mean Importance
Visual / Audio	3	1.9	3.00
Illusion of Control	6	3.8	4.00
Complexity	7	4.4	3.63
Expedited Play	20	12.6	3.30
Social Factors	7	4.4	3.86
Other	116	73.0	3.48
Total	**159**	**100**	**3.49**

Base: Total specifying an "Other (please specify)" factor of importance in their decision to use an online wagering product (n=159).

Q22: How important are each of the following in your decision to use online wagering products? "Other (please specify)" responses. Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

Sports Bettors / Racing Wagerers who have not bet online

Sports bettors/racing wagerers who had not placed bets online via an internet website or a smart phone/tablet application were asked separately to rate which features would influence them to wager on sporting events or racing using online products. Ratings were on scale of 1 = very unlikely, 2 = somewhat unlikely, 3 = somewhat likely, to 4 = very likely.

Non-traditional wagering products (exotic betting, fractional bets, novel betting, and betting exchange) were included as online features, and were categorised into the Complexity component of the VICES framework.

As displayed in Figure 31 below online product features of security, privacy, and convenience were on average the most likely to influence use of the product (M = 2.90, 2.77, and 2.62, respectively) at

'somewhat likely'. Other product features were on average rated by this group as 'somewhat unlikely' to influence their decision to use and online betting/wagering product.

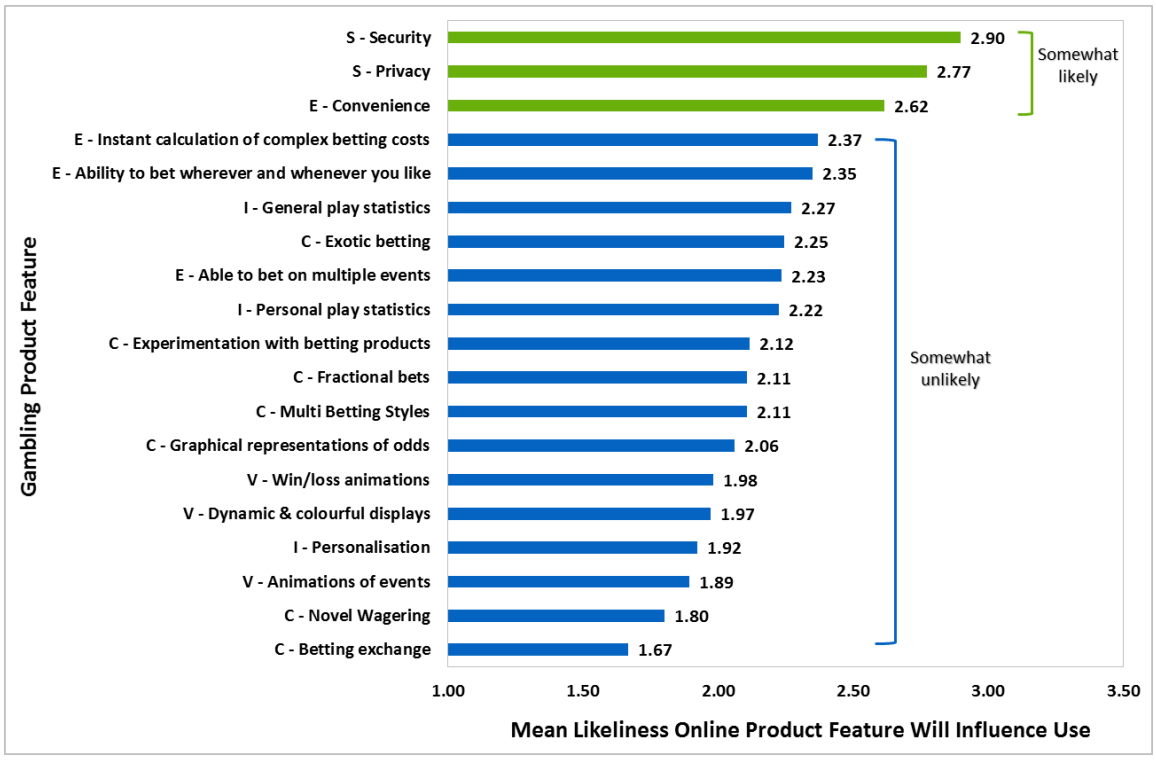


Figure 31. Mean Likeliness that Online Product Feature will Influence Use – Sports Bettors/Race Wagerers who have not bet online.

Base: Total bet on sports events or racing in the last 12 months, but has NOT bet online via an internet website or smart phone/tablet application (n=2,651).

Q25. New technologies are allowing players to bet on sports and racing events online, offering easier access, more options and simpler betting processes in digitalised formats. How likely would the following features be to influence you to wager on sporting events or racing using online products? Response options: 1 = Very unlikely, 2 = Somewhat unlikely, 3 = Somewhat likely, 4 = Very likely.

Sports Betting / Race Wagering and Online Betting by Problematic Gambling Severity

Table 20 below shows a breakdown for the sports betting/race wagering and online betting responses by PGSI. The following trends are shown:

- The proportion who have bet on sports/wagered on races in the last 12 months increases by PGSI.
- Frequency of betting/wagering generally increases by PGSI.
- Higher percentages of problematic gamblers prefer to wager on football, rugby, and cricket than the lower PGSI groups.
- A lower percentage of problematic gamblers prefer to wager on horses than the lower PGSI groups.
- A higher percentage of problematic gamblers prefer to place bets/wagerer at TAB outlets or at the event via TAB than lower PGSI groups. Whereas, a lower percentage of problematic gamblers prefer placing bets/wagering online (either via internet website or smart phone/table application) than the lower PGSI groups.
- A higher proportion of moderate-risk gamblers have placed exotic bets than the other PGSI groups.

- Purchase of fractional bets, novel wagering, and betting exchange increases by PGSI. Nearly half of problem gamblers had purchased a fractional bet.
- Purchase of at least one non-traditional wagering product (exotic bets, fractional bets, novel wagering, or betting exchange) increases by PGSI.
- The proportion of bettors/wagerers who have bet online in the last 12 months increased by PGSI with three-quarters of problem gamblers having bet online.

Table 20. Sports Betting / Race Wagering and Online Betting by Problematic Gambling Severity (%)

Survey Data	No problem (%)	Low-Risk (%)	Medium-Risk (%)	Problem (%)	Overall (%)
Bet on sports events or racing in the last 12 months	**39.5**	**48.6**	**51.8**	**60.6**	**46.1**
Frequency of sports betting / race wagering					
Less than once a year	10.5	4.9	4.2	2.8	6.9
A few times a year	50.1	38.6	29.2	17.5	38.3
Once a month	7.8	10.5	8.0	9.0	8.6
A few times a month	12.8	14.9	16.5	18.8	14.9
Once a week	11.2	15.4	16.3	24.7	15.4
A few times a week	6.5	13.7	21.3	18.3	12.6
Every day	1.1	2.0	4.4	9.0	3.3
Sporting events / races prefer to bet on					
Horses	79.7	78.0	79.2	63.7	76.3
Football	25.0	33.3	32.8	44.6	31.6
Greyhounds	18.4	24.9	33.2	32.6	24.8
Rugby	10.3	14.0	17.4	22.6	14.5
Cricket	6.5	9.3	10.5	18.8	10.0
Tennis	1.0	1.6	1.7	0.9	1.2
Soccer	0.6	0.7	1.3	0.4	0.7
Basketball	0.5	1.0	1.0	0.4	0.7
Motor Racing	0.6	0.7	0.3	0.2	0.5
American Football	0.3	0.3	0.5	-	0.3
Baseball	0.1	0.1	0.7	0.3	0.2
Golf	0.2	0.1	0.2	0.2	0.2
Ice Hockey	0.2	0.1	0.1	0.1	0.1
Boxing	0.1	0.1	0.1	0.1	0.1
Other Sport	0.4	0.4	0.9	0.4	0.5
No preference	0.3	0.1	-	-	0.2
Preferred method for placing bets / wagering					
Internet website	30.5	36.3	36.2	26.7	31.9
TAB outlet	21.7	18.3	19.1	27.0	21.5
Hotel, club or pub	17.4	18.5	17.1	14.8	17.1
At the event via TAB	15.4	10.2	8.4	14.1	12.9
Smart phone or tablet betting app	10.6	12.6	15.8	9.1	11.6
Through a bookmaking agency	2.3	2.0	2.0	5.7	2.8
Via telephone	0.9	1.5	0.8	2.5	1.3
At the event via a bookmaker	0.3	0.2	0.2	-	0.2
Via relative or friend	0.4	0.1	-	-	0.2
At the event (unspecified)	0.2	0.1	0.2	0.1	0.2
Workplace	0.1	-	-	-	-
Other Method	0.1	0.1	0.1	-	0.1
No preference	0.1	0.1	0.1	-	0.1
Innovative betting products purchased					
Exotic Betting	35.4	46.2	52.9	45.9	42.4

Survey Data	No problem (%)	Low-Risk (%)	Medium-Risk (%)	Problem (%)	Overall (%)
Fractional Betting	21.6	29.3	37.2	45.1	30.1
Novel Wagering	3.4	5.6	8.5	18.5	7.5
Betting Exchange	2.3	3.8	8.0	14.0	5.7
None	51.7	38.9	29.7	15.9	38.9
Placed bets using an internet website or smartphone/tablet application					
Yes	47.8	58.5	65.9	75.6	58.1
No	52.2	41.5	34.1	24.4	41.9
Main reason has sports bet / race wagered in the last 12 months					
Prefer other forms of gambling	40.3	53.2	61.0	53.1	46.8
I don’t like going to a TAB or club	20.8	17.3	14.6	19.9	19.2
to place a bet					
I don’t understand sports	18.3	19.3	17.7	23.2	18.9
wagering					
Not interested	6.0	2.3	1.7	0.3	4.2
I only bet on the Melbourne Cup	3.3	1.3	0.5	0.3	2.3
I don't gamble / don't gamble	3.0	0.5	0.2	0.4	1.9
often					
Against animal sports / betting on	1.1	1.2	0.8	0.8	1.1
animals / animal cruelty					
Other reasons	6.4	4.4	3.2	1.5	5.1
Don't know / no reason given	0.6	0.4	0.1	0.5	0.5

Base: Total (n=13,748). PGSI: Non problem (n=6,968), low-risk (n=2,755), moderate-risk (n=1,919), problem (n=1,895).

As shown in Figure 32, for sports bettors/race wagerers the importance ratings of online gambling product features in the online gambling experience were consistent in their profile between non-problem, low risk and moderate risk gamblers – generally increasing slightly with problematic gambling severity.

Problem gamblers rated all features of visual/audio enhancement and the personalisation of the game (an illusion of control) as being more important to the online gambling experience than gamblers with a lower gambling severity. Furthermore, problem gamblers rated convenience, privacy, and security as less important to their online gambling experience than gamblers with a lower gambling severity.

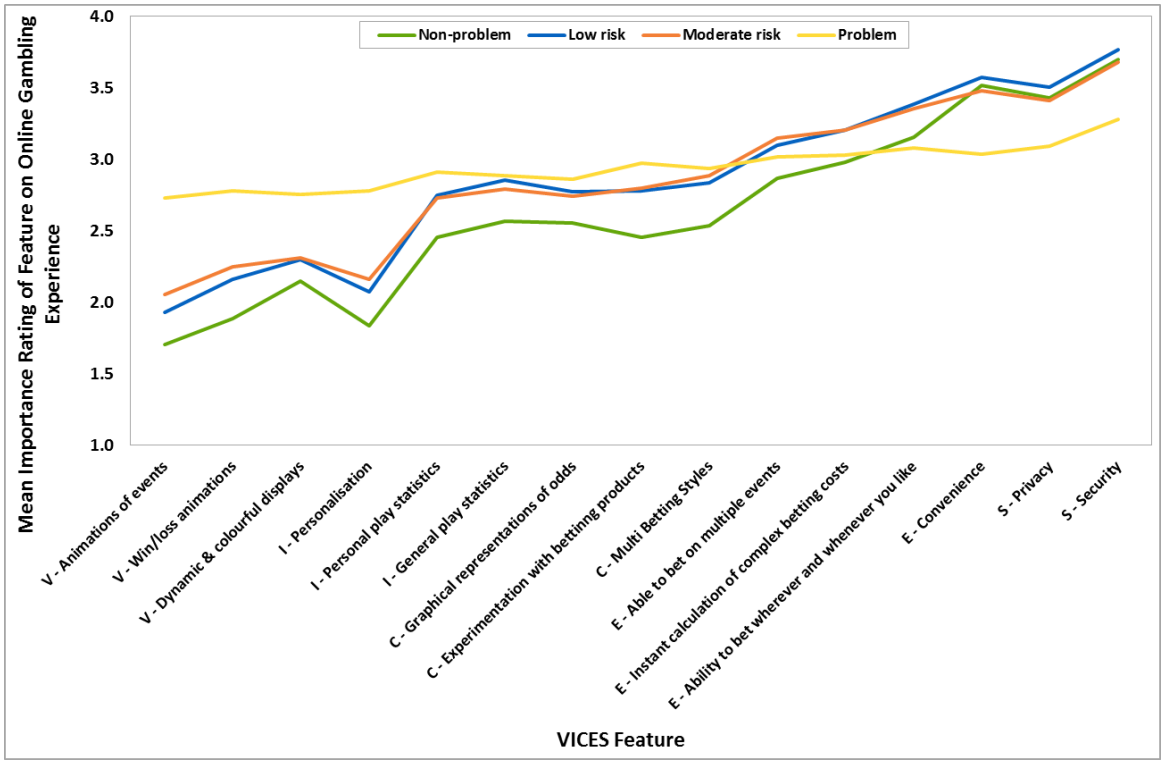


Figure 32. Mean Importance of Features in Online Gambling Experience by PGSI – Sports Bettors/ Racing Wagerers who have bet Online

Base: Total bet on sports events or racing in the last 12 months, has bet online via an internet website or smart phone/tablet application and has a PGSI score (n=3,621). PGSI: non-problem (n=1,313), low-risk (n=783), moderate-risk (n=656), problem (n=868).

Q22: How important are each of the following in your decision to use online wagering products?

Q23. Please indicate how important each of the following features are to your online gambling experience. Response options: 1 = Not at all important, 2 = A little important, 3 = Moderately important, 4 = Very Important.

Sports bettors/racing wagerers who had not bet online, rated the likelihood that each VICES feature would influence their use of an online gambling product. Ratings showed a similar profile across the VICES for all gambling severity groups, with likeliness of product feature influence increasing by problem gambling severity. See Figure 33.

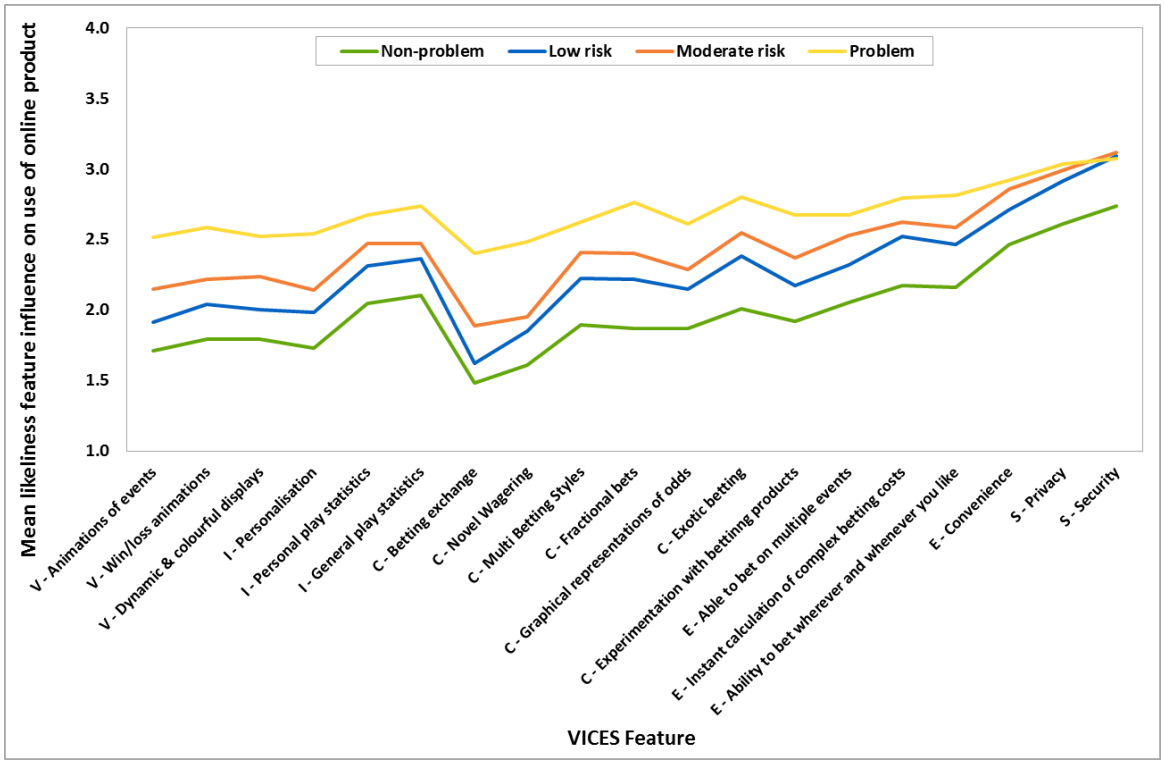


Figure 33. Mean Likeliness that Online Product Feature will Influence Use by PGSI – Sports Bettors/ Racing Wagerers who have NOT bet Online

Base: Total bet on sports events or racing in the last 12 months, NOT bet online via an internet website or smart phone/tablet application and has PGSI score (n=2,610). PGSI: non-problem (n=1,435), low-risk (n=556), moderate-risk (n=339), problem (n=280).

Q25. New technologies are allowing players to bet on sports and racing events online, offering easier access, more options and simpler betting processes in digitalised formats. How likely would the following features be to influence you to wager on sporting events or racing using online products? Response options: 1 = Very unlikely, 2 = Somewhat unlikely, 3 = Somewhat likely, 4 = Very likely.

For a detailed table of the mean ratings for the VICES features for sports bettors/racing wagerers who have and have not bet online by Problem Gambling Severity, see Appendix 5 and Appendix 6 respectively.

Online Betting and Demographic Differences

Online Bettors

A series of chi-square tests of independence were run to reveal any significant demographic differences in online betting. Table 21 shows significant differences across various demographics in proportions of online bettors. Main findings where:

- A higher proportion of males have bet online than females.
- The proportion of online bettors increased with problem gambling severity, with three-quarters of problematic gamblers having placed bets online. See Figure 34.

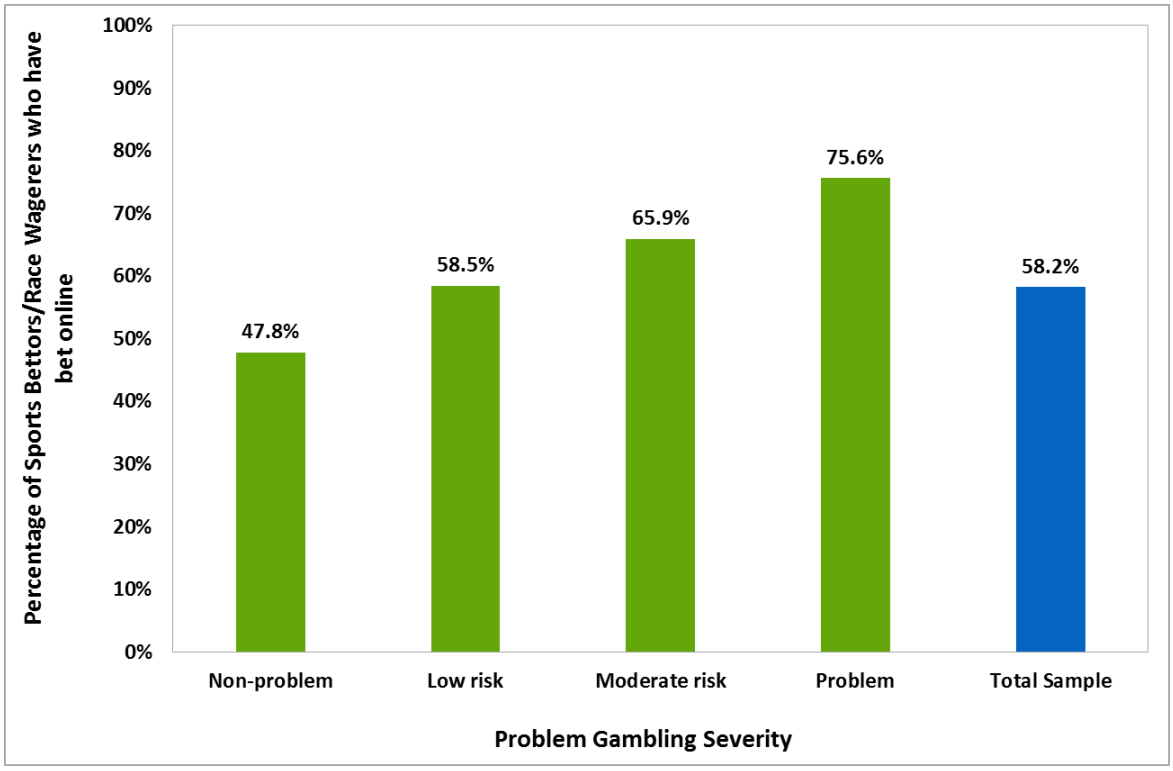


Figure 34. Percentage of Sports Bettors/Race Wagerers who have bet online by PGSI

Base: Total bet on sports events or racing in the last 12 months, has bet online via an internet website or smart phone/tablet application and has a PGSI score (n=3,621). PGSI: non-problem (n=1,313), low-risk (n=783), moderate-risk (n=656), problem (n=868).

Q21. Do you ever place bets using an Internet website or smart phone (or tablet) application?

- Higher proportions of younger age groups (45 years and below) have bet online compared to the older age groups (46 years and above). An independent t-test supports this finding with the average age of online bettors being significantly younger (M = 43.64 years, SD = 14.71) than those who have not bet online (M = 49.25 years, SD = 15.69), $t(5485) = -14.40$, $p = <.001$.
- No significant differences by state were found.
- Aboriginal and/or Torres Strait Islanders sports-bettors are more likely to have bet online.
- Betting online was higher for those living in urban areas than in regional or rural areas.
- Generally as education level increased so did the proportion who have bet online.
- A higher proportion of those employed have bet online than those unemployed

- Participants who are single (never married) had the highest percentage of having betting online.
- The chi-square test reveals that as personal and household level increase then so does the proportion of those who have bet online.
- A non-parametric Spearman's rho correlation analysis between sports bettors/race wagerers online betting status (1=Bet online, 2=have not bet online) and income levels (1=$0-$599 weekly ($0-$31,199 per year to 5=$2,000 or more weekly ($104,000 or more per year) supports the above finding with online bettors having a significantly higher annual personal income (rs = -.126, $p < .001$) and a significantly higher annual household income (rs = -.083, $p < .001$).

Table 21. Sports bettors / race wagerers who have placed a bet online - chi-square tests of independence by demographics

Demographic	Total Bet Online (%)	Pearson χ^2	N	*df*	*p*
Gender		151.75	6,336	1	.000
Male	65.0				
Female	49.6				
PGSI		289.56	6,231	3	.000
No problem	47.8				
Low-risk	58.5				
Moderate risk	65.9				
Problem	75.6				
Age Group		240.91	6,336	5	.000
18-25 years	62.1				
26-35 years	70.8				
36-45 years	63.3				
46-55 years	56.4				
56-65 years	47.8				
65+ years	42.6				
State		11.95	6,256	7	>.001
NSW	57.2				
VIC	60.4				
QLD	58.9				
SA	57.0				
WA	53.3				
TAS	55.2				
ACT	64.0				
NT	50.0				
Area Type		47.98	6,308	2	.000
Urban	62.0				
Regional town or city	54.3				
Rural	50.8				
Country of Birth		4.01	6,336	2	.045
Australia	58.7				
Overseas	55.4				
Cultural Background		4.68	6,336	2	.031
Australian	57.4				
Non-Australian	60.5				

Demographic	Total Bet Online (%)	Pearson χ^2	N	*df*	*p*
Employment Status		92.17	6,232	1	.000
Employed	62.4				
Unemployed	49.6				
Aboriginal or Torres Strait Islander		46.37	6,336	1	.000
Yes	81.0				
No	57.4				
Education Level		54.89	6,315	3	.000
Year 11 below	50.3				
Year 12	57.3				
TAFE / Trade Certificate	55.7				
University	62.4				
Marital Status		45.31	6,336	5	.000
Single (never married)	63.1				
Widowed	41.9				
Divorced/Separated	52.1				
Married	58.6				
De facto	56.3				
Other	45.5				
Annual personal income		102.42	6,240	4	.000
$0-$599 weekly ($0-$31,199 per year)	51.1				
$600-$999 weekly ($32,000-$51,999 per year)	58.7				
$1,000-$1,499 weekly ($52,000-$77,999 per year)	63.8				
$1,500-$1,999 weekly ($78,000-$103,999 per year)	63.6				
$2,000 or more weekly ($104,000 or more per year)	69.8				
Annual household income		45.84	6,133	4	.000
$0-$599 weekly ($0-$31,199 per year)	51.0				
$600-$999 weekly ($32,000-$51,999 per year)	56.1				
$1,000-$1,499 weekly ($52,000-$77,999 per year)	59.7				
$1,500-$1,999 weekly ($78,000-$103,999 per year)	59.7				
$2,000 or more weekly ($104,000 or more per year)	63.0				

Base: Total bet on sports events or racing in the last 12 months and has bet online via an internet website or smart phone/tablet application (n=3,685).

A closer look at the differences in having bet online by cultural background shows that higher proportions have bet online for people from an Asian cultural than Australian or those of European background, with the exception of those identifying as Irish. The top three cultures with around three-quarters having bet online were people identifying as: Indian (80.6%), Vietnamese (75.7%), and Malaysian (72.0%). See Figure 35.

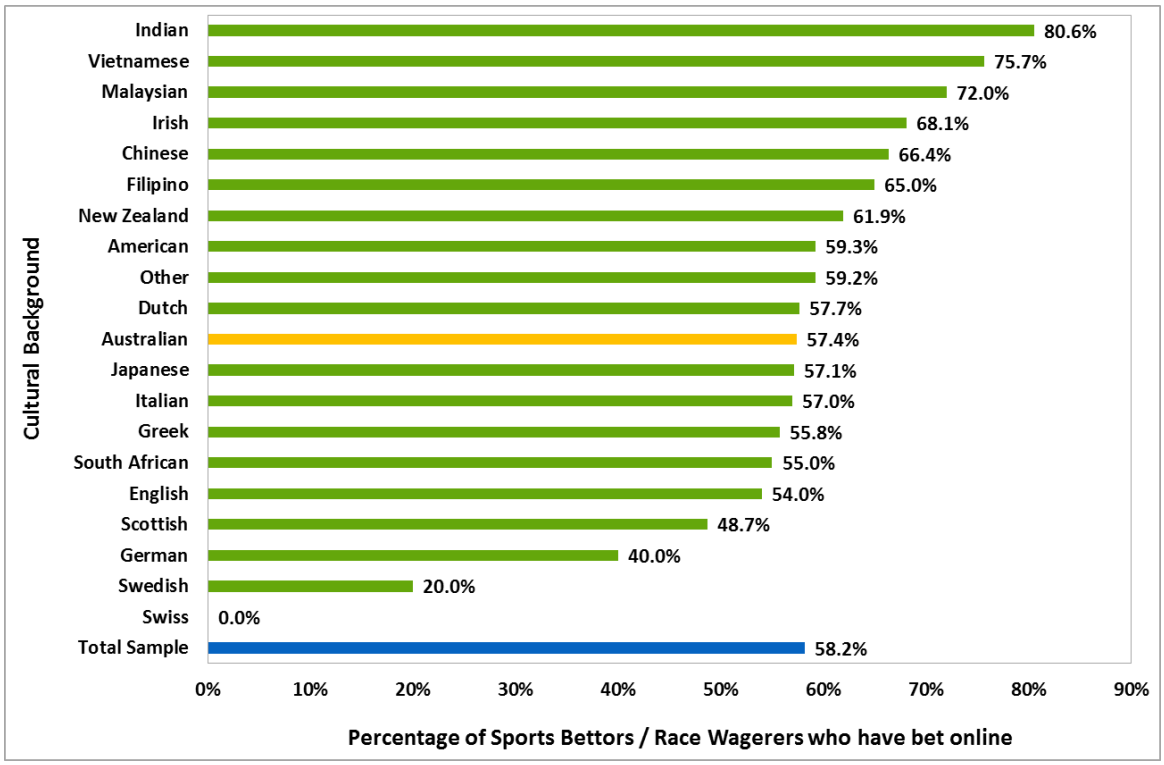


Figure 35. Percentage of Sports Bettors/Race Wagerers who have bet online by PGSI by Cultural Background

Base: Total bet on sports events or racing in last 12 months (n=6,336). Cultural background: Australian (n=4,808), English (n=452), Chinese (n=214), Italian (n=93), Indian (n=144), New Zealander (n=105), Greek (n=52), Irish (n=47), American (n=27), German (n=30), Scottish (n=39), Vietnamese (n=37), Filipino (n=20), Dutch (n=26), Malaysian (n=25), South African (n=20), Japanese (n=7), Swedish (n=10), Swiss (n=1), Other Unspecified (n=179).

Q21. Do you ever place bets using an Internet website or smart phone (or tablet) application?

Preferred Method of Sports Betting / Race Wagering

Descriptive analyses were conducted to identify any differences in the main five preferred methods of betting/wagering, which included via internet websites and via smart phone/tablet betting applications.

Figure 36 shows that the main gender difference in the preferred method of betting/wagering was that males had greater preference for betting via internet websites (36.4%) than females (26.4%). Conversely, females had higher preferences betting at the event via TAB (18.1%) than males (8.9%). Preferences for TAB outlets, hotel/club/pub, and smart phone/tablet applications were similar between genders.

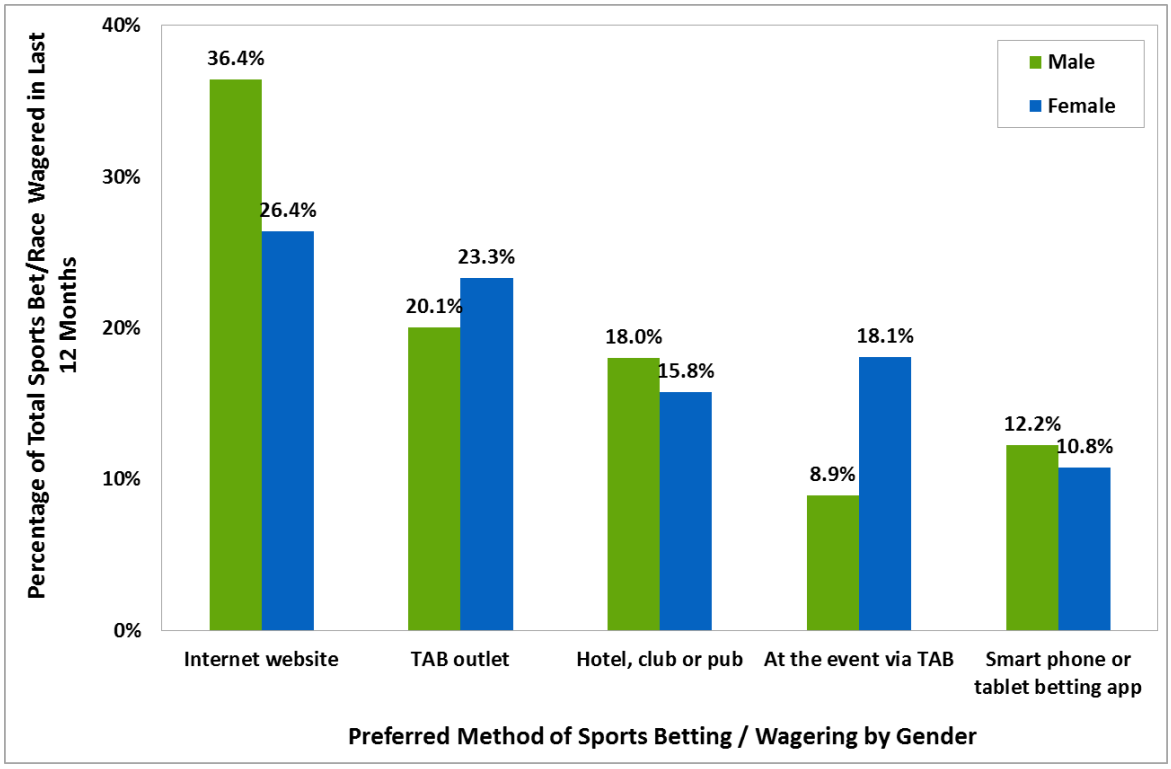


Figure 36. Preferred Method of Sports Betting or Wagering by Gender

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336). Males (n=3,519), Females (n=2,817).

Q19: What is your preferred method for placing bets? Select one option only.

There were differences in the preferred method of betting on sports / races by problem gambling severity, with a higher percentage of problem gamblers preferring the non-online methods (TAB outlets and at sporting events via TAB) than the groups at lower risk for problem gambling. Preference for sports betting via smart phone/tablet applications increases slightly from non-problem, low-risk, to moderate-risk gamblers. See Figure 37.

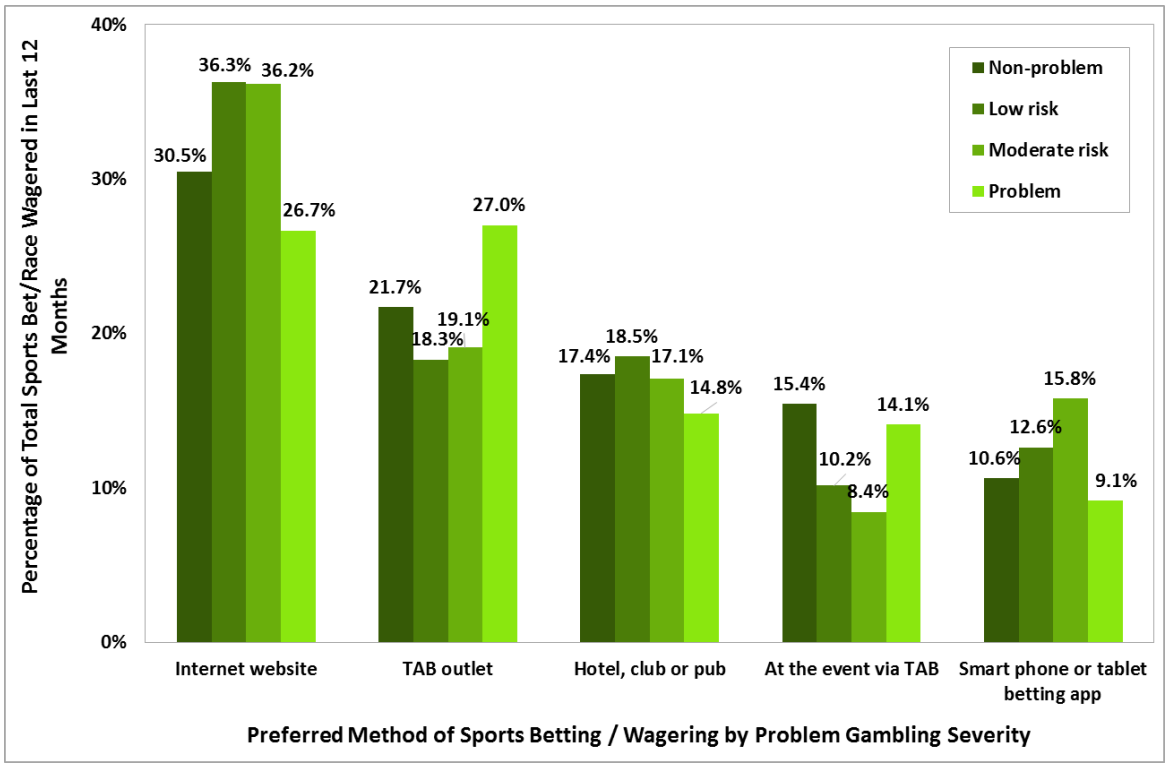


Figure 37. Preferred Method of Sports Betting or Wagering by PGSI

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336). PGSI: Non problem (n=2,749), Low-Risk (n=1,339), Moderate-Risk (n=995), Problem Gambler (n=1,148). Q19: What is your preferred method for placing bets? Select one option only.

A one-way ANOVA was conducted to analyse the relationship between preferred method of betting on sports/races and age, with age as the dependent variable. A significant interaction was found, $F(12, 6{,}323) = 29.28$, $p < .001$, with pairwise comparisons revealing the average age of bettors was significantly younger for those preferring to bet via a smart phone/tablet application (M=36.94 years) than other preferred methods ($p < .001$). Pairwise comparisons for the average age of those preferring betting via internet websites (M=47.64 years) were significantly older than those preferring betting via a smart phone/tablet application (M=36.94 years) and at the event via the TAB (M=45.41), both $p < .001$.

See Figure 38 for the average age of bettors by the top five preferred betting methods.

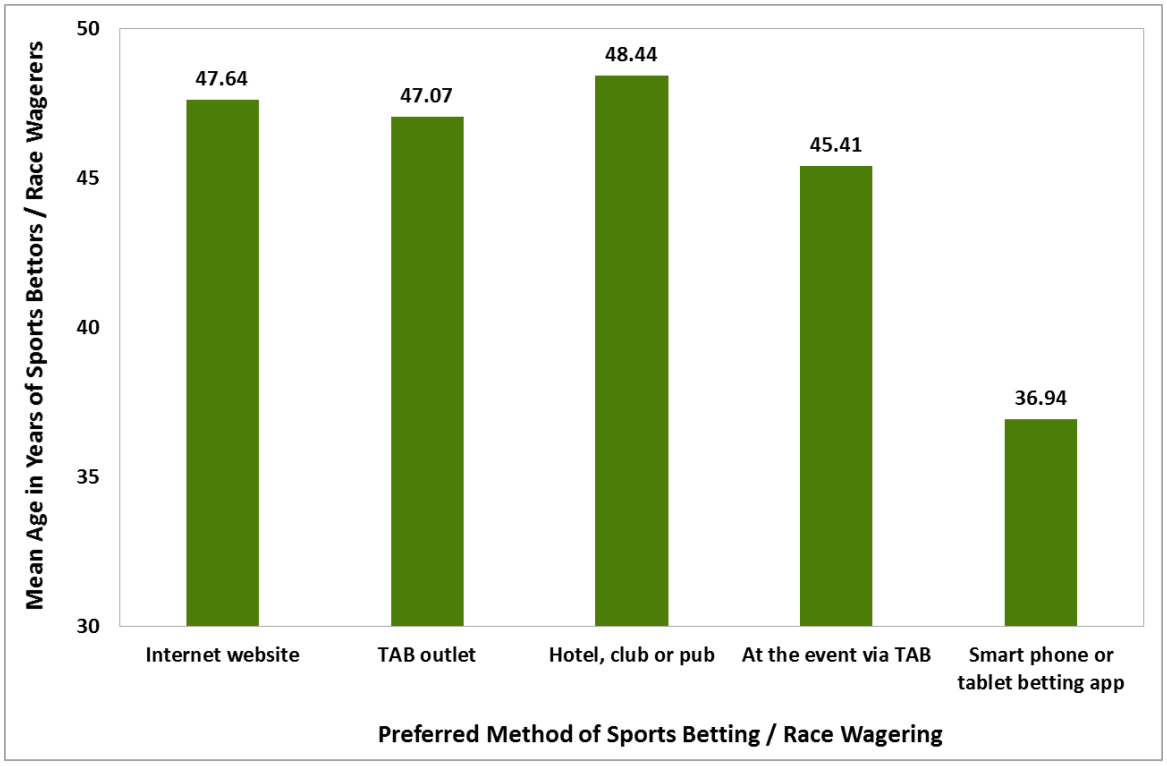


Figure 38. Preferred Method of Sports Betting / Race Wagering by Mean Age in Years

Base: Total bet on sports events or racing in the last 12 months, excluding the Melbourne Cup (n=6,336).
Q19: What is your preferred method for placing bets? Select one option only.

DISCUSSION

AUTOMATED TABLE GAMES

Our findings for automated table games have identified that this emerging innovative product is reaching a third of the market of gamblers (as represented by our sample), with electronic Roulette being the most commonly used and preferred of these products. Unsurprisingly, our prior environmental scan also found ATG Roulette to be one of the most common ATGs in Australian casinos. However, innovative table games have not yet surpassed gamblers' preference for the traditional table games. The exception is electronic Blackjack, which is equally preferred to the traditional form of Blackjack.

Automated table games are being preferentially played by gamblers who are: at a higher risk for gambling problems, male, single, younger, living in urban areas, employed, more highly educated, earning more money, and coming from a non-Australian cultural background. This is not surprising considering that ATGs are commonly found in casinos, which are typically located in metropolitan areas or larger regional areas (for example, Cairns); and therefore are frequented by an urban demographic. In fact, the most common reason for not having played an ATG (behind preferring other forms of gambling) is lack of access to ATGs. We may see in the future; if these innovative products become more widely available to gamblers in venues such as pubs, clubs or hotels; that these innovative forms of traditional table games could start to attract a different demographic.

Measures of gambling intensity - namely time spent playing and money lost - are not higher for automated table games compared to traditional table games. There were no large differences in time

and money are being spent on traditional table games than the innovative versions of these games for gamblers who have played both versions. Viewed in isolation, this suggests that ATOs are not representing an increased risk over traditional games.

Guided by the VICES framework, we investigated the importance of different types of enhanced features of automated table games, and whether some features were rated as more important than others. Both ATG players and non-ATG players rate instant payouts and privacy features as slightly more important than the other features. However, those already playing ATGs rated most features as moderately important, whereas those not playing ATGs found most enhanced product features of relatively little importance. Of course, it is not surprising that the people who play such games are likely to find the features to be attractive, but this also validates that the features we explored under the VICES framework are a reasonable representation of the positive attributes these innovated games possess.

Those at most risk for gambling problems rated the visual/audio, cognitive complexity, expedited play, and social features as relatively more important. These specific feature could be considered as a potential added risk wherever the innovated games emphasize these features. Of course, it is important to note that people with gambling problems may like these features - at least in part - because they are relatively more enamoured with gambling in general.

ONLINE SPORTS BETTING / RACE WAGERING

In our survey, online betting was about equally preferred to gambling in physical venues. It is important to note, however, that we recruited our participants from an online sample, and therefore it should be expected that this group is particular comfortable with online experiences.

Much like automated table games, use of online betting was higher for those who were: at higher risk for gambling problems, male, younger in age, living in an urban area, employed, more educated, earning more money, single, and having a non-Australian cultural background.

The gambling intensity for sports bettors/race wagerers who bet online was greater than those who bet exclusively in venues; as indicated by a greater frequency of betting/wagering (40% at least once a week) and a greater proportion purchasing a variety of betting products (e.g. exotic betting, fractional bets). Of course, people who bet both online and in-venue may simply be more involved gamblers. It is difficult to make causal inferences about the mode of gambling affecting behaviour independent of how it might attract gamblers who like to bet in many different ways.

The features of these online products of most importance to sports-bettors and race-wagers included both expedited play (i.e., convenience, ability to bet wherever and whenever they wanted, instant calculation of complex betting odds, ability to bet on multiple events), and social factors (i.e., security and privacy). Visual/audio features were rated of little importance to most online bettors. This may be understood when keeping in mind that online betting alternatives are generally of lower sensory quality than in-venue options. Thus, online betters would appear to prioritize other factors (e.g. convenience, accessibility) over attractiveness of the game. Other features around cognitive complexity and illusion of control were of moderate importance to both groups (online and offline), which is consistent with the observation that both alternatives provide similar features in these respects.

As with innovative casino table games, the rated importance of product features increased with respect to players' problem gambling severity category. Problem gamblers who bet online rated all visual/audio features (animation of events, win/loss animations, and dynamic colourful displays) and

the illusion of control feature to “personalise play,” as of greater importance that those at lower risk for gambling problems. In making sure these innovated forms of wagering do not particularly attract gamblers with problems, these aspects of the games might be de-emphasised.

CONCLUSION

Innovated games attract a higher proportion of gamblers with pre-existing problems, although these gamblers are known to play a variety of games - and rarely gamble exclusively online. Some specific features of innovated games, most notably “social” features for ATGs and an “illusion of control” feature for sports-betting and race wagering, were relatively more attractive to problem gamblers. Although ATGs are rarely a preferred form of gambling, betting on sports and racing online is beginning to be as attractive an alternative to in-venue betting for many gamblers. Sports betting and racing wagering online will likely attract particular attention from the research community due to its accelerating popularity with punters.

PHASE 4: FOCUS GROUPS

The qualitative investigation phase of the project sought to more deeply understand the subjective differences in gambler preference, psychology and phenomenology between traditional gambling products and their innovated versions. The phase addresses several key research questions of the project:

- What are the differences between how people psychologically experience traditional and innovated versions of games?
- What are the appealing aspects of both traditional and innovated products?
- In what ways do innovated products alter gambling behaviour?
- Are there any differences in the perception of risk or harm involved in gambling on innovated products compared to traditional products, and do innovated products encourage riskier or more harmful behaviour?

INTRODUCTION

Focus groups were conducted using a semi structured format to identify a range of game features and experiences; as described in the VICES from framework; that may differ between innovative and traditional gambling products. Both male and female participants were interviewed about each product type, and the interviews included people of various ages, levels of problem gambling risk, possessing different product preferences, and from various geographic locations.

We segmented the focus groups by product type. That is, each focus group discussion was centred around one particular product. We chose to investigate bingo, sports betting, poker, and casino table games as they are all popular gambling activities that are commonly accessed in both tradition and innovated forms. Nevertheless, it is worth reiterating that our environmental scan revealed that bingo and casino games are most common type of innovated game in Australia. Although it would have been desirable to have focus groups that covered additional products, our resources were constrained to investigating these popular and high-profile gambling modalities.

Due to the high rate of responses from bingo players interested in participating in the research, we held two focus groups for bingo. We also held two focus groups for casino table games, since we wished to capture the different preferences for people who play at a small regional casino compared to a large city casino. Focus groups were conducted in different locations across Australia in both regional and urban centres. As shown in Table 22 we held one focus group each in Cairns and Townsville, and two focus groups each in Melbourne and Bundaberg.

Segmenting the focus groups by product allowed us to enhance the quality of data. In having targeted product groupings, the specifics of each product could be discussed in depth from the perspective of the individuals that gamble on that particular product. This focus is important since different gambling products attract gamblers from different demographic backgrounds. In addition, the nature of technological innovation varies substantially between gambling products, resulting in different potential impacts on gambler behaviour, psychology and preference.

Table 22. Location and topics for each focus group

Number of focus groups	Location	Topic
2	Bundaberg, QLD	Bingo
1	Cairns, QLD	Casino table games
1	Townsville, QLD	Sports betting
1	Melbourne, VIC	Poker
1	Melbourne, VIC	Casino table games

METHOD

PARTICIPANTS

Forty current gamblers[5] (female, n = 21) from across Australia participated in the six focus groups (age, M = 44.38, SD = 16.91), with between three and eight participants in each focus group. The cultural identity of the participants was: 73% Australian, 10% New Zealander, 5% Indian and 12% other (individually comprising less than 2.5%). According to the PGSI (Ferris & Wynne, 2001), the problem gambler status of the participants was: 28% non-problem, 28% low risk, 26% moderate risk, and 18% problem gambling. According to the Consumption Screen for Problem Gambling (CSPG; Rockloff, 2011), the consumption level of the participants was: 74% high consumption and 26% low consumption. Table 23 shows a breakdown of participant characteristics according to age group, gender, type of game played and PGSI risk category.

Participants were recruited via two methods. Eleven of the participants for the bingo groups were recruited through handing out flyers in-venue during bingo sessions at a popular sports club in Bundaberg, QLD and all remaining participants were recruited through the social networking website, Facebook. The flyer recruitment method was used to capture people who did not use social media or were less likely to use social media. The online recruitment method was used to increase the likelihood of capturing people who gambled online. This method of recruitment has been shown to be more effective than other methods used for this purpose, such as telephone contact (Gainsbury et al. 2012). It is also a more cost effective method than newspaper advertising.

All potential participants were subject to a screening process to ensure they would be suitable for participation. We first confirmed that they were over 18 years of age, that they were active and regular users of the relevant product, and that they would be available to attend the focus group at the scheduled date and time. We then asked whether they had any experience with the innovated variant of the relevant product, so that we could organise for the participants in each focus group to have a mix of experiences; including participants who have never used the innovated product, those who have used it in the past but perhaps dislike it, and who actively use it. We also attempted to have a relatively even mix of males and females, although at times this was not practical to achieve based on the typical demographic characteristics of the users of different gambling products.

[5] The following figure represent the 39 participants who filled out a questionnaire. Data presented in the results section includes all 40 participants.

Table 23. Breakdown of participant characteristics according to age group, gender, type of game played and PGSI risk category

N	Gender	Age Group (years)	Game	PGSI Status
5	Female	50-78	Bingo	Low risk
3	Female	50-78	Bingo	No risk
2	Female	21-49	Bingo	No risk
2	Female	50-78	Bingo	Moderate risk
1	Female	21-49	Bingo	Low risk
1	Male	50-78	Bingo	No risk
1	Male	50-78	Bingo	Low risk
3	Female	21-49	Casino	High risk
2	Male	21-49	Casino	Low risk
1	Male	21-49	Casino	No risk
1	Male	21-49	Casino	Moderate risk
1	Female	21-49	Casino	Moderate risk
1	Male	50-78	Casino	High risk
1	Male	21-49	Casino	Moderate risk
1	Female	N/D	N/D	N/D
2	Male	21-49	Poker	No risk
2	Male	21-49	Poker	Moderate risk
2	Male	21-49	Poker	High risk
1	Male	21-49	Poker	Low risk
1	Male	21-49	Sport betting	High risk
2	Female	21-49	Sports betting	No risk
2	Female	21-49	Sports betting	Moderate risk
1	Male	21-49	Sports betting	Low risk
1	Male	21-49	Sports betting	Moderate risk
5	Female	50-78	Bingo	Low risk
3	Female	50-78	Bingo	No risk
2	Female	21-49	Bingo	No risk
2	Female	50-78	Bingo	Moderate risk

N/D = Not disclosed

PROCEDURE

We conducted six focus groups over a two week period in May/June 2015. The focus group discussions were held at CQU campuses in Bundaberg, Cairns, Melbourne and Townsville. All groups were facilitated by the same two members of the research team. Upon arrival, participants were given an Information Sheet in hardcopy to read. Using an internet-connected iPad, participants then gave their informed consent to participate in the research and completed a short questionnaire. The questionnaire asked a series of standard demographics questions followed by three problem gambling screens: the PGSI, the CSPG, and the Lie/Bet (Ferris and Wynne 2001; Rockloff 2012; Johnson et al. 1997). When all participants had provided consent and completed the questionnaire, the group discussion began with one of the facilitators introducing the research project and discussing safety protocols and ethical considerations, and subsequently continued as per the

moderator's guide. Each session was audio recorded using a basic electronic audio-recorder device. At the conclusion of the group discussion, each participant was provided with a $50 Coles/Myer gift card as compensation for their time. The sessions had a duration between 66 and 95 minutes, with an average of 82 minutes.

Prior to the conduct of each group, the two facilitators had prepared a semi-structured moderator's guide to ensure that the necessary areas of inquiry were pursued during the focus groups. The guide was structured in accordance with the VICES framework (see Introduction chapter), and suggested questions, prompts and key points covered characteristics of both traditional and innovative versions of the games. Individualised moderator's guides were then prepared for each product-type to take into account important differences in the nature of innovation across different products. Each focus group opened with an invitation for the participants to share their general experience and history of use with the product in question, including its traditional and innovated variants. This allowed for the discussion to take a natural and unprompted course; letting important themes arise organically and then direct further discussion. The bulk of the group discussion took place around each of the five VICES facets of potential for innovation (i.e., Visual/audio, Illusions of Control, Cognitive Complexity, Expedited Play, and Social Customization). Without prompting, facilitators encouraged organic discussion that emerged regarding both negative and positive impacts of the unique characteristics of traditional versus innovative games. This allowed capture of data regarding the aspects of games that encourage play and result in an increased risk of harm, as well as details regarding the types of harms incurred. The focus groups concluded with an invitation to make any other comments of import, or general comments about the role and trajectory of innovation in gambling products. For example, participants were asked how they felt about how potential expansion in availability of innovated products might affect their consumption.

ANALYSIS

Audio recordings of the focus groups were professionally transcribed. Upon receipt of the transcripts, two members of the research team read them thoroughly, checking for accuracy against the recording (e.g. where words had been muffled, unclear or over-talking had occurred). Participants' personal information was de-identified by removing references to names, locations, venues, etc. The same two researchers then collaboratively compiled an initial codebook to guide the coding of the data. The structure of the coding was based on the theoretical VICES framework, meaning the codebook was partially populated with a priori codes based on this framework (i.e., Visual and audio, Illusion of control, Cognition, Expedited play, and Social customisation). This method allowed the researchers to systematically identify every mention of a property or characteristic of both innovative and traditional versions of games that might have an effect on gambling behaviour. Additional codes were added to the codebook based on the themes that emerged from the initial review of the transcripts. For example, the topic of harms from gambling was a topic of interest to participants, of which discussion was encouraged, and featured prominently throughout the interviews. The codebook was also reviewed by a third member of the research team, but no revisions were needed.

Each product type was coded and analysed independently. Data analysis was facilitated by use of QSR NVivo version 10. In the first cycle coding, a thematic analysis approach using a combination of attribute coding, descriptive coding and in vivo coding was adopted. Attribute coding was used to capture characteristics relating to the different fieldwork settings, gambling product type, and any relevant participant attributes. Descriptive coding was used to capture where data either fit an a priori code, i.e. the VICES framework, and/or was relevant to the research questions. This process was guided by the codebook. In vivo coding was then used for the generation of new codes to capture experiences or influences of relevance that did not initially fit within an existing code. For example,

an in vivo code that was generated at this stage was that of the priority or importance of 'access'. Included under this code were statements related to barriers or facilitators of gambling, technology increasing or decreasing access, and technology being a barrier to access (e.g., software malfunctions and security issues). Further to this, second cycle coding was used to identify whether statements allocate to each VICES category were positive or negatively framed.

RESULTS

BINGO

Traditional and innovated forms of bingo were explored through two focus groups conducted in Bundaberg, Queensland. Traditional bingo was defined as being played using paper cards that players mark off manually as the numbers are called. Innovated bingo was defined as using the Programmable Electronic Ticket (PET) system; a tablet-based set of bingo 'cards' where the player inputs the number called on their touch screen and that number is automatically marked off on all their 'cards' being played. Thirteen females and two males participated across the two groups, with an age range of 21 to 78 years. The groups contained no high-risk gamblers, with the majority of gamblers being low- to no-risk, as shown by their associated PGSI scores (see Table 23).

The psychologically-experienced differences between traditional and innovated games

The introduction of innovative bingo using PETs had a large impact in terms of the psychological experience of the gambling game of bingo. In terms of the VICES framework, the biggest differences experienced were in the audio-visual features of the game and the associated illusions of control. The innovative version of bingo contains an alert noise emitted by the PET to indicate that one of the tickets in play has only one number to go until it reaches 'bingo'. There was an overwhelmingly strong negative opinion towards this feature within both focus groups. Discussions regarding the alert noise were based on the fact that it reduced the enjoyment of the game by taking away the feelings of mystery and suspense; this subsequently lead to a feeling that one's chances of winning were lessened after hearing that others were close to winning as this participant described:

> *"It drives you up the wall. You're sitting there, you've got two numbers to go and all of a sudden you hear all these beeps going off. You feel like just throwing the pen down and walking out." (Female, Bingo, Group 1)*

Those that used PET instead of traditional paper cards also reported the alerts negatively, again saying that it reduced the feelings of mystery and suspense but from the perspective of being the player in with a chance of winning:

> *"You don't want everyone to know that you've got one number to go." (Female, Bingo, Group 1)*

Another way in which psychological experiences differ between traditional and innovated versions of bingo is through the physical accessories and hardware that are used to play the game. Traditionally, bingo is played using coloured cards for the numbers and special pens (sometimes called 'dobbers') with which numbers on a paper booklet are marked off as they are called. Many of the bingo players in the focus groups had been playing bingo for many years, and had strong preferences for traditional accessories and the rituals that they carried out with them that were not available when playing with the innovated version of bingo. Again, this highlighted increased illusions

of control when playing traditional bingo. These participants described the ways in which bingo pens and booklets increase their enjoyment of the game:

> *"A card. I don't like those new fashioned things. I like the old-fashioned things, and I like using different colours." (Female, Bingo, Group 1)*

> *"You want to ask [name – other participant] what I'm like with bingo pens. I've got more than a bagful …I've got that many of them. I think I've had more than what they sell at bingo…. I've got five draw- fulls of them. Because I like them." (Female, Bingo, Group 1)*

> *"I love the glitter pens." (Female, Bingo, Group 1)*

The cognitive complexity of traditional bingo was also highlighted as one of the main psychological differences between playing traditional bingo and innovated bingo. The cognitive complexity inherent in traditional bingo – the fast calling of the numbers necessitating intense concentration in order to manually locate the corresponding number on one's card - was seen as both subjectively enjoyable but also as something that kept the mind nimble and stave off cognitive decline. In addition to the traditional "full house" bingo call, players also talked about the challenges involved in special rounds where a prize is offered if a particular shape is formed on one's card with the numbers that are called, e.g. an 'X', a 'U' or a 'T'. This is seen as another layer of cognitive complexity which adds to the enjoyment of the game. The PET removes this complexity as it is programmed to search for the allocated shape. The constant listening, searching and monitoring of one's card – as opposed to the automation of the PET – was viewed as both enjoyable but also as having a health benefit, as this participant describes:

> *"Yes and it keeps your brain alert…going up and down, up and down. At the end of the session in the afternoon I often have an hour of sleep because it's tiring. I know I'm nearly 80 but..." (Male, Bingo, Group 1)*

To which a fellow participant replies:

> *"It is concentrating. I think it's good for him." (Female, Bingo, Group 1)*

This appeal of the traditional bingo meant that participants talked about innovated bingo as being less cognitively complex and, thus, not offering the same benefits and appeal. This was so even for those that professed a preference for the innovative version of bingo:

> *"But occasionally I'll go on the paper [rather than use PET] just to get my brain, because I told my husband that it'd stop me getting dementia if I kept playing on paper and getting my brain working." (Female, Bingo, Group 2)*

Appealing aspects of innovated and traditional products

Despite the overwhelmingly negative feelings toward the audio alerts on the innovated bingo PETs, there were a couple of participants who commented on the audio alert's appeal. The appeal related to the cognitive complexity referred to in the VICES framework, with some participants reporting that they need the audio alert to help them to reduce the complexity. This was especially a concern for those that played both traditional and innovated versions of bingo at the same time:

> *"So the noise is – [name – participant], you were saying you find the bings helpful to keep a track of the PET system..." (Female, Bingo, Group 2)*

> *"It's just that when you're playing PET and paper, see I played the other night one where it didn't ting and playing the paper and then I went oh, okay, I've got one to go there and then I'm playing here and I'm trying to - and then another couple come up and it gets hectic." (Female, Bingo, Group 2)*

Another appeal of the innovative bingo product in terms of reduced cognitive complexity that was discussed was the fact that one had a physically smaller area to search to see the called number. One female participant described this easiness of the PET system, saying:

> *"Yeah, but I think too, with the new tablet, the new PET, your numbers are only this big in a square type thing, where on your books you've got six up here and everyone's got to look down the line like this to find their number, where on this little one they've only got the little bit to find." (Female, Bingo 2)*

Conversely, the fact that the innovative version of bingo does not fully display all active tickets was considered a downside in terms of being able to have an overarching view of your position if you are gambling with multiple cards. This feeling of having control of all your gambles – as well as being able to see one's 'lucky' numbers - made the traditional version more appealing for some bingo players. This may also be a reflection on the age of most of the participants, with elderly people perhaps having less lifetime exposure to electronic/computerised products and, consequently, having less trust in them. These feelings are described by these participants:

> *"Yeah. I like to see every ticket. I've been playing paper lately and that's, as [name - other participant] said, with the lucky number or something, if you're playing the PET, you mightn't know where you're lucky number is. But at least if you're playing paper, you know you've got four still to go with your lucky number. Or, you know?" (Female, Bingo, Group 2)*

> *"I love my expensive colour-in books. I like the fact that I can see every ticket. I can see what's going on. If there's a lucky number that I'm after - jackpot chaser, hello..." (Female, Bingo, Group 2)*

This lack of trust in the electronic version of bingo can also be discussed as part of the theme of access to traditional versus innovated games. As both of these forms of bingo are available at the same venue and to all players, psychological barriers influence the accessibility of the innovated products. These accessibility barriers can take the form of a lack of trust in technology or a lack of knowledge about technology (as seen in the quotes above).

How innovated products alter gambling behaviour

The innovated version of bingo allows people to play a greater number of books/games simultaneously. This results in expedited play, which, in the case of bingo, does not refer to an increased speed of the game (i.e., calling round), but rather increases the levels of consumption by virtue of playing multiple game-cards during a calling round. As this participant describes:

> *"…the actual idea of a PET when they originally come out is you can have multiples. That's the idea of them. You can play up to eight sets on them. Whereas you'd have Buckley's [no chance] of playing eight sets and that's the actual idea of the PETs is - that's what they were brought out for. You can play multiples on one game more than the other. You can play eight sheets and only two in your books. You don't have to play eight all the way through." (Female, Bingo, Group 1)*

Being able to play more cards (i.e., gamble higher amounts) at one time was a positive aspect for most participants, including those who liked playing an innovated and traditional game simultaneously. When asked about what motivated participants to play PETs, some players described sacrificing cognitive complexity or other forms of enjoyment for expedited play:

> *"My husband plays Bingo as well and I'm kind of old fashioned, I play the books. My expensive colour-in books. I like to do that. But, yeah, when he tried a PET I thought, oh well, I'll have a go at it - and I did find them much easier, especially if you're playing four jackpots or whatever, you can just [mm-hmmm] it's much easier. But I've gone back to the books now." (Female, Bingo, Group 2)*

> *"Well, I can only do one book at a time, because they go too fast. But I can do two books…I can do two books on one of them." (Female, Bingo, Group 2)*

In addition to being an easy way to increase the number of games able to be played simultaneously, some participants also talked about how playing both the traditional and innovating versions stopped them from getting bored with bingo. This was the case whether they were predominately paper or usually PET players:

> *"They're there to win so they're increasing their odds of winning. They get bored just with the electronic so they buy paper as well." (Female, Bingo, Group 1)*

> *"That's what I was going to say, [name – facilitator], is that people that play the PETs if they are of that persuasion - they get bored with that so they play paper as well. They play both." (Female, Bingo 1)*

> *"…because if it's not called fast enough, you're sitting there waiting for that next number and you think for Christ sake come on, come on." (Female, Bingo, Group 2)*

Despite the use of PETs to increase one's ability to play multiple games, traditional bingo was still seen by the majority of participants as the version of bingo that they found most appealing. Many participants expressed strong views about this and lamented that the innovative version of bingo was making the game less entertaining:

> *"I like playing the paper. I have tried the PETs. I think they're boring..." (Female, Bingo, Group 2)*

> *"I always played at [sports venue - regional town in QLD] and they wanted people to try it and not many people wanted to try it and I thought, ah yeah why not. I'd give it a go. You know. But again, the two things that you see, you don't see any of the rest. You just*

pushed one number and you sit there and ah, another one, another one, and I thought 'I'll fall asleep'." (Female, Bingo 2)

Due to the increased gambling investment that PETs allow (i.e., the ability to play multiple cards simultaneously) a bigger cash prize pool is available. This was one of the most positively discussed aspects of the introduction of PETs. Participants commented on the increased prize pool as making bingo more exciting or enticing:

"What you don't realise is without them maxing out or putting lots of money on the PET you'd probably only be getting $2 payout instead of $5." (Female, Bingo, Group 1)

"Without the PETs on a Friday night instead of paying $100 I'd [the bingo organisation] probably pay $70, $60 or $70 instead of $100." (Female, Bingo, Group 1)

"That's right and that's what the PETs do. The PETs do bring in that extra money..." (Female, Bingo, Group 2)

Differences in perception of risk and risky play between innovated and traditional products

Bingo was seen, overall, as a social outing that happened to involve a low-risk form of gambling. This was illustrated throughout the focus groups by numerous mentions of the close friendships that had been formed over the years, such as this recount by two women:

"I enjoy my bingo… I've been going for 50 years."(Female, Bingo, Group 1)

"It is, it's a social life… It's not like gambling…" (Female, Bingo, Group1)

However, the introduction of the innovative version of bingo (PETs) and the associated increase in gambling consumption that it allows was perceived as changing the game and increasing the risk involved. Some participants felt that the electronic version of bingo transformed the game into something more like "gambling":

"I like...to scribble with the paper and I think the PETs have damaged Bingo. It used to be anybody could go, whereas now they can have something like eight games on it. I don't care. But nobody can play eight games on paper, so actually it has become a bigger gamble than what it used to be - gambling plays." (Female, Bingo, Group 2)

In discussing how much the average player of the innovative version of bingo spends compared to the traditional player, participants again talked about how increasing the cost decreases the social value of the activity, with many of the participants sharing this feeling:

"That takes it away from a fun-thing to quite an expensive-thing." (Female, Bingo, Group 1)

"It's like you're gambling then; you're not having fun. (Female, Bingo, Group 1)

> *"Because if someone's playing say seven games and they're paying for seven games that's a lot of money they've forked out and they're going to have to win to get the money back." (Female, Bingo, Group 1)*

The idea that innovated versions of bingo encouraged more serious type of gambling behaviour was reflected in participant descriptions of the 'business like' nature of PET play:

> *"No, it's a business for some people. Having it do it itself, that means that they'd just pump their money into the machine and let - it's a business. They're trying to win as much as they can, where we go for the pleasure of..." (Female, Bingo, Group 2)*

In terms of risk, the reluctance of players to use PET suggested that many people would gamble less if innovative versions were to be made the only available form of bingo. When asked by the facilitator whether it would interest them any longer, if bingo was only available in innovated form, participants in group 2 answered with a unanimous *"No"*. However, it is difficult to determine whether this attitude would remain stable if the hypothetical scenario of 'all innovative Bingo' was to become a reality. Based on the readily reported social benefits of Bingo, it may be that players would still attend, reluctantly playing on PETs and therefore exposing themselves to the risks involved with multiple games and automatic play options on the device.

One participant compared the innovated version of bingo to playing an EGM as an example of the increase in gambling risk associated with PETs:

> *"It's no longer as simple, as innocent as it was. It was just a game where I'm with my friends and I'm dabbing a little coloured pen. As soon as you've got that electronic you almost get...the pokies stage." (Female, Bingo 1)*

Further reflecting the consensus that traditional bingo is the 'safer' form of the game, participants in the second focus group finished by commending each other for choosing to play responsibly and for keeping their spending low through using the traditional pen and booklet method. For example one female in group two described playing just two games at a time on paper rather than eight on a PET as she did not wish to waste her money. To this, her fellow participant replied *"Good girl".*

SPORTS BETTING

Sports betting via traditional and innovated products (online and app-based gambling)[6] was explored in a focus group based in Townsville, Queensland. The group consisted of four females and three males aged from 21 to 49 years. Problem gambling risk statuses, as per the PGSI, ranged from no-risk to high-risk.

The psychologically experienced differences between traditional and innovated games

One of the main differences in how traditional and innovated sports betting were experienced psychologically reflected the social aspect of the VICES framework. Participants talked about traditional betting in a venue as an activity that transcended the actual gambling. The gambling was

[6] Note: At the time of conducting the research, innovated sports-betting products within venues were too rare to be a practical subject for conducting focus groups.

seen as the vehicle but the goal was to socialise. Women especially tended to report arranging to go to traditional sports betting venues with friends as a social activity, such as pubs where betting was not the premises' core business:

> *"It's a social thing. It's like an entryway of having a social get together. So like if you go down to the tav or the pub, you have all your mates there and at the same time you've got food, drinks, so you've got a kind of whole package. So it definitely promotes more than gambling but it's more of a social thing." (Female, Sports Betting)*

> *"Yeah, for me it's a social thing. Otherwise I probably would never bet. And it's just enjoyable. Everyone is in the atmosphere, chuck a couple of dollars on…If one of your friends wins and you don't, usually they buy the next round. It's good. It's a social atmosphere. It gives you something to talk about when you're out as well." (Female, Sports Betting)*

Men talked about traditional sports betting as a social activity, even when they described themselves attending a gambling venue alone. It appeared common to make small talk with fellow sports bettors about the games/races and their betting, and this was more likely to be done at TAB venues where gambling was the central activity:

> *"No, just sometimes you get your regulars and that down there that are mainly always there. So you start small talking." (Male, Sports Betting)*

> *"Sometimes it can be an icebreaker, you can be looking at the same race or watching the same sporting event and like I said, it breaks the ice, you can have a bit of chat about a team or something like that." (Male, Sports Betting)*

Being surrounded by like-minded others that were also at the venue to engage in traditional betting seemed to create the illusion of being amongst friends; without having to know anyone or engage in any meaningful social interaction.

> *"Yeah sometimes it's the atmosphere too. When you go down to a venue, you know that everyone around you is going to be doing - or have that same sort of mind fix. They're going there to look at an event, look at all the screens, look up the dogs, trotters, the horses or whatever. They're all there for the same reason." (Male, Sports Betting)*

Conversely, participants talked about innovated sports betting, such as gambling via websites and apps, as a more solitary endeavour or something that you do with only one or two other people in your friendship circle. For example, when asked whether they place sports bets online in the company of others, these participants replied:

> *"None of our mates really gamble. They never put bets on anything. They don't really know how to do it either. So it's not really – my circle doesn't really do that. If I had friends that would do it [traditional sports betting], then if they taught me how to and probably coached me into it then I would – it would be something you'd consider to have fun with them. But because majority of us don't do it, then there's no point in doing it [in the venues]." (Female, Sports Betting)*

Traditional and innovative sports betting was also discussed as being experienced differently in terms of one's control over their gambling. However, opinions ranged regarding whether it was traditional or online versions of betting that gave the participant greater feelings of control over spending. For example, one participant found that having a dedicated visa card for online gambling gave her that feeling of control:

> *"I think because gambling has impacted on my family, not from me personally but from my parent's side of things, it has sort of given me a control factor. Because I am very dedicated. I have a visa debit card that has a set amount on it and that's my yearly amount. That's it. The companies do not have access to any other card or any other account of mine. So I'm not getting drawn in. If I blow it, it's like whatever, I've blown it. That's my allowance, done." (Female, Sports Betting)*

Whereas other participants felt more in control when sports betting traditionally with a set cash amount:

> *"It is a lot more difficult to keep track when you're doing it online I think. Especially if you've got lots of small increments of money, like $1 or $2. As opposed to once a week you might be $50. Then you know you've bet $50 that week. Whereas if you've got little increments of $1 or $2 or even $5 or $10…" (Female, Sports Betting)*

Appealing aspects of innovated and traditional products

Drawing on the VICES framework, one of the most obvious aspects of appeal for innovative products was the audio-visual presentation of the websites or apps that were used for sports betting. In discussing sports betting websites, participants mentioned that presenting the information simply and clearly, and being easy to navigate, were required for website appeal. Participants could clearly identify the appealing and unappealing aspects of the website they have used:

> *"I haven't used apps before, I've just used the websites but what I find appealing is if it's really easy to navigate. Let's say it's got the list on the side and you can just go exactly what you want to go to. As opposed to having all of the races of things you've never heard of before and then having to really spend five minutes to get to one of the main things. Yeah, and then also if it's too colourful and there's too much happening, there's too many ads on the side, it's not appealing because it's too much. You just need clear background, this is what the odds are, this is how much you can bet, and this is what you'll get back. Then just a nice list of what you can bet. That just makes it easier to navigate." (Female, Sports Betting)*

> *"But the site itself, it does drive me a little bit crazy sometimes because it seems very plain but at the same time it's very complex. It's not clear as to - you've got to navigate all over the place to try and get to where you want to go and do what you want to do." (Female, Sports Betting)*

Relating to the cognitive complexity component of the VICES framework, some participants mentioned that traditional sports betting was more difficult to use than online versions. That is, the inability to negotiate the traditional sports betting process lead to feelings of embarrassment when placing a bet in person and a fear that the venue staff would think that the participant did not know

what they were doing. This increased the appeal of online sports betting for some, as this participant describes:

> *"Like you can go up and you can find what you want and go okay, yep. But sometimes it's not that clear. I was putting a bet on, funnily enough, the Dapto dogs. My friend had a dog running and I found that very hard to even work out. In the end I just rang him and said look, put it on your tab and I'll just put it in your account now. He was like oh my God, serious? I said yeah, it's too hard. I was too embarrassed to go up and go how do you - yeah. Because again, I was a female and I was on my lunchbreak. They're like this and I was like for God's sake, I don't know how to do it. So I ended up just leaving." (Female, sports betting)*

This sentiment of embarrassment in having to deal with the venue cashier or teller was also expressed in terms of the dollar amount that the person was gambling. Participants discussed how it was more appealing to use innovative sports betting products rather than traditional in-venue products when you were betting small amounts in order to avoid dealing with a real person:

> *"I find it probably more convenient. Because I bet like a dollar or two on each little thing whereas if I'm out in public, like at a venue, I feel like to the cashier I'm in an inconvenience to them. It's just like I'm wasting their time and only a little bit here and there. Whereas on the phone, you can feel comfortable betting $1." (Female, Sports Betting)*

Appeal in terms of accessibility, was reflected in discussion around the scope of the events you could place a bet on using innovative sports betting products compared to traditional in-venue betting. The lack of complexity available in traditional sports betting was seen by many as a drawback, citing traditional sports betting as *"monotonous".* These participants enjoyed the variety of sports and events available on innovative sports betting platforms and found the complexity exciting and enticing, as this participant described:

> *"But that's the thing, you've got so much variety online. You have got so many more options in different countries. You can bet on Thai boxing, you can go over to America and bet on the NBA, the NHL. You've got so much more variety. If you go into a venue, all you've got is this is the horses, this is the straight of what's going. You've got horses, dogs, trots, that's it. Very basic, very boring. It's the same thing day in, day out. The excitement is there online over everything else." (Female, Sports Betting)*

Conversely, some participants describe this lack of variety in traditional sports betting as an appealing aspect, reducing cognitive complexity of the activity.

> *"Yeah, yeah, yeah. There's heaps more online as opposed to when you go to a pub. So I guess that makes it a little bit clearer as to what you want to bet on. So if you go online, there's hundreds and thousands of things you can bet on." (Female, Sports Betting)*

A final point that was raised in terms of the appeal of innovative compared to traditional products was that of physical safety, which can be seen as a form of accessibility. One woman spoke of a harrowing assault experienced in a traditional sports betting venue that prompted her to turn to online sports betting in order to eliminate that physical risk:

"I prefer online over everything because I feel safe, and that's the biggest thing for me. Because I have been attacked in a pub and I won't step in a pub anymore. I don't go out to venues, I refuse to because I've been in physical altercations just for being in the wrong place at the wrong time. So now at least I feel cocooned in my own little safe world and I'm not being judged and people aren't making fun of my little bets versus whatever bet I go to. So for me, it's all about the safety." (Female, Sports Betting)

How innovated products alter gambling behaviour

Participants in this focus group did not tend to perceive that the use of innovated products altered their own gambling behaviour. However, there were discussions regarding participant predictions. One participant predicted that traditional sports betting will become a thing of the past due to the ease and simplicity on online sports betting:

"That's going to be very, very popular, the online. No one is really going to want to go to pubs and clubs anymore. It's just at the flick of a button, at the flick of a button. I think more people will be doing it by themselves. As out with friends, this is great. Wow, I'll go and yeah, this is - so yeah, I think it's just going to go through the roof." (Female, Sports Betting)

Participants also discussed the way in which innovative sports betting was moving away from a focus on horse and dog racing and other sports, to a platform that encourages exotic betting on all types of events. The availability of a wider variety of events to bet on was seen by some as a motivator for placing bets that one normally would not be able to access in a traditional in-venue setting. As these participants described:

"I think as [name – other participant] was saying, just nowadays, none of this - even 10 years ago, it was only just new. There was only one or two online betting agencies that I'd heard of. One of them was [website name]. You can bet on anything - election results, Eurovision, what song is going to be number one in the hottest 100…"(Male, Sports Betting)

"Chinese division D handball. It's playing at 4:00 in the morning over in Beijing and you think, there's only two teams. One of them has got to win. I'm going to go for the win they picked as favourite. You can bet on a myriad of things and it's virtually 24 hours a day. There's no stopping it." (Male, Sports Betting)

Finally, it was suggested that betting online had the potential to encourage expedited betting and higher levels of betting. That is, a sport bettor with a variety of betting options on a high speed device has access to high volume betting without the processes of placing bets at a venue slowing the pace. This was seen to be intensified by the fact that, when betting online, a credit card account is used, potentially reducing the perception that one is spending 'real money'. This participant sums up this sentiment:

"…it's too easy online to just look at it as a number. Whereas if you've got that cash physically in your hand, you know when you haven't got it, you haven't got it. When it's on credit or on tick or whatever, it's just easy to rack up and chase one after the other. You have a couple of little losses and you think one big bet and it's a sure thing and it just doesn't happen to get up. You think oh shit, I better get that back. It can snowball." (Male, Sports Betting)

Differences in perception of risk and risky play between innovated and traditional products

One of the most reported perceived risks of innovated sports betting products, as compared to traditional products, was their accessibility. Participants talked about betting now being available at any time of the day or night and in any space, compared to traditional betting in venues which have set opening hours and making them less convenient. For example, one participant expressed concerns regarding the risk associated with an accessible and portable gambling product:

> *"Definitely. It can be a trap I think. The fact that it's portable. Everywhere you go… Yeah, mobile, iPad, laptop. Everything that I can get my hands on. It's just, like I said, if I'm - now, before I go home, I might have a look. Before I drive off. But generally it's just the convenience. Purely for the convenience." …" (Male, Sports Betting)*

Many participants agreed that the use of a credit card in online betting had an impact on one's ability to control their spending. Although, using cash versus credit card for betting was mentioned as promoting both greater and lesser feelings of control over one's gambling by various participants. In terms of risk, using credit cards to access innovated sports betting products was more commonly seen as a pathway to potential harm through loss of control. Two men talked about the problems that they had experienced with trying to keep to their limits online:

> *"It's not tangible. You don't see that money. It's just a number. When you're at a venue or something like that and you've got the cash, it's out of your hand. But when you're online, it's just made out of crunching numbers really. You don't really physically see that money." (Male, Sports Betting)*

> *"Like [name – other participant] was saying before, you're not watching your money. You don't go there with $300 in your wallet and you watch it and go oh. Then before you know it, you're losing your house because you're just swiping your card. Down, and down, and down. … Where if you go down to the pub with $300, that's all you - if you walk out empty handed, well at least you've still got your keycard at home. I just didn't think twice. I just thought one way and it was a little bit too easy for me. The betting was too easy." (Male, Sports Betting)*

Furthermore, several participants who had experienced problems with gambling in the past and were still actively engaged in traditional sports betting reported that avoiding online sports betting had helped to keep their gambling under control. As these participants describe, they perceive traditional sports betting as far less risky than the innovated version:

> *"I think so. I think I could go wild on it. Because there's lots of - and I've checked it out. There's lots of different sports and different things. There's always something that you can gamble on. I had a bit of an issue in the past and pulled up a bit. So now it's just back to social. So sort of old days, because I'm a bit older I suppose. So for me, I keep away from the online stuff and the phone stuff because it's too easy." (Female, Sports Betting)*

> *"Because I lost a bit of money on it. Yeah I just lost a little bit too much. Just went a bit too far with it." (Male, Sports Betting)*

This participant who had experienced problems with gambling earlier in her life was given advice by a friend not to engage in innovative sports betting products because of the perceived increased risk associated with that compared to traditional sports betting:

> *"Yeah, I don't like online gambling because I actually feel it is too easy. I've seen a good friend of mine link in with one account, then another one, then another one and he was constant on the go. He was in a high paying job and lost a lot of money and you started to see the cracks. So that's a bit of a slap in the face. He said no matter what you do, never get online betting." (Female, Sports Betting)*

Participants mentioned that when using innovative sports betting products, it was common to be offered incentives for placing bets on their website or app. These incentives were sometimes seen whilst perusing the website in question. Other times, the offers were delivered via email or text message. These enticements were perceived by some participants as somewhat underhanded or sneaky; a way in which to tempt them to gamble or to gamble more money than they had originally intended, creating a risk of over-spending, as these participants describe:

> *"… I don't get pulled aside by all this other stuff. I just know what I want, I'm going for that, that's the end of it. I don't care how long it takes me to do it. But you can see them trying to draw you in every which way you go. It's like hey, there's a race on here. Hey, we've got some fights coming up. We've got like this and it's like no, stay away, stay away, just go this way. But they do that on purpose. They will try and get more people to bet where they want to. So I do see how people get pulled in by it all." (Female, Sports Betting)*

> *"Yes. The two that offer bonuses to me anyway are always that money back sort of guarantee with like [major sports betting website] or [major sports betting website]. Or they try and entice you where they send you an email or a text message saying don't forget we're offering a special - tonight, first try scorer. It might be paying $1.50 but for you, we'll give you $3. But you can only bet a maximum of $50 or something like that. So they try and get you that to go in and while you're there, you think I might have a bet on this or a bet on that and then before the initial $50 bet, you're looking at the next race at Dapto or something like that or the trotters going around at Cobram. You think why am I doing that? I was only going to look at the one bet - the offer - and before you know it, you have to bet on other things." "(Male, Sports Betting)*

> *"It varies. If it's a specific event, like a classic example with State of Origin tonight, I got a text message earlier today from [major sports betting website] which used to be [old sports betting website], and they said we're offering you - they give you a spiel about say, Greg Inglis [NRL player], they said he's scored 15 tries. They said we'll give you a 25% bonus if you bet on Inglis and he does score the first try tonight. That was via text message but most of the time it's just via email. So it's only when an event like say State of Origin or maybe the V8, Bathurst or something like that they'll push you through with a text message. So generally emails, yeah." (Male, Sports Betting)*

POKER

The psychologically-experienced differences between traditional and innovated games.

The way in which participant experiences differed between traditional and online versions[7] of poker were mostly homogenous amongst the focus group consisting of seven males between the ages of 21 and 49, with varying levels of problem gambling risk (see Table 23). In this group there was a clear preference for playing poker 'live' at a table, rather than online against other players or online against the house via a casino website. Several reasons consistent with the VICES framework were provided.

Firstly, it was suggested that table play was a far more interactive experience than that which they would have online. This was described in terms of both increased social interactions as well as an increased sense of control; that one was better able to 'read' the other player and make decisions based on their appearance and body language, as two men describe:

> *"Yep, live. There's more interaction and more input than just a computer screen. You might get data flows, but not the ability to read the other person by twitches or body language. So - yeah, live. It gives a little bit more insight." (Male, Poker)*

> *"I've played online. Same thing - I don't like the interaction - poker is - you need to see people's faces". (Male, Poker)*

Another element that was experienced differently during table play versus online play was that of expedited play. In a digital format it is possible to play multiple games at once rather than the traditional one hand at a time pace in table poker. This changes the way in which the game is experienced. One participant talked about how he preferred traditional poker as he liked to take his time in order to analyse his opponent's playing style, as exampled in this quote.

> *"You can't play 10 tables - well some people can - but I like to play one game at a time and try and pick up on patterns." (Male, Poker)*

It was also suggested that for some, playing at a table was experienced as a fun, light-hearted activity in comparison to the seriousness of online play. One participant sums up this opinion, saying:

> *"Because then online there's pretty much no social aspect, I daresay. But as soon as it's with friends or even … everyone's really light-hearted. Everyone's just friendly. The game's not serious at all, I would say". (Male, Poker)*

This sentiment was echoed in discussions surrounding the quality of other players online. Some participants felt that professional players tended to frequent online poker games, making it harder for amateur players to win.

[7] At the time of conducting the present study, innovated poker games within-venues were too uncommon for the practicalities of conducting focus-group discussions.

"What puts me off is good players. There's a lot more good players online, I think." (Male, Poker)

"Let's say there's 1000 hands against this guy, which is a lot, you'll be like oh, this guy's probably a regular" (Male, Poker)

Participants reported feeling an increased sense of control during traditional table games, whereas online casino versions (i.e., playing at the computer) involved a decreased sense of control. This was mostly because outcomes perceived as automated and predetermined, meaning that decisions made by the player based on their skills had little effect on the game outcome; as these participants described:

"Never done any online gambling. Poker and blackjack, I think I enjoy them really because you feel more of a sense of control compared to other kinds of gambling where it's just purely you push a button and see what happens or something. You can have some kind of influence. I think that's probably why I enjoy them more." (Male, Poker)

"[in traditional table poker] You'd know there's 52 cards in a deck. So if you're looking for another king and there's one in your hand, there's only three other kings in the deck." (Male, Poker)

Finally, although some participants felt the experience of online casino poker was highly automated, one participant pointed out that online poker challenged him cognitively.

"I play the automated stuff just to kill time but - like he plays [other participant] - for the poker side of things. I enjoy it more for the challenge and the math side of the things than the gambling side of things. It's very intellectual if you get into the program." (Male, Poker)

Appealing aspects of innovated and traditional products

Although, the general consensus from this focus group was that traditional poker was the preferred method of play, participants identified several features of both traditional and online poker that they found appealing. Many of these aspects highlighted components of the VICES framework.

Participants spoke about the visual appeal of online poker websites and described the way in which this visual appeal might attract them to playing on a particular site. The group generally preferred poker websites that were clear and easy to navigate. One participant likened an attractive website to a well-arranged supermarket.

"Yeah, like if the aisles are set nicely, you know, what type of games you want to play at what stakes, it's easy to filter through, to look at. I'm pretty sure their marketing department would want to make it colour schemed a certain way to appeal to a person's psyche in a certain way. Small things like that." (Male, Poker)

Another participant described the way in which poker websites use bonus advertisements on their front page to attract customers.

> *"If we were to open up five tabs and I opened up five gaming sites, each one at its front page guaranteed will have a thing saying your bonus is this much, like 200 percent bonus on your first deposit, 300, up to 600. So that's something that's visually there, definitely, that makes you want to look at the site." (Male, Poker)*

As mentioned earlier, a preference for table poker games was apparent amongst the group for the reason that you were able the read the body language of other players and make decisions based on these observations. This ability to see other players faces created an increased sense of control amongst players. Participants described this appealing aspect of table poker.

> *"Rather than online, like casino it's more like - I think in my case it's - if it's an aggressive table, everyone is aggressive, so you don't want to be - you want to be maybe conservative. If it's a very conservative table, then you exploit it." (Male, Poker)*

> *"I did touch on that. I've never gambled online and I never will because - main aspect was reading people. My preference is for live because I can read the other people around the table." (Male, Poker)*

Participants who enjoyed cognitively complex games were particularly attracted to the extra game information that can be acquired in online poker. Reading statistics and figures regarding other players and the game so far was an appealing addition for many as it increased interest in the game and created an added challenge when making decisions on play. This aspect also increased illusions of control for online players in that they felt knowing this extra information gave them the winning advantage. One participant describes a downloaded program that he uses in conjunction with the poker website to view this information.

> *"There's also aids that you can have when you're playing online as well, like 'Heads Up' display programs that they basically give you - basically pool your data together, dump it into something and it tells you if you've had a history with this person before, played with this person before, it will give you information about their ranges and kind of populate based on previous history." (Male, Poker)*

These participants describe the extra information from a software program as a useful advantage that table players cannot access.

> *"So if I play tomorrow I won't be like oh, I remember this guy from yesterday, or most likely you won't. So this heads up display records every hand that you've played, so you can see the guy's name and how many hands you've played against him" (Male, Poker)*

> *"It's a good question. It's probably more effective as a product online. What makes it attractive? You're kind of getting exposed to more situations more frequently, so it forces your decision-making to react faster." (Male, Poker)*

The group agreed that one of the most appealing aspects of traditional table play was the social interaction involved. This included interacting with strangers, making new friends, and creating a chance to catch up with established friends. One participant describes how he met a group of good friends playing poker:

"So I made actually pretty good friends. We've gone out for drinks on other night when we're not at the casino. So I have had interactions on the table and made a couple of good friends." (Male, Poker)

Having other people around was a protective factor for some. One participant described the experience of losing, while playing with a group of others:

"Usually when you lose a bad hand everyone gives you sympathy." (Male, Poker)

In contrast one participant identified the ability to block interaction from others as an appealing aspect of online play:

"They tell you what they're doing and they just talk to you - you normally just block that - you can sort of whisper - you can basically block that player."(Male, Poker)

One prominent theme that emerged from the data was the appealing aspect of knowing your opponent when playing at a table. That is, many participants perceived a lack of security and transparency when playing poker online. This reduced or removed the motivation for many players to access online poker sites at all. These participants described feelings of being uncertain of who your opponent is and the general mistrust of online gambling providers:

"The person you are playing against might be one of the people who own the site or whatever, and they can actually read - they can see what's in my hand. So … I think that might still be happening online, so why do you want to give away your hand? Have that person, if you're raising, fold. You never know, one of those other eight could be one of the people who own the website and taking your money away. Third thing about what you said, about the third party software. It's a form of cheating or giving someone else the advantage, right?" (Male, Poker)

" …you don't know - if you're playing in a casino you've got eight other people, nine other people, you can see them. You know they're - even if they're mates and they're talking to each other, there's no actual cheating going on because the house won't allow it usually. You don't know when you're on an online server if half the people on that table are all sitting together in a LAN somewhere, in a room…" (Male, Poker)

How innovated products alter gambling behaviour

Participants tended to use the two different platforms for playing poker (i.e., table versus online) for different purposes, meaning the player behaviours were altered depending on how they accessed the game. For example, it was agreed by some members of the group that online poker was a good, cheap alternative to traditional poker when one was wanting to practice without being seen by others. This is described by two participants:

"I think we have two options, like online and table. We should be able to use both of them effectively because online provides you opportunities when you don't have time or enough money to do casino. Also if you want to experiment something, like if you want a new strategy. So you can make experiment online by paying a lot less money." (Male, Poker)

> *"Cheaper and try to see, because if you play everything for one thing and do that at 10 hands, then you will see what was the mistake, how other people react. Then like - because at the casino you will be more like seeing other people and you really – you usually give yourself away as well, because that's another thing." (Male, Poker)*

For some participants, playing online means they branch out and play different versions of poker that they would not usually play at a table. This highlighted the way in which online poker increased player access to a wider variety of gambling products. Much of the discussion in the group related to popular table versions of poker, mainly Texas Hold 'em. However, it was suggested that players looking for a different and more cognitively challenging experience could find it in the more complex poker games offered online. As one participant pointed out:

> *"It's a different - poker - so what everyone's generally talking about tonight is Texas Hold 'em, but there's different forms. There's other types of poker which is a completely different game. So what makes it complex is having to know all these different types of pokers. That's all." (Male, Poker)*

The option of expedited play was identified as a key cause of altered behaviour on innovated versions of poker. As one participant described:

> *"There are options on the speeds as well, like normal, turbo, hyper-turbo." (Male, Poker)*

This ability to play at an unrealistic speed online means some players would hasten their play, places more bets in than they possibly could in a real life situation.

> *"Online you can definitely get more hands in, just because of the speed." (Male, Poker)*

Play could be then further expedited by playing several games at once, highlighting another way player behaviour might alter online from table play where only one game can be played at a time and only as fast as it is humanly possible - that is, physical acts such as shuffling and dealing cards are eliminated in computer programs.

Some participants reported playing more conservatively when they play online due to the fact that they can play a number of games simultaneously, meaning they have more chances to lose. One participant describes the way in which harms can be reduced by folding a large majority of hands when you are playing multiple games.

> *"I mean if you're playing really tight and you're folding 95 per cent of your hands anyway, then playing eight hands - eight tables at a time is not that bad." (Male, Poker)*

In reflecting on the audio-visual aspect of the VICES framework, some participants felt that websites with visual embellishments, bonuses, and other 'gimmicks' were suited more to recreational rather than serious play and, consequently, they would only use these websites for fun. As one participant described:

> *"There was a poker site that came out that was basically all 3D, so that's probably more geared towards perhaps someone who's more recreational. I'm not really focused on the strategy, I just want to play in a nice looking place online." (Male, Poker)*

When the group was asked whether a 3D poker game would appeal to them, some replied:

> *"Yeah, I think it's quite basic." (Male, Poker)*

> *"If you're just playing for fun." (Male, Poker)*

These responses highlight the way in which the type of website might encourage different player behaviours in different contexts. That is, many participants considered online poker to be for more serious play, for professional players, and less lighted hearted than a traditional poker game. However, this sentiment was not consistent when 'flashy' websites that were arguably more innovative, particularly in terms of visual aspects, were discussed. This suggests that people might alter their playing behaviour not only according to platform (i.e., table versus online), but also according to the style of the website.

Differences in perception of risk and risky-play between innovated and traditional products

Overall, participants generally agreed that online was the riskier form of poker when compared to traditional table play. This opinion was mostly based on the difference in speed of play and the ability to play multiple games online. This point is made by one participant who compares table versus online games in terms of quality versus quantity:

> *"I think one of the biggest developments in poker in modern times is the change from quality to quantity. So you want to play as many hands as you can in an hour, and that will increase profit. So profit is more equivalent to quantity than quality when it comes to online play."*

Interestingly, one participant considers traditional table poker to be a protective factor against playing a range of other faster, riskier games.

> *"So if I had a million dollars I'd go back to playing the other games, but for the time being poker lets me gamble and keep my house." (Male, Poker)*

Another concern regarding risky play online was the detachment from reality one might experience whilst having immediate access to funds via a credit card. Two participants describe how this might cause them to play differently to tangible money (i.e., cash) and where real people were involved:

> *"I prefer casino to online, live to online, because online it's easy to get tilted and get angry, and lose a lot of money…Tilted means when you lose big, you kind of feel a bit angry and you want to chase that loss. That's when the addiction starts, I guess." (Male, Poker)*

> *"Yeah, you've probably got access to your bank funds immediately. Whereas if you run out, (it's) whatever's in your pocket…" (Male, Poker)*

Online play was also considered to be more addictive. One participant shared his journey from starting to play poker on casino tables and later moving to online poker. Initially he played in casinos and hoped to win back some of his travel expenses but when he started playing online, the stakes became higher. He describes this transition:

> *"So that's the difference with online, but then I started with the intention of let me go and recoup my travel costs, and then food costs. Now I'm at this point where I'm paying off my*

rent. Now I'm sitting with this intention of I'm going to pay off my tuition fees. So I think it's getting (to be) a problem. It's a problem when you're winning, you get more addicted to it. It's gone from five days a week to four days a week. Let's see where this goes. But as I said, once you start winning a lot, that's equally a big problem as well." (Male, Poker)

Some participants also identified risks of harm unique to traditional table poker. These were described as social sacrifices. For example, when playing amongst friends, friendly banter can become more hurtful or competitive, straining relationships. Furthermore, it was suggested that some poker games amongst friends often result in late nights and excessive drinking. One participant described frustrated wives and girlfriend "dragging their partner home at 2 am."

Another social sacrifice described was the tendency to reduce sociability through concentrating all your energy on playing the game. For some, this meant becoming unemotional in order to make logical decisions. Two participants describe how this aspect of the game has affected them:

"Everything has the same response. You don't really - you're very logical-minded. As you say, you kind of shut down the emotional side of your brain. That's how I feel when I play poker, which is why I don't play intensively anymore."(Male, Poker)

"I personally like to meditate and stuff, you know, and I generally like to go out. So when I do play poker and I go out later on that night, for example, I don't focus in an emotional manner. So poker is a very, very - what's the word? It does suck a lot of brainpower. It uses a lot of energy." (Male, Poker)

Whilst most of the discussion on risky behaviour surrounded online versus table play, concerns emerged regarding the difference between playing a pub game (where you pay an entry fee, are allocated chips and play for a prize) compared to going to the casino and betting with your money. These are both considered traditional versions of the game, however some interesting differences were reported in terms of perceived harm; the general consensus amongst the group was that pub games were a means of entertainment and social activity in which spending was minimal, whereas casino poker is a more serious affair, and one that does not appeal much to the casual player. One participant reflected:

"…how much are you really doing it socially, and how much are you doing it because of the chase for money, and if you're just doing it socially, how can you be bothered sitting there for like 16 hours a day, putting $1k or $2k on the table, one or two grand on the table. It's silly. Yeah. I like what you've touched on. I think that's a really big [unclear], especially because live poker, where are you going to play?" (Male, Poker)

CASINO TABLE GAMES

The psychologically experienced differences between traditional and innovated games

Participants' responses in the casino table groups were mostly consistent in terms of the psychological differences between playing traditional table games and innovated versions. Participants across the two groups consisting of four females and five males aged 21-49, and one male ages 50 -78, focused their discussions around 'real' or 'live' table games at the casino (mainly roulette, blackjack, and poker), and automated versions of these games also at the casino. Some discussion also covered private casino nights and online casino websites.

A clear preference for traditional table games in land-based venues was apparent. Participants felt that automated versions of these games lacked excitement and atmosphere, as one participant who played a variety of table games including poker described:

> *"But emotionally when you're playing poker it's different. When you're sitting across looking at that person, looking them in the eye and getting that feeling at the time what energy they're coming across to you." (Male, Casino, Cairns).*

Many participants mentioned the enjoyment they felt from the experience of dressing up and visiting the casino. This was not congruent with sitting at a machine or playing online, rather they preferred the atmosphere that is created when sitting around a table with other people at a well-decorated and busy venue. This sentiment was summarised well by this participant:

> *"I think often everyone wants to feel like a high roller even though you're not, so dressing up and throwing money around. That's the thing when you go to a boutique casino and you're getting free drinks and stuff, it's making you feel important, because obviously [unclear] I guess the whole reason you're there is to feel good." (Male, Casino, Melbourne)*

In creating an enjoyable and entertaining atmosphere, many participants felt the presence of an actual dealer or croupier was important, and enjoyed the 'banter' and interaction that came with this interaction. For example, when discussing the digital or filmed croupiers used in automated games, one participant stated:

> *"… it's an exciting game. With the old traditional games with the croupier you have got that huge interaction and it's very exciting stuff." (Male, Casino, Cairns)*

Perceptions and behaviour surrounding this varied. For example, in the Cairns focus group, some participants suggested that private or pub-hosted casino nights were more enjoyable than playing at the casino because they didn't mind seeing their friends win their money. It was apparent that participants did not like the idea of losing their money to the casino, and would prefer to think that it was going to another person, as this participant described:

> *"If I am just totally do in all my money, I'm like 'good on you, go out, buy yourself dinner, get yourself a new TV or whatever'. It's not going into the tax system or pay wages or whatever. You won, well done." (Male, Casino, Cairns)*

Interestingly, some participants in the Melbourne group, although agreeing with this sentiment, approached it from a different angle; preferring the idea of taking money from the casino, rather than other people. That is, they felt less guilty playing online games, knowing that their play did not affect others and instead they were "destroying the house"; as this participant summed up:

> *"Yeah, it is. It's like with baccarat and craps both there's that social winning, even if you don't win. It's good too - because you're not taking money off - you're not competing against the other players like poker, you can enjoy other people's wins. Everyone has a chair, it's a celebration thing. I guess you don't get that in poker because you're competing against them but you wouldn't get that online, you don't care about them, they're all faceless." (Male, Casino, Melbourne)*

The social aspect of gambling was very important for the majority of the participants, who tended to agree that socialising and entertainment were their main reasons for playing casino games. In their experience, this aspect was greatly reduced or removed in automated and online versions of these games. This participant from described the lack of social interaction involved in playing on casino websites:

> *"I've travelled all around the world. I've played online. Same thing - I don't like the interaction... you need to see people's faces". (Female, Casino, Cairns)*

This participant described the imagined lack of excitement and socialising involved in a group of people playing casino games online together:

> *"Plus I guess online you have to set up an account and you just manage your money, so I guess unless everyone - unless you had five computers and everyone had logged in. It would take a lot more effort in a way. Otherwise there's no fun going - hey look, I'll log it in and everyone can watch me [unclear]. There's no risk and reward for everyone else, unless they're giving me cash or something. It takes the whole - everyone's there." (Male, Casino, Melbourne)*

Similar sentiments were expressed regarding automated casino game machines, where players expressed as sense of isolation or containment when playing on a computerised machine. This meant for many they were unable to share the excitement of a game or a win with others. As these participants expressed:

> *"I do prefer playing live on actual tables to the electronic tables because you're taking out the essence of the actual game, it's just you're in your own little bubble on an electronic screen and if you're in the casino you preferably want to be around people. " (Male Casino, Melbourne)*

> *"It's also fun either if you're a big winner or seeing someone else having a big win. A big win on a machine, basically you keep your mouth shut [laughs]. That's it." (Male, Casino, Melbourne)*

The importance of socialising at a table, however, was not agreed upon by all. One participant, who took his table games very seriously, socialised more when he played automated games and pokies due to the reduced amount of focus required when playing on this platform.

> *"Yeah. I play the pokies but I'm with a group of friends when I play the pokies. But if you're actually on a roulette, I'm not there with a group of friends and it's - with table games, I want to react with people playing around me rather than looking at a computer screen and just focusing on the computer screen" (Male, Casino, Melbourne)*

Another reason for preferring table games over automated versions was the lack of cognitive complexity in machine play. Many participants agreed that table play involved more skill, strategies, and tactics, whereas these aspects were not required in automated play. This resulted in making the experience far less interesting for some, as this participant described:

> *"I do tend to go for games which have tactical advantage as well. If they're programmed you lose an edge of tactical advantage. There's a system with roulette where you bet one*

> *on red, if it doesn't pay then you put two on red, and so on, and just keep on doubling it until it pays and then you go to the black and do the same process. Whereas electronic, basically you could do the same process but you could have about 500 spins where it's just continuous black when you bet on red. I've tried the system out on electronic and yeah, it just burnt me" (Male, Casino, Melbourne)*

This sentiment closely relates to the increased illusion of control experienced by most participants when playing at a table compared to on a machine. Participants tended to feel that because machines were programmed, a sense of luck, randomness, and chance were lost because they perceived that outcome was already predetermined.

> *"I mainly prefer the real life tables as well in the casino and stuff like that. I guess similar to what [name – other participant] said, it's - especially with say roulette, having a real wheel and a real marble and things, it just feels a bit more, I don't know, even if you're betting on something, it's obviously tangible, but it can't be faked, to some extent. It's not some program that the casino is manipulating the odds behind the scenes that you can't control. It seems a bit fairer maybe" (Male, Casino, Melbourne)*

> *"Sometimes. The way I see electronic and online is programmed. So whatever - not the same as pure luck as in programmed." (Male, Casino, Melbourne)*

As described by this participant, this perception extended to online casino games as well:

> *"Yeah, they're designed for a certain amount of percentage wins to losses. With online, it's actually indicated to your own personal account not as a group of people. There's more actually control over someone winning really big compared to someone at the table." (Male, Casino, Melbourne)*

Similarly, discussion emerged around a lack of trust in automated machines and casino websites. Several participants preferred not to play games via these mediums, reflecting a common barrier to access. For example participants perceived automated gambling products as being non-transparent and possibility being "rigged", and although particular odds were advertised on the site, they may be inaccurate or unregulated. For example, participants agreed that automated roulette was less trusted than traditional table play:

> *"I trust machines less than I trust the roulette table that's all. [General agreement with 'mmmhs']" (Male, Casino, Cairns)*

However, the same participants did note the accuracy and increased trust of automated machines versus table play as they were not susceptible to human error.

> *"There are no mistakes with the virtual side of things" (Male, Casino, Cairns)*

Appealing aspects of innovated and traditional products

Although, the general preference regarding casino table games was for traditional versions, participants identified several features of traditional, automated, and online casino games that they

found appealing. Many of these aspects highlighted components of the VICES framework and the theme of access.

In terms of visual and audio aspects, some participants pointed out attractive features of automated casino games that might entice one to play them. This participant provides some examples:

> *"It's very entertaining the new systems around in the casino and stuff. It looks very pretty. Everything is curved. It looks like an iPhone. It just looked really pretty - so it just sucks you in." (Male, Casino, Cairns)*

However, overwhelmingly participants much preferred the visual, audio, and physical sensations involved with real table play. As these participants describe, the automated games not only omit these aspects, but the presence of machines take away from the experience of playing table games in the traditional manner.

> *"They're still there but it's just taking away from - especially like roulette, you're all crowding around the pit in a way so you're all shoulder-to-shoulder, muscling and leaning because you're trying to get over - like you can't reach all of the squares in one, so everyone is crowded in. Then people are always leaning over behind you. It's a fun atmosphere." (Male, Casino, Melbourne)*

> *"The computer roulettes. They've actually degraded a building which is - like if you actually take appreciation of architecture and if you know the history of that building, they're turning it into a slum [laughs]. It's actually quite hideous just going into the actual [metro casino] now. I actually used to enjoy going to the [metro casino] when I used to live there, but being in [metro city] and going back in there and seeing what they've done to the place - is just - why bother?" (Male, Casino, Melbourne)*

As mentioned previously, participants found the experience of playing with a human croupier appealing, and described the digital versions as fake and unpleasant. This participant expressed the consensus on 'avatar' croupiers:

> *"But when you're just looking at the screen you don't feel anything really because it's not real." (Male, Casino, Cairns)*

In terms of the social aspects of play, most participants agreed that traditional table games were more appealing, emphasising the interaction and shared excitement involved in playing with other people; as this participant described:

> *"The automated version, there's just no interaction. It just doesn't do anything for me. There's no as [name – other participant] sitting next to me doing the same thing or criticise [name – other participant] because he sat on 15 against the dealer's 10." (Male, Casino, Cairns)*

However, for those who liked to avoid social interaction whilst playing casino games, automated versions were appealing as they provided more privacy, peace, and anonymity. Some participants described times when they have chosen to play automated machines to escape the pressures of playing with others:

> *"I'm the total opposite. And I know that playing roulette - that's why I like the animated one, because I don't even want to know if someone is betting $500 on black. If I'm feeling random and I want to put $10 on it, that's my business. If I want to bet against you and I don't want someone loading up on black and I'm just putting a little bet on red and they're looking at me like – 'oh you want me to lose'? It's like, 'of course I want you (to) lose. I'm betting on red'. (Male, Casino, Cairns)*

> *"That's right, when I'm feeling a little bit sheepish or particularly stoned and I don't want to face people, the machine has a new allure but that's the only reason I'll go near a pokie. If I'm totally baked I don't want to look at anyone." (Male, Casino, Cairns)*

One interesting theme that emerged from the Melbourne focus group, was that of the etiquette involved in traditional table game play. Participants discussed the actual house rules and unspoken rules in regards to card games. For example, it was perceived as inconsiderate for an inexperienced player to interrupt the flow of the game. One participant expressed his frustration at novice players:

> *"If I sat down to play blackjack and there was someone there that didn't know how to play and was slowing the flow down, I would get frustrated by that. That would annoy me (Male, Casino, Melbourne)*

The general consensus was that if one was not familiar with these rules, they might be attracted to the automated version of the game; at least until they had familiarised themselves with the actual rules of the game. This highlighted one way in which automated products increased access to gambling products for novice players. Furthermore, those who felt intimidated by, or unsure of, rules of etiquette for a particular game might also find solo machine play appealing. Some participants suggested automated machine or online games as an alternative for introverted people or those learning a game:

> *"I guess if you were strongly introverted or something, you didn't want that potential risk of - then online would enable that." (Male, Casino, Melbourne)*

> *"It's like French roulette or pai gow or any of these other - if I didn't know how to play then if there was an online version and I was interested - then yeah, I'd briefly start there." (Male, Casino, Melbourne)*

In terms of expedited play, different types of players found the different modes of play appealing. For example, participants who liked to take their time, gamble socially, and/or gambling for entertainment purposes only were more drawn to table play because the slower pace allowed time for social interaction, as this participant described:

> *"I prefer the live roulette tables to be honest with you. I like the slowness of it. I like the interaction side of things. I guess it gives me a bit of a chance to see what everyone else is thinking about how the table is going. I'm not a real roulette expert. I just do it for fun. So it doesn't bother me, the slowness of it." (Female, Casino, Cairns)*

One participant highlighted this well by likening automated machine play to playing on an empty table:

> *"Since I know in reality I'll probably lose or at least that the odds are not in my favour, the longer I'm there the better. If I sit at a table of five people there's a lot - the rounds are slower. I have occasionally sat down by myself and you just go hand, hand, hand, hand and suddenly you're $200 down and you're like well that was a fun five minutes. If I'd sat at a full table that might have been 45 minutes. (Male, Melbourne, Casino)*

However, participants with a preference for expedited play found the speed aspect of automated machines highly appealing, pointing out that when playing on a machine it was not necessary to wait for the dealer to payout winnings and for other players to make decisions. For example, this participant states:

> *"So that whole vibe gets - and I just get it quicker so I don't have to wait for hundreds of people to be paid out and a pile of chips this big and the croupiers they're struggling for five minutes to pay everybody out. Spin that wheel baby. I was ready four minutes ago." (Male, Casino, Cairns)*

Traditional table games were generally thought to be more cognitively complex, and therefore more appealing in that they required more skill and tactic that could not be applied in an automated setting. This included, reading others body language, bluffing, counting cards, and other methods such as betting on 'perfect pair' as described by one participant:

> *"I tell you a lot of people don't know what's called perfect pairs on a blackjack table. So if they don't bet them - quite happy to go - once that person starts playing - so your cards - if they don't take what's called perfect pairs you can legally [knock, knock, knock, knock, knock, knock – mimicking putting bets down] just place bets on every person's hand and take what's called perfect pairs." (Male, Casino, Cairns)*

Another appealing aspect of traditional table play relates to illusions of control. Participants generally felt that because both automated machines and websites were programmed, their own behaviour could not possibly influence or alter the pre-programmed outcome. These participants described this sentiment:

> *"It can be actually programmed to perform in a specific way. Poker machines are programmed to have so much percentage win to loss ratio to reap in revenue and that would be the same way with electronic roulette. Whereas if you're on an actual physical table you're taking away the program and you're still playing the same but you have a little bit more chance of getting proper odds, unless a table is rigged." (Male, Casino, Melbourne)*

> *"I don't even try to go on the automated. I have played online and it's completely different to being on a table because for one thing you're dealing with a program and the other thing is it's random, unless the table is rigged. That's the only time when it can't be random." (Male, Casino, Melbourne)*

One participant who felt a reduced sense of control in an automated environment described in detail the way in which he based his decisions on other players' behaviour when playing traditional table

games. These observations that he made resulted in a strong feeling of control over the outcome of the game:

> *"Yes, it's still easy to do. There is a lot of - when you play blackjack you've got a lot of control. You can run basic counts. You can play what's called a basic strategy, which reduces the odds to three to two against you still but you've still got the option of doubling, splitting, et cetera and so forth, and sitting and taking cards, whereas the dealer hasn't. It is the excitement. You can follow it. You can sit there and watch a game because every table - there will be 12 tables and one of those tables will be losing. If you've got the patience to actually walk around and just go with lady luck - you'll find a table that's actually winning for the punters." (Male, Casino, Cairns)*

Several participants felt that being able to select your croupier from a group of tables at a casino was an appealing aspect of traditional table play that increased their sense of control. These two participants described why they liked to select their croupier:

> *"They do have an impact, the croupiers. I won't go to one that's looking really limp and bored - and check out the way they colour themselves. Again, eye contact - the colour of their eyes baby." (Female, Casino, Cairns)*

> *"There's one really lively guy called [name]. He's my favourite by far. As soon as you walk in the door it's like 'hey how are you going and this that and the other' and he's a real sort of - it's just he's a joker. He just makes the whole table fun, as opposed to business." (Male, Casino, Cairns)*

Although most participants did not engage in casino game play online, some mentioned potentially appealing features of casino websites that might attract one to play, including accessibility, the option for simultaneous multiple games, jackpots and other bonus features as described by these participants:

> *"If I lived in a small town like [regional town] or something and there weren't any casinos then yeah. If I enjoyed playing baccarat or craps or something, there aren't any casinos therefore I would have to go online. So I guess that innovation would make gambling easier and I'd be able to gamble for any amount that I could afford." (Male, Casino, Melbourne)*

> *"That's the bonus of playing online I think that the internet are quite good at adding in another layer jackpot to your normal play. So they'll say play with us. It's a lower commission plus this jackpot goes off once a day to some random person. It could be you whereas when you're at the casino you're sort of like yeah, this is a harsh rate. There's no jackpot." (Male, Casino, Cairns)*

Aside from these potential appealing aspects of online play, most participants found the authenticity of table play more appealing. Several participants described situations where it was difficult to collect winnings via casino website, for example:

> *"No, it's all about - like it's not - oh yeah you can definitely win and take it out - but the bonus comes to you through a slow points system where every $1000 of turnover they'll leave $10 out. They'll do that 10 times over the month. If you're playing a lot you'll release that*

$100 deposit. So you'll be playing thousands of dollars to release that $100." (Male, Casino, Cairns)

How innovated products alter gambling behaviour

The two casino groups provided some examples of ways in which playing innovated versions of games might change one's behaviour, however, only a few participants had any substantial experience using casino machines or websites, therefore the discussion around the topic was brief. Nevertheless, participants did provide some information regarding the purpose or the reasons that they would select an innovated product over a traditional game; this suggested some ways in which behaviour might vary between the two platforms. For example, some participants mentioned that they might play automated machines because they are cheaper. Several comments alluded to the fact that automated play required less investment, not only in terms of money, but also time and energy. For example, participants described playing on automated machines and online casinos due to boredom or lack of motivation; as this participant described:

"Yeah. I've gambled online, like if you don't feel like - you just can't be bothered focusing on something more intellectual like poker, like the actual - because you know you need to commit time and stuff and you've just got 15 minutes or something before you're going out and then you can literally play one cent games of roulette or something. It's not really real money, well it is, but it's such a tiny amount that it's not going to - nothing's really going to - but yeah, it's just approximating reality." (Male, Casino, Melbourne)

From this, we might assume that some people play with less focus and intensity online or on automated games compared to playing table games.

Another reason commonly mentioned for choosing automated play was to minimise social interaction and maximise the speed of the game, suggesting that for some people, they actually invest more focus and energy into automated play, because of the reduction in socializing and other distractions; as described by these participants:

"It becomes less of a - less entertainment and more just gambling. " (Male, Casino, Melbourne)

"Yes, they're all talking about social interactions. I'm like -you're not socialising with me. I'm in the zone." (Male, Casino, Cairns)

Further to this, some participants alluded to the fact that they would make different decisions regarding their play on a machine based on the fact that other people were not directly involved in their playing. This idea refers back to discussions about etiquette and the sense of affecting another person's game.

For example, this participant felt pressure regarding the effect of his actions on other players, suggesting he may be more likely to place certain bets or make different choices if playing solely against a machine:

""The other thing - big bets - if I go to a table and sit down and then I realise my neighbour is betting $500 a hand and if we're playing blackjack and if my decision is going to affect the outcome of his hand - because if I draw a card it could just throw the whole deck out

for the rest of the shoot - it's way too much pressure. I know I've got the right to draw on 19 if I want to. I might save him by doing that but whatever happens it's too much pressure because what I do has a direct influence on the outcome" (Male, Casino. Cairns)

Finally, participants who had played on automatic machines reported placing frequent bets in quick succession via this platform simply because of the ability to do so. These participants describe their experience on automated roulette machines:

"I used to love - I pounded that automated roulette - it was like $50 on zero, $50 on zero, $50 on zero, just keep going until I won and it finally cracked." (Male. Casino, Cairns)

"So I like it to be bang, bang, bang, bang. Let's knock it out. The social interaction - I'll talk to you later. I'm punting." (Male, Casino, Cairns)

Automated roulette also provides the opportunity to place more bets within a game, without others physically getting in the way. This might suggest that automated players find it easier, and therefore do, place more bets at a time. As described by this participant:

"Because if I want to walk to the end of the table put one bet on one and walk down and put one on 36, I don't want you in my way. On a screen - bang, bang, bang, bang, bang. Spin it. Win. It's a real ball. It's just a camera basically sitting at the table so that's real enough for me." (Male, Casino, Cairns)

Similarly, one participant mentioned that more bets can be placed at a time when using online casinos, since several tables can be open at once:

" It makes bets one fifth of the live table. So you can get a lot more bets on." (Male, Casino, Cairns)

Some participants discussed the way in which their behaviour was different between different games on different platforms. That is, several participants agreed that they preferred to play poker live, at a slower rate, and with other people, whereas they preferred to play roulette on automated machines, at a faster rate, and with higher bets. Participants often recognised their gambling as the purchase of an entertainment experience:

"The longer I'm there for entertainment the better. Over the infinite - given a long enough period of time I know I'm going to lose, so having a bit of a show and stuff at the casino, having that extra time to chat, have a beer with your mates, have a laugh and see people winning and losing and stuff, it's a benefit. Like the quick spin, hitting it 20 times and losing $100, it's like well, that wasn't fun." (Male, Casino, Melbourne)

Differences in perception of risk and risky-play and between innovated and traditional products

Generally, participants were aware of the risks involved with gambling on both traditional and innovative games, and this was commonly attributed to the agenda of the casino owners and

managers (and gambling website operators) to get as much money from their patrons as quickly as possible; as this participant described:

> *"They're not trying to make it better for the customer just for the sake of it - as a charity. It's a tool for separating people from their money. So if you squeeze more machines in, then do it. All these innovations and stuff, if it was going to make people more money, make the casino more money, like a chair that buzzes and all these 3D, you put the 3D goggles on and it's like a simulator of some sort, like a theme park ride." (Male, Casino, Melbourne)*

Despite some gentle probing by facilitators, neither of the casino focus groups tended to discuss, with any depth, risky play or harmful outcomes associated with casino table game play on either traditional or innovative platforms. However, brief mention was made of the harm involved in playing on pokie machines. Participants discussed the way in which they avoided playing pokies or even being seen in the pokie machine area of a venue due to the stigma and harm commonly associated with them, as this participant describes:

> *"I don't like to go to the pokies at all because it's the shame factor with the pokies. I won't go and hang out and hide there. Sometimes only just for a little while. But I won't play. Sometimes I'll sit in front of it and just press things without putting any money in... Because I know too many people that are really really stuffed up by it." (Female, Casino, Melbourne)*

Agreeing with her, this participant said:

> *"Pokies are designed psychologically to actually captivate people and become (an) addiction, because certain noises trigger a psychological response. It's actually designed so you put more in hoping, but the trick is to actually not actually adhere to it." (Male, Casino, Melbourne)*

In terms of automated casino game machines (particularly those without vision of a live wheel or dealer), they were likened to pokie machines in the way that provide little entertainment, interaction, or involvement for the player. This participant states:

> *"Yeah. Which is basically reducing it to pokies, with maybe slightly different odds." (Male, Casino, Melbourne)*

From this, it is suggested that automated casino machines and websites might be perceived as more risky in terms of encouraging, and enabling access to, gambling activity. As these participants expressed:

> *"The innovations aren't - I don't think they're adding anything. Well, they're adding more options and it's enabling easier gambling, but they're not really making it better as such, I wouldn't have thought." (Male, Casino, Melbourne)*

> *"I guess they're just easier. They are much easier so they are an enabling feature. If I really wanted to gamble then yeah, I would use them because it's less effort than going to them when it's cold and rainy outside, so I won't go to [metro casino], I'll go home and lay on the couch with my laptop, great." (Male, Casino, Melbourne)*

Similar comments regarding the speed at which a player can spend their money during automated play, were also congruent with a perception that automated play is associated with higher losses: as this participant described:

> *"It's the same game. It's the same game, but it's just faster and just a way…" (Male, Casino, Cairns)*

RESULTS SUMMARY

Bingo

The strongest opinions regarding the differences between tradition and innovated bingo were the negative feeling about audio alerts given off by the PETs. These audio alerts affected how people psychologically experienced the game as it took away the suspense and, in some cases, the illusions of control in that some participants felt that their chances of winning were now lessened. This also corresponded to those playing the PETs as they didn't like the rest of the players to know they only had one number to go. The illusions of control that participants enjoyed were also felt by many participants to be disrupted by the game becoming more electronic. The PETs took away many of the rituals and superstitious behaviours associated with traditional bingo, such as those associated with the cards and pens used, reducing enjoyment.

Cognitive complexity was reduced when playing the PETs. This was seen as a negative by the majority of participants as playing bingo can be a way to keep the brain active in older age. Many participants also felt that the lack of cognitive complexity with the PETs had led to bingo becoming more like 'proper' gambling rather than social gambling, i.e. becoming more similar to EGMs. This was because paper cards limit you to a small spend as you can't physically keep up with the numbers being called if you have too many cards. However, PETs allow you to purchase many more cards which makes a round of bingo expensive and may increase the risk of gambling related harm.

Sports Betting

The preference towards traditional sports betting due to its social nature was the most discussed aspect as to how the experience of betting changed psychologically between traditional and innovated versions. This was true of both men and women and of those that went to a betting venue as part of a group or alone.

Opinions were split over whether traditional or innovated sports betting gave one more control over their spend and whether one form in particular was more likely to cause gambling related harm. Again, opinions differed as to whether innovative sports betting platforms, such as online, were easier or more difficult to navigate than traditional betting. Some found online betting too busy and overwhelming, whilst conversely, some found it easier to navigate than traditional betting. One interesting finding was that online betting is attractive to those less experienced gamblers who are conscious of the risk of embarrassment when interacting with a betting agent in traditional venues.

Cognitive complexity increases when sports betting on innovated platforms which was attractive to many gamblers. However, there was also a subset of gamblers who preferred the cognitive simplicity of the bets available at traditional sports betting venues. The complexity of the bets available online, coupled with the ability of expedited play and an increase in appealing exotic bets was seen by many as increasing the risk of gambling related harm. The 24/7 accessibility of innovated sports betting

coupled with the use of credit cards and the powerful incentives offered through many websites were also seen as increasing the risk associated with innovated sports betting.

Poker

As with the other gambling modes discussed above, the sociability of traditional poker was a main factor in participants' preference for traditional poker over innovated poker. As well as this sense of being social, traditional poker also had the advantage of the illusions of control that come from being able to read the cues or 'tells' of those one is playing against. This aspect of the game is lost to a large extent when playing innovated poker online.

Those that expressed a preference for innovated poker enjoyed the heightened cognitive complexity that arose from the statistics able to be shown throughout an online poker game. This also had the effect of increasing the illusions of control which some players did experience. Innovated poker was also seen by some participants as being more cognitively complex than traditional poker when multiple games were played at one time, as well as multiple types of poker. This is impossible in a traditional poker setting and leads to expedited play which some participants noted may increase the risk of gambling related harm. However, there were participants that saw innovated poker as a cheap alternative to traditional poker, as you are able to find games with buy in prices that are many times cheaper than those found in face-to-face games.

Casino Table Games

Once again, the social element of traditional casino table games was a major factor in participants' preference for this form of the game over innovated forms. Many felt that the atmosphere that came from interacting with a live croupier and other casino patrons was far superior than that experienced when playing automated or online table games. The fact that the casino was seen by many of the participants as a 'glitzy' place to go on a special occasion, where one dressed up and socialised with friends also meant that the solitary experience of playing innovated table games was at odds with this experience.

Serious table game players talked about preferring to socialise when playing innovated table games as they required less cognitive effort than playing traditional table games. However, this sentiment was rare. Most participants discussed the boredom associated with innovated table games as they preferred the cognitive complexity and illusion of control that they experienced when playing traditional table games. Some of the redeeming features of innovated table games that were mentioned by participants was that audio-visually, the games look attractive and inviting and that one can get away from the crowds and the pressure and play anonymously. However, again, the majority of participants expressed a preference for the audio-visual factors present in traditional table games and discussed the crowds and excitement of playing as part of a group as a motivating factor.

In terms of the risk of gambling harm, like most of the innovated games mentioned previously, automated casino table games offered expedited play, with participants commenting that it would easier to lose money at a faster pace than what would be possible when playing traditionally at a full table.

DISCUSSION

Participants across all focus groups showed a clear preference for traditional gambling products. The most commonly mentioned reasons for this preference were reflected in three of the

components of the VICES framework: social facilitation, cognitive complexity, and illusion of control. For example, the social nature of bingo, poker and casino table games was consistently reported as being eroded by the introduction of the innovative versions (e.g., the PETs). Bingo players tended to show concern that their favourite game would soon become a more high intensity 'gambling' experience, rather than the low-cost social outing they currently enjoy. Similar sentiments were apparent in regards to the other forms of gambling that were investigated, with automated games especially perceived as something that one does alone.

Opinions regarding the cognitive complexity of innovative and traditional versions of the games differed between the product-based focus groups. Traditional versions of bingo, poker and casino table games were generally perceived as being more cognitively complex than the newer innovative versions. For example, many older bingo players described traditional bingo as a health-related activity that helped to keep their mind active whilst poker players enjoyed the challenge of reading their opponents' body language during traditional table-based poker.

Some sports bettors also found traditional betting at a venue more cognitively complex than online innovative sports betting. However, this was viewed as a negative feature of traditional sports betting. The complexities of betting in person (traditionally) were compounded by the fact that it required interaction with the cashier or bookmaker, resulting in the potential for embarrassment. Conversely, traditional sports betting was seen by the more experienced participants as less cognitively complex than innovative (online) sports betting. Some participants enjoyed the complex exotic bets available online, as well as the multitude of sporting codes on which to gamble. In comparison, placing a bet in person at a venue was seen as less complex by some due to the restricted range of bets available. These differences show that the individual's needs and desires in terms of what they want from their gambling experience is important in determining the relative risks associated with traditional compared to innovative products.

In reflecting further on the VICES framework, poker and table games players expressed that there was a clear loss of the control, or potentially the illusion of control, over the outcome of the game. Participants generally expressed that when they were playing automated or online versions of games, they were unable to use skills such as reading the faces of other players. These were viewed as deficits in the innovative versions and reduced the amount they felts they could influence the outcome of the game. Similarly, bingo players experienced a loss of control when audible alerts from PET machines warned them their competitors only needed one number to win. Any loss of the illusion of control was not reported by the sports betting group. This is likely due to the fact that the outcome is clearly determined by a live event separate from the betting application and/or the device itself.

The key risk factor identified with innovative gambling products across all groups was that of expedited play. This can take the form of an increased spend per game, as in the innovated PET version of bingo where players are able to play far more cards simultaneously per game, with each card having a set price. Expedited play can also take the form of the ability to place bets in quick succession, such in automated roulette where there is no waiting period between games to slow betting pace. Some participants talked about innovation morphing their game of choice into an EGM-like experience, with more emphasis on money making for the provider and less emphasis on sociability for the consumers. However, it is important to mention that some sports bettors used online gambling because they wanted to bet small amounts and they felt embarrassed doing so face-to-face at a traditional value due to the risk of judgement or the fear that they would be wasting the cashier's time. This may offer a protective element in terms of innovative sports betting that has not been previously considered.

In addition to the themes relevant to the VICES framework, another theme regarding aspects of product access emerged from the data. That is, a substantial amount of discussion focussed on two prominent beliefs regarding access and innovative products; 1) that online or in-venue automated versions of products provide increased access to gambling products, and conversely, 2) that innovated products exhibit barriers to accessing gambling, in that players hold concerns over lack of security or uncertainty around the legitimacy of the website or program. For example, participants agreed that innovated products, such as casino websites and online sports betting, provided more opportunity for players who were unable or unwilling to access a venue. Reasons for a lack of access to a physical venue included the location of the venue, the operating hours, or the perceived lack of efficacy to gambling. Interestingly, in terms of their own gambling activity, most participants expressed a distrust for online and automated versions of gambling products - a factor that discouraged their personal use of them.

It is also important to discuss the experience that a gambler desires when considering risk and protective factors associated with traditional versus innovative gambling products. For example, we found that when sports bettors talked about their focus being on enjoying a social experience, i.e. going to the pub with their friends, the gambling was seen as a secondary activity. Therefore, they were less concerned with cognitive complexity and expedited play in that context as the focus was on social interaction. However, when they gambling alone at home using online sports betting providers, cognitive complexity and expedited play become a priority. This was markedly the case in male sports bettors of which included someone experiencing problems with gambling.

In terms of risk and subsequent harms, the most common concern expressed across the study was the rapid loss of money and potential for addiction that may be incurred while consuming a product that encourages anonymity, isolation, and increased expenditure. These concerns are captured in the VICES framework and show that there is real concern amongst many recreational gamblers that further innovation of gambling games may lead to a decrease in the benefits that gambling offers, such as social contact and stimulation of the mind, and an increase in the risk of gambling becoming harmful.

LIMITATIONS

It is acknowledged that the overwhelming dislike for innovated versions of all four games covered may have been biased due to the fact that people who liked to socialise in person were more likely to volunteer to participate in a focus group. Future research could explore the possibility of facilitating an online focus group in order to capture a more diverse range of individuals. Another limitation was that older females were over-represented in the sample. For example, in the sports betting focus group more than half of our focus group were female, with the majority of the participants being traditional sports bettors. Given the huge growth in the online sports betting sector and the associated vulnerability of young male sports bettors for higher risk gambling (Hing, Russell, Vitartas, & Lamont, 2015) it may be that key markets segments were not consulted in some instances. Focus groups can be too time consuming or not accessible for certain groups of people due to location or work schedule. Future research might combat this issue by utilising individual telephone calls or online methods of data collection. If it is the case that innovated versions of gambling products can lead to riskier gambling behaviour it would be valuable to gain a deeper insight into the psychology and motivations behind preferences for online and otherwise automated products.

CONCLUSION

This qualitative investigation aimed to explore the perceptions and behaviours of people who gamble on four different modes of gambling that offer both traditional and innovative forms of the games. Although the games differ widely in the demographic that they attract and the needs they meet for their players, i.e. social interaction, overall it was traditional versions of the game that were viewed most positively. Traditional games were also seen by the majority of participants as generally being less likely to cause gambling-related harm than innovated games. This was mostly attributed to the expedited play and increased potential for consumption that is built into innovated versions of their chosen games.

The contribution of this chapter has been to explore the influence of innovation on four different gambling games: bingo, sports betting, poker and casino table games. It is important to note that these games are very diverse and that the impact of innovation differs across the four games, as captured by the VICES framework. However, this qualitative investigation does provide valuable insights into how innovation is changing gambling and the potential for experiencing gambling-related harm.

PHASE 5: EXPERIMENTAL INVESTIGATION

INTRODUCTION

The purpose of this phase was to conduct an investigation into the effects of innovated features of gambling products on observable gambling behaviour. Using an experimental design, we were able to extract and isolate individual features of innovated products to objectively examine their impact on key player outcomes with a focus on traces of behaviour that contribute to long-run gambling losses.

This phase addresses several key questions of the project, such as:

- Do the enhancements of innovative gambling products from the traditional versions contribute to greater gambling intensity?
- If so, which enhanced features of innovated products have a greater impact on gambling intensity?
- Does the impact of enhanced innovated gambling product features vary by a players' problem gambling status (PGSI) or gambling experience (novice, experienced, problem)?
- Are there demographic differences in the impact of innovative versus traditional gambling product features on gambling intensity?

To answer these questions, this phase consisted of two independent experiments which were similar in structure and design, investigating two different gambling products: casino table games and bingo. We selected roulette as the casino table game to feature in the experiment, as it is the most popular choice for automated table game players (as per our National Survey findings in Phase 3). Bingo was chosen for the experiment as it replicates the electronic form of bingo which is functionally equivalent to traditional bingo and available for purchase in bingo venues, either alongside the traditional paper-based bingo ticket, or as an alternative to it. These electronic devices are known as Electronic Bingo Card Monitoring Devices (EBCMDs) or a Personal Electronic Transmitter (PET) and share similarities with other forms of electronic gaming machines (EGMs) such as video poker and slot machines.

The VICES framework guided our selection of innovative features to investigate: audio/visual enhancements, illusion of control, cognitive complexity, expedited play, and social customisation. The two experiments each had six conditions: a "baseline" control condition offering a standard play experience, and five comparison conditions, each enhanced with a VICES derived feature.

METHOD

PARTICIPANTS

Research studies conducted within the gambling field have used online panels as a method of recruiting participants (Hing et al., 2015; Gainsbury et al., 2012) and as such a similar method was adopted here. As opposed to recruitment for face-to-face research, the online platform allowed a greater number of participants to be recruited and removed the potential impact from experimenter bias of laboratory run experiments.

The panel size of our sample recruitment provider was large, which ensured the recruitment of participants would be from a wide range of demographics. The aim of recruitment was to obtain a stratified sample by gender and gambler type (novice, experienced, problem) and the 12 experimental conditions. Gambler type (novice vs. experienced) was determined by a self-assessment question, whereas participants were preferentially classified as "problem" if they scored 4+ on the Consumption Screen for Problem Gambling (Rockloff 2012). Recruitment for the online experiments was done through an ISO-accredited Australian commercial panel provider in two stages.

In the first stage of recruitment, the panel provider administered a screening questionnaire, targeting participant inclusion criteria, including: 18 years and over, have gambled in their lifetime, meeting the software requirements compatible with the games (complete survey via desktop computer and using a Chrome or Firefox internet browser), and having sound-enabled on the computer. The aim was to recruit approximately even samples by gambler type and gender, with a representative distribution (where possible) by age. The screening questionnaire had an inclusion rate of 23.5%, producing a final eligible sample of 921 potential participants.

The second stage involved stratified random assignment, whereby the 921 participants were allocated across the 12 experimental conditions in approximately equal proportions by gender and gambler type. The panel provider invited these participants to complete the survey, which included: a pre-survey, the game, and a post-survey.

Of the eligible participants, a total of 452 completed the survey resulting in a 49.1% response rate. However, we had an unexpectedly high rate of non-compliance with the requirements to complete the survey in a compatible browser and with a compatible device resulting in suspect (or missing) game data (n = 51 participants). Excluding this non-compliant sample, the final number of completes were 401 participants (43.5% of participants invited). The problem-gambling status of the participants, as represented by their Problem Gambling Severity Index Scores (Ferris and Wynne 2001), included 15.7% (63) problem-gamblers, 15.2% (61) moderate-risk gamblers, 19.0% (76) low-risk gamblers, and 50.1% (201) non-problem gamblers.

See Appendix 7 and Appendix 8 for a breakdown of the participant demographics by Roulette and Bingo game conditions, respectively.

PROCEDURE

We commissioned a third party web development company to program the game software for the experiments. We provided the specifications for two online in-browser games – bingo and roulette – as well as five separate "enhancements" of each game, such that there was a version of each game for each of the six conditions (i.e., 1 control + 5 experimental conditions for each game). The game specifications were carefully developed by our research team, and informed by our knowledge/experience of innovated products, the VICES framework, and our literature investigation (Phase 1).

Two experiments were conducted online during October 2015, and consisted of a brief pre-game questionnaire, the game experiment, and a post-game questionnaire. In the introduction to the survey, participants were told that they would be playing an online simulated bingo/roulette game and completing a brief questionnaire afterward. As mentioned previously, participants were assigned to randomly to **one of the twelve** experimental conditions prior to being sent a link to complete the survey with the aim to achieve an equal spread of completes across the 12 conditions condition by

gender and gambler type. They were instructed that they would be provided with an in-game credit valued of $10 (1000 credits) and that they would be able to stop playing and "cash out" at any time they choose. At the end of their play session, their credit balance would be converted to a cash value which they would be able to redeem via the panel provider (as a gift card). The participant compensation was designed to instil the impression that the participants would be genuinely gambling with "real money". The outcomes of the games were pre-determined, as described below, and therefore were not technically gambling. Nevertheless, our participants were not aware that we fixed the outcomes prior to the completion of the study.

After completing the pre-game questionnaire, participants were provided with instructions on how to play the game, and their play session would begin. Instructions were limited to how to place bets without indication of which bets were desirable. After playing, participants clicked the "End game" button to indicate they wanted to conclude their play session. At this point, participants were informed that they would receive compensation valued at either their starting balance (i.e. $10) or their closing balance, depending on which one was greater. Lastly, participants completed the post-game questionnaire.

MATERIALS

The pre-game questionnaire consisted of basic demographics such as age, gender, and cultural background. The post-game questionnaire consisted of questions asking about their experience of the game, gambling history and behaviour, the Problem Gambling Severity Index (PGSI; Ferris and Wynne 2001).

The specifications for the 12 games (2 game types x 6 experimental conditions) were designed by the research team, and implemented by the software developers. The following section will describe in some detail the design of the Roulette and Bingo games; the baseline game (control condition) in each game; and how the five experimental condition games were enhanced from the baseline design to capture the VICES framework. Unless explicitly stated to be part of a condition's manipulation, as described below, all other game characteristics were kept consistent with the baseline game specifications.

Roulette

The base roulette game was designed to mimic the characteristics and conventions of commercial and currently available online roulette games. A single game turn consisted of selecting a bet size, placing bets, the wheel spinning, and subsequently viewing the outcome and payout of the spin. There was a fixed schedule of play, such that there was a fixed interval between each wheel spin, with a countdown between spins of 30 seconds.

See Figure 39 for the main game screen. The main game screen contains the roulette wheel, betting table, countdown timer, credit balances (overall and for the current bet), available bet sizes (10, 50 or 100 credits), a button to bring up an payout/odds table (see Figure 40), a column showing bets in play for the current turn, and an "end game" button. Once a single bet is placed, an option appears to clear all bets so that players can change their minds prior to the spin (time permitting).

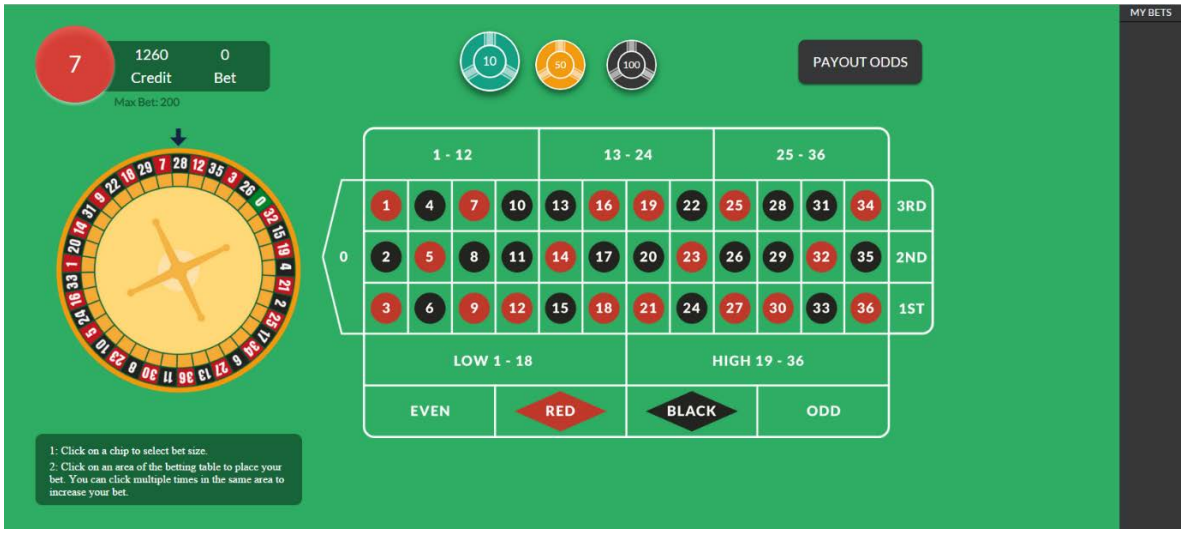
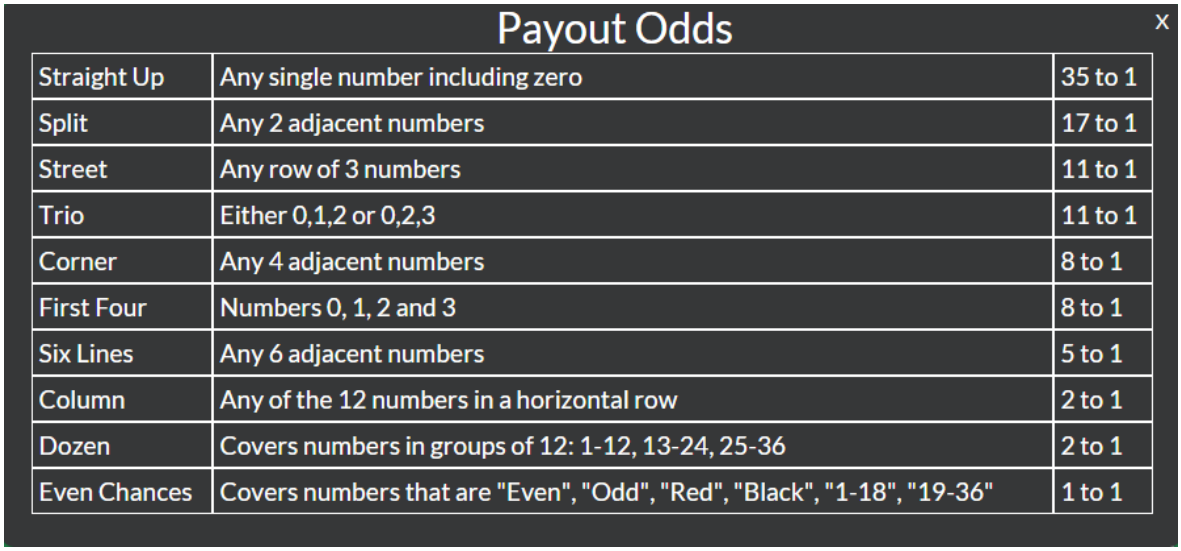


Figure 39. Roulette Main Screen



Straight Up	Any single number including zero	35 to 1
Split	Any 2 adjacent numbers	17 to 1
Street	Any row of 3 numbers	11 to 1
Trio	Either 0,1,2 or 0,2,3	11 to 1
Corner	Any 4 adjacent numbers	8 to 1
First Four	Numbers 0, 1, 2 and 3	8 to 1
Six Lines	Any 6 adjacent numbers	5 to 1
Column	Any of the 12 numbers in a horizontal row	2 to 1
Dozen	Covers numbers in groups of 12: 1-12, 13-24, 25-36	2 to 1
Even Chances	Covers numbers that are "Even", "Odd", "Red", "Black", "1-18", "19-36"	1 to 1

Figure 40. Roulette Payout Table

An unlimited number of bets could be placed in any game turn, and the bet size could be re-selected for each individual bet. It was also possible to place no bets in a game turn. See Figure 41 for an example of placing multiple bets.

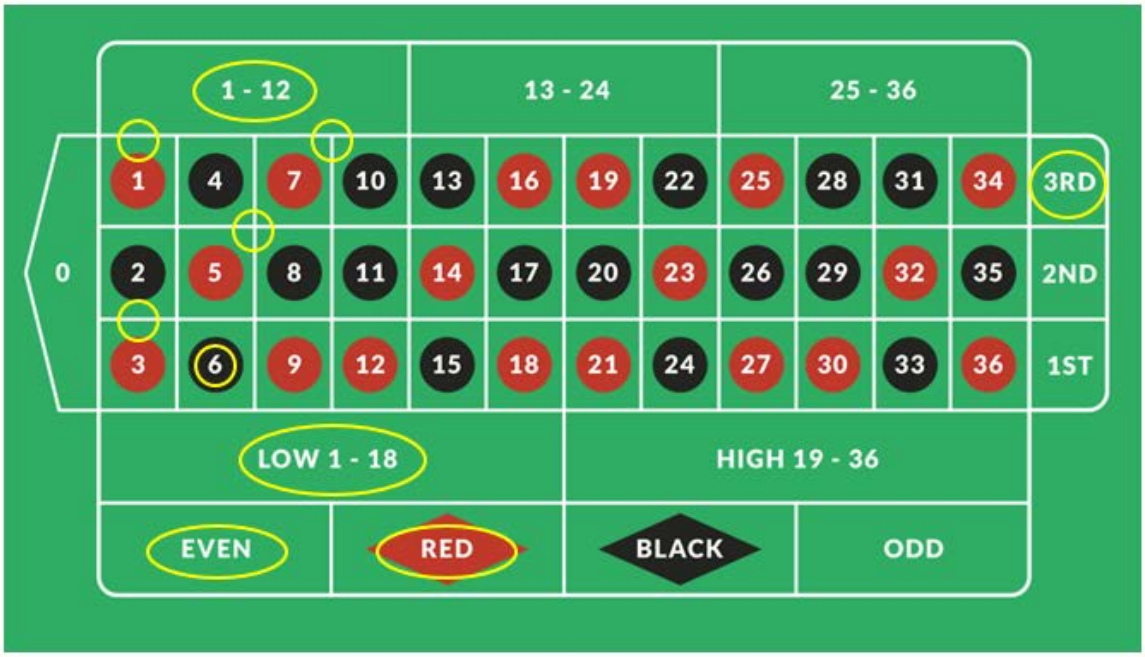


Figure 41. Roulette Bet Placing

Following the 30 second window during which bets could be placed, the wheel would spin and then report the outcome of the spin to the player, including the player's payout. The countdown to the subsequent spin would then immediately begin.

The play session concluded in one of two ways: either the player ran out of credits or clicked the "end game" button.

Importantly, the player win schedule was pre-determined and controlled for programmatically. The game was designed such that, on average, participants would experience a period of relatively high success during the first 20 spins, but then suffer an indefinite losing streak until they ran out of credits. In addition to this overall win schedule, large and highly unlikely wins were restricted (such as winning on a single number with 1:36 odds).

Visual/Audio. This condition differed from the baseline game only in that a winning event was paired with positive animations and sounds. Specifically, when the outcome was an absolute win for the player (regardless of whether it was a net win), during the regular outcome display panel, the game screen is overlaid with a colourful and bright visual animation, accompanied by enthusiastic cheering and applause, which celebrates the win (see Figure 42). This is contrasted to the baseline condition where the spin outcome was communicated in a neutral manner.

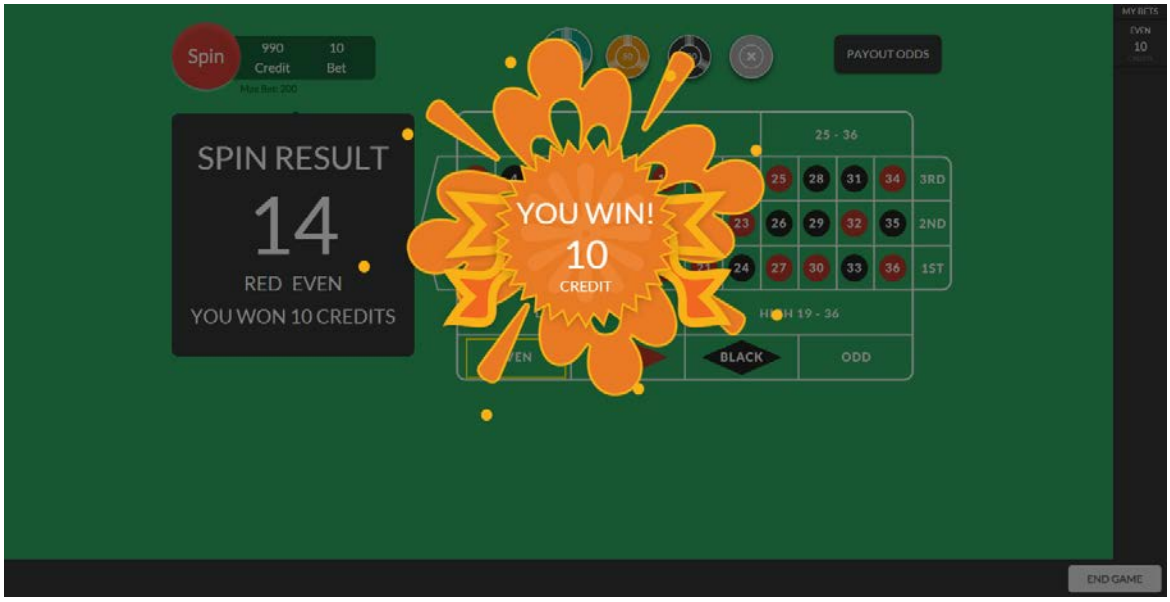


Figure 42. Roulette Audio/Visual Condition Enhancement

Illusion of Control / Clustering Illusion. In this condition, a panel of the game screen was devoted to providing additional game information/statistics (see Figure 43). This included: spin history for the current session, "hot" and "cold" numbers (i.e. numbers that have occurred more or less frequently than the average in a large set of recent spins), the percentage distribution of black, green and red winning numbers in a large set of recent spins, the percentage distribution of high and low winning numbers in a large set of recent spins, and the percentage distribution of odd and even numbers in a large set of recent spins. With the exception of the spin history, all of this additional information was fabricated and was not directly relevant to the current session's outcomes. However, all information was designed to automatically "adjust" following each spin's outcome to create the illusion of being influenced by the session's outcomes.

This manipulation is best described as invoking a clustering illusion, rather than directly invoking illusion of control. The clustering illusion refers to the tendency to see the inevitable streaks or clusters in random data as non-random. It is common for people to falsely assume that they can make consequential betting choices based on this false data, which could result in an illusion of control. The limitations section outlines potential alternatives to this manipulations for use in future research.

Figure 43. Roulette Illusion of Control Condition Enhancement

Expedited Play. In this condition, the rate of play was substantially increased. The countdown timer was reduced from 30 seconds to 20 seconds, and the duration of the spin outcome display was reduced from 5 seconds to 2 seconds.

Cognitive Complexity. In this condition the difficulty of the game and winning patterns was increased by adding a complex betting option known as line bets. In this condition, a panel of 14 available line bets were provided, and when selected it highlighted in green a different line of numbers across the betting table. They were instructed that both line bets and other bets (those provided in the baseline) can be placed within a single game turn. See Figure 44 for an example of a placed line bet and Figure 45 for the enhanced payout odds table providing the win patterns.

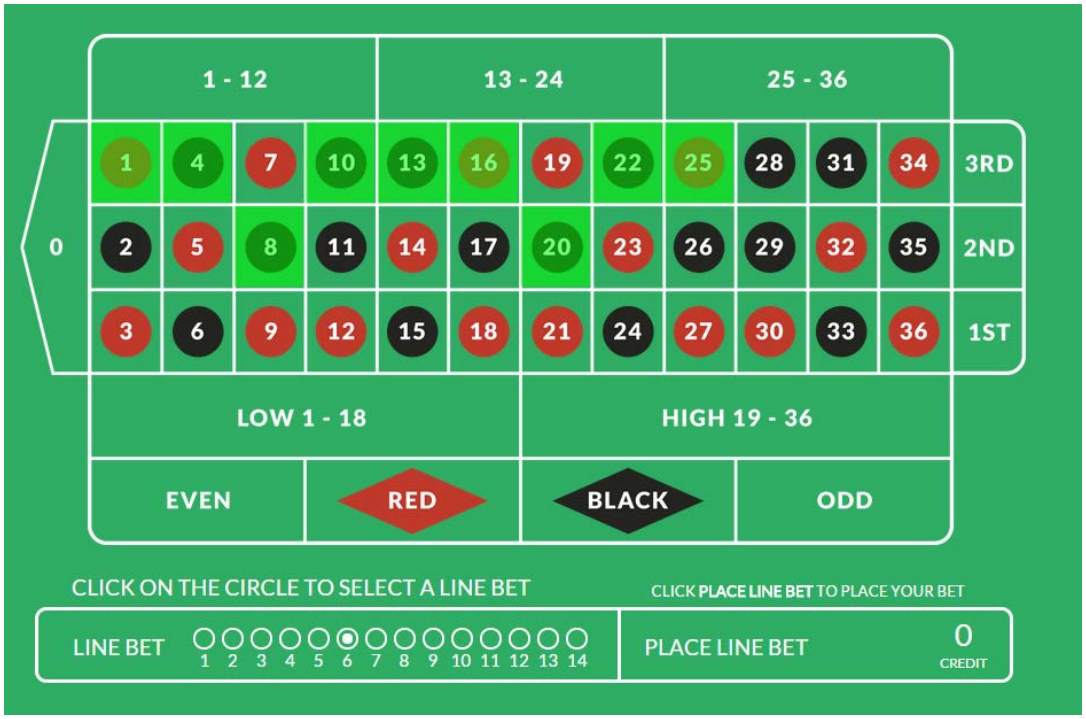


Figure 44. Roulette Complexity Condition Enhancement – Line Bets

Payout Odds		
Straight Up	Any single number including zero	35 to 1
Split	Any 2 adjacent numbers	17 to 1
Street	Any row of 3 numbers	11 to 1
Trio	Either 0,1,2 or 0,2,3	11 to 1
Corner	Any 4 adjacent numbers	8 to 1
First Four	Numbers 0, 1, 2 and 3	8 to 1
Six Lines	Any 6 adjacent numbers	5 to 1
Column	Any of the 12 numbers in a horizontal row	2 to 1
Dozen	Covers numbers in groups of 12: 1-12, 13-24, 25-36	2 to 1
Even Chances	Covers numbers that are "Even", "Odd", "Red", "Black", "1-18", "19-36"	1 to 1
Line 1	Numbers: 1,2,3,6,9,8	5 to 1
Line 2	Numbers: 7,10,13,14,15,18	5 to 1
Line 3	Numbers: 21,20,19,22,25,26	5 to 1
Line 4	Numbers: 27,30,33,32,31,34	5 to 1
Line 5	Numbers: 9,12,14,18,21,24,26,30,33	3 to 1
Line 6	Numbers: 1,4,8,10,13,16,20,22,25	3 to 1
Line 7	Numbers: 11,13,17,21,23,27,29,31,35	3 to 1
Line 8	Numbers: 5,9,11,13,17,19,23,27,29	3 to 1
Line 9	Numbers: 1,5,7,11,13,17,19,23,25,29,31,35	2 to 1
Line 10	Numbers: 2,6,8,12,14,18,20,24,26,30,32,36	2 to 1
Line 11	Numbers: 3,5,9,12,14,18,21,23,27,30,32,36	2 to 1
Line 12	Numbers: 1,5,7,10,14,16,19,23,25,28,32,34	2 to 1
Line 13	Numbers: 4,5,6,9,12,11,10,13,16,17,18,21,24,23,22,25,28,29	1 to 1
Line 14	Numbers: 12,11,10,13,16,17,18,21,24,23,22,25,28,29,30,33,36,35	1 to 1

Figure 45. Roulette Complexity Condition Enhancement – Payout Odds Table

Social Factors. This condition added elements to the game screen to create the illusion that the participant was playing “live” with/against other people who were also simultaneously participating in the experiment. There were three elements. Firstly, as participants first began their play session, they were presented with a pre-game screen for 5 seconds which stated “Joining game as Player5138…” and gave the impression of loading/joining an existing game. Secondly, the main game screen continuously featured a game “lobby”, which listed other “players” currently playing and which state they were located in. This list changed dynamically throughout the session, to mimic new players joining the game and existing players ending their session. Lastly, when the spin outcome is reported to the participant, “other player winnings” would be communicated to the participant with small popups at the bottom of the game screen. These popups would show the username of the winning player and how many credits they won. There were usually between 0-3 other player popups per turn. See Figure 46 for a screenshot of the main game screen including the game lobby and the popups for other players.

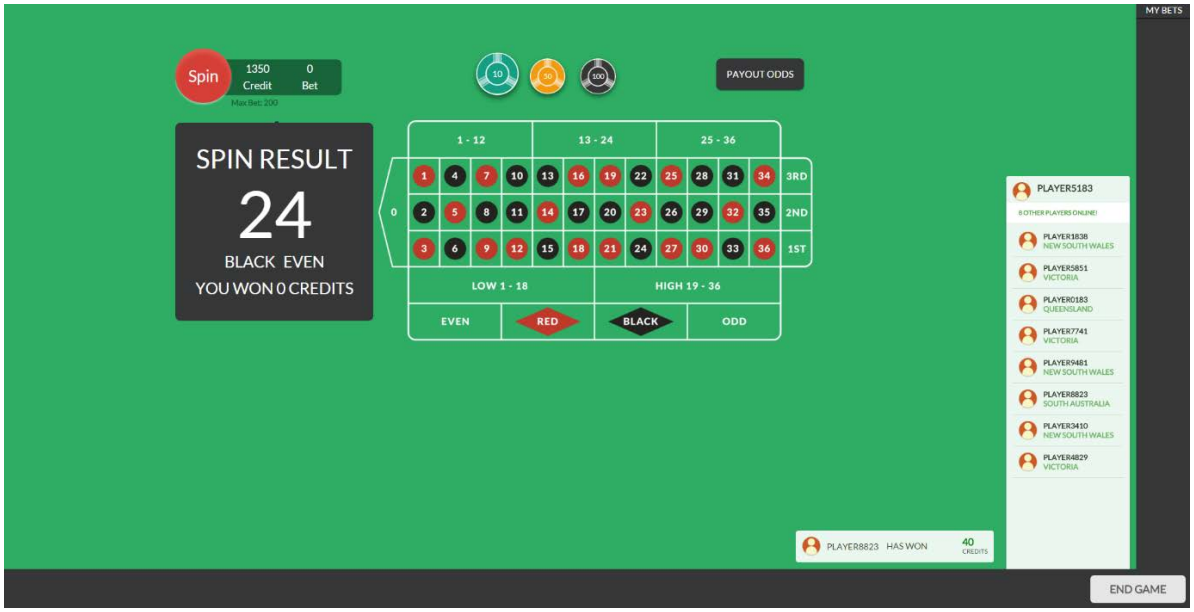


Figure 46. Roulette Social Condition Enhancement

Bingo

The base bingo game was also designed to simulate commercial online bingo games. A single game turn involved: 1) selecting a bet “size”, or in other words, choosing the value of the bingo card - and thus the respective payout for a win; 2) the game turn starting and 32 random numbers being called from between 1 and 75 during which the player can win bingo; and lastly, 3) the outcome of the current turn being displayed to the player. There was a fixed schedule of play, such that there was a fixed interval between game turns (during the bet selection phase) of 20 seconds, and the next game would automatically start at the end of the countdown.

See Figure 47 for the main game screen. The game screen features the current bingo card in play (of standard makeup), the number that was most recently called, a bingo button with which to declare bingo, credit balances (overall and for the current bet), call history for the current turn, a button to access to the winning patterns needed to achieve bingo (See Figure 10), and an “end game” button to end the session.

Figure 47. Bingo Main Game Screen

Bingo numbers were called at a rate of one every six seconds. A “winning pattern” was any horizontal or diagonal line of five numbers (see Figure 48). Importantly, multiple bingos were achievable in a single game turn.

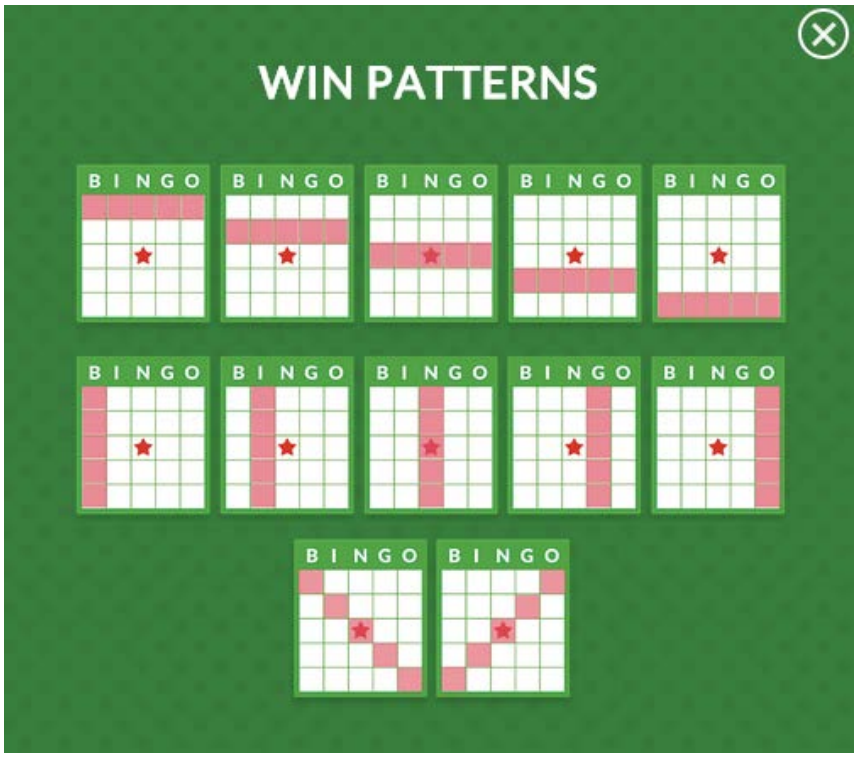


Figure 48. Bingo Win Patterns

Winning payouts were twice the value of the bingo card, or “bet size”, per every bingo achieved. Participants chose the value of their bingo card before every game turn, and had the choice of five different bet sizes (See Figure 49). Importantly, the player is playing alone; unlike traditional bingo in a physical venue, but like some online games; the player does not race against other players in order to win, but instead races against a limited number of calls.

Figure 49. Bingo Bet Placing

Like with roulette, we created a particular win schedule for all participants. The bingo cards and sequences of called numbers in each turn were pre-determined, to create a particular win/loss experience that was constant for all participants. All players experienced: one bingo on the first turn, no bingos on the second, two bingos on the third, one bingo on the fourth, and then no bingos for all subsequent turns. Thus, all participants experienced an initial period of relatively high success, followed by an indefinite period of losses.

Visual/Audio. This condition differed from the baseline condition only in augmenting the play experience with positive audio and visual enhancements. This included a pleasant sound and small visual “burst” accompanying the selection of a valid/called number on the bingo card, a colourful and bright visual animation accompanied by enthusiastic cheering and applause whenever a bingo is achieved (see Figure 50), and the same animation appearing at the end of the game turn when the turn outcome is reported to the player (see Figure 51). This contrasted to the baseline condition where number selection, bingo wins and the turn outcome occurred in a neutral manner.

Figure 50. Bingo Audio/Visual Condition Enhancement – Winning a Bingo Animation

Figure 51. Bingo Audio/Visual Condition Enhancement – Animation at End of Game Turn

Illusion of Control. In this condition, the illusion of control over the game outcome was induced by requiring the player to select one of five alternative bingo cards with which to play the imminent game turn. This choice was made before every game turn and each choice was independent. Importantly, the card selection occurred before bet size selection. All possible cards obeyed the designated win/loss schedule, and thus selection was irrelevant to player outcomes. See Figure 52 for an example of the bingo card selection screen.

Figure 52. Bingo Illusion of Control Condition Enhancement

Cognitive Complexity. This condition increased the difficulty of the game by changing the winning patterns required to achieve bingo. In contrast to the baseline condition, where any line of five numbers resulted in a valid bingo, in this condition, there were only three possible win patterns per turn, which were made up of three seemingly random positions on the bingo card. Further, these win patterns would change every game turn, requiring constant attention and revision of the patterns in order to achieve bingo. These patterns were continuously shown on the game screen (unlike in the baseline condition) to help the player to keep track of winning outcomes. See Figure 53 for an example of the game screen in this condition.

Figure 53. Bingo Complexity Condition Enhancement

Expedited Play. In this condition, the rate of play was substantially increased. The rate of called numbers was reduced from one every six seconds to one every three seconds.

Social Factors. This condition added elements to the game screen to create the illusion that the participant was playing "live" with/against other people who were also simultaneously participating in the experiment. There were four elements. Firstly, as participants first began their play session, they were presented with a pre-game screen for 5 seconds which stated "Joining game as Player5138…" and gave the impression of loading/joining an existing game. Secondly, the main game screen continuously featured a game "lobby", which listed other "players" currently playing and which state they were located in. This list changed dynamically throughout the session, to mimic new players joining the game and existing players ending their session. Thirdly, throughout the game turn, small popups would appear on the game screen with an audio effect to communicate when another player had achieved bingo. There were usually between 0-3 other player pop-ups per turn. Lastly, a "counter" would appear on the screen showing how many other players had achieved bingo in the current game turn. See Figure 54 for a screenshot of the main game screen in this condition; including the game lobby, another player popup, and the bingo counter.

Figure 54. Bingo Social Condition Enhancement

DATA ANALYSES

Results were analysed for the roulette and bingo games separately using the following techniques: correlation, independent t-tests, ANOVA, and ANCOVA. The dependent and independent measures in the analyses for the roulette and bingo data are presented in Table 24.

Table 24. Variables Used in Data Analysis[8]

Variables used in analyses	Roulette Data (n=212)	Bingo Data (n=189)
Dependent Measures		
Number of games played	✓	✓
Session duration (minutes)	✓	✓
Bet size	✓	✓
Bet speed (seconds)*	✓	✓
Number of bets per game	✓	
Credits remaining	✓	✓
Independent Measures		
Age	✓	✓
Gender	✓	✓
PGSI category (no to low-risk, moderate-risk to problem)	✓	✓
PGSI score	✓	✓
Experimental condition - VICES Framework	✓	✓
Gambler type	✓	✓

**Roulette data included two measures of bet speed: first and last bet*

For Roulette, since more than one bet can be placed in a roulette game turn (for example, you place both a bet that the number would be RED and another that the number would be EVEN this equals 2 bets placed) two measures of bet speed were calculated: 1) *average speed to place the first bet* - the time taken in seconds to place the first bet for ALL games was summed and divided by the number of games played, 2) *average speed to place the last bet* - the time taken in seconds to place the last bet for ALL games was summed and divided by the number of games played. The average bet speed for the last bet is essentially a measure of the average time to place ALL bets in a game turn.

Prior to analysis a descriptive analysis was conducted separately for the aggregated roulette game data and aggregated bingo data to test the normality of the distribution of the dependent measures, as summarised in Table 25 and Table 26 respectively in the below sections.

ROULETTE

Table 25 25 below provides summary of the descriptive statistics for the roulette game dependent measures:

- The distribution for the ***average number of roulette games played*** was positively skewed with 15.6% of the sample playing between 1 to 3 games on average. There were 2 cases with an average of over 60 games played. A log transformation was applied to the data,

[8] Player experience with each game, Bingo and Roulette, were considered as another independent variable. However, experience with the games - either 12-months recent or beyond 12-months past - did not predict any outcome nor did it interact with condition.

followed by applying thresholds to values above 60 games to 60 games, which improved the skewed distribution (Skew = -0.27). *W* = 0.97, *p* < .000.

- The distribution for the ***average session duration*** in roulette was positively skewed, with over half (58.5%) of the sample averaging game sessions under 10 minutes in length. There were 7 cases with session durations above 40 minutes which contributed to the skewed distribution. A log transformation was applied to the data, followed by applying thresholds to values below 1 minute and above 40 minutes to those values, which improved the skewed distribution (Skew = -0.19), *W* = 0.96, *p* < .000.
- The distribution for the ***average bet size*** in roulette showed negative kurtosis, with the distribution spread fairly evenly between the average bet sizes of 10 to 200 credits. The average bet size was in the centre of the distribution (M=108 credits).
- The distribution for the ***average speed to place the first bet*** in roulette showed a positive skew and positive kurtosis.
- Just over half (56.6%) of the sample took on average 10 to 15 seconds to place the first bet in the game. There was 1 outlier case which took 37 seconds on average to place their first bet. The analysis was re-run with a threshold of 24 seconds applied, and the effect was a decrease in positive skew (0.61) and a decrease in kurtosis (0.71), *W* = 0.97, *p* < .001.
- The distribution for the ***average speed to place the last bet*** in roulette showed a positive skew and positive kurtosis, with just over half (52.4%) taking 15-25 seconds to place all bets per game. There was 1 outlier case which took 50 seconds on average to place all bets. Analysis was re-run with a threshold of 35 seconds applied, and the effect was a decrease in positive skew (0.30) and change to negative kurtosis (-0.67), *W* = 0.97, p = .001.
- The distribution for the ***average number of bets placed per game turn*** in roulette showed a positive skew and positive kurtosis. Just under 5% played the minimum of 1 bet per game turn, and more than three-quarters (77.4%) placed on average between 1 to 5 bets per game turn.
- The distribution for the ***average credits remaining when ending the game session*** for Roulette showed a negative skew and negative kurtosis. In total, 15.1% of the sample ended their roulette game session with 0 credits remaining. Based on previous research, this finding of often gambling all credits away is to be expected (cf., Rockloff et al. 2012; Rockloff et al. 2010; Rockloff et al. 2010; Rockloff & Greer 2008). When excluding cases with a 0 credit end balance the distribution shows a negative skew (-0.96) and positive kurtosis (1.97), *W* = 0.93, *p* < .000.

Table 25. Distribution of Roulette Game Data

Roulette Game Data	N	Min	Max	Mean	SE. Mean	SD. Mean	Skew	Kurt	Test of Normality	
									Stat	Sig.
Number of Games Played	212	1	64	17.03	1.10	16.01	1.24	0.46	0.83	<.000
Session Duration (mins)	212	1	47	12.04	0.80	11.66	1.32	0.81	0.83	<.000
Bet Size	209	10	200	107.97	4.00	57.80	-0.11	-1.25	0.94	<.000
Bet Speed - First Bet (sec)	210	3	37	11.77	0.28	4.04	1.49	6.74	0.92	<.000
Bet Speed - Last Bet (sec)	202	7	50	19.91	0.47	6.74	0.63	0.88	0.96	<.000
Number of Bets per Game Turn	212	1	20.67	4.33	0.29	4.15	2.15	4.23	0.71	<.000
Credits Remaining	212	0	1820	937.64	34.36	500.26	-0.84	-0.35	0.86	<.000

The following edits to the roulette game data were made to bring, where applicable, the distribution closer to normal for the purpose of applying parametric statistics to these outcomes:

- Number of games played: logit transformation, thresholding number of games played over 60 to 60 games played
- Session duration (minutes): logit transformation, thresholding sessions below 1 minute to 1 minute and above 40 minutes to 40 minutes
- Bet size: raw data
- Bet speed (first bet): thresholding speeds above 24 seconds to 24 seconds
- Bet speed (last bet): thresholding speeds above 35 seconds to 35 seconds
- Number of bets played per game: logit transformation
- Credits remaining: raw data

BINGO

Table 26 below provides summary of the descriptive statistics for the bingo game outcome measures:

- The distribution for the ***number of bingo games played*** was positively skewed, with 10.6% of the sample playing 1 bingo game, and another peak of 10.6% playing 8 bingo games. There were 4 outlier cases where participants played on average above 20 bingo games. Analysis was re-run with a threshold of 20 games applied, and the effect was a move toward a normal distribution with a decrease in positive skew (0.49), $W = 0.94$, $p < .000$.
- The distribution for the ***average session duration*** in bingo showed a slight positive skew, with over a third (37.5%) of the sample averaging game sessions under 15 minutes in length. A threshold was applied for outlier cases above 62 minutes (n=3) to 62 minutes and analysis re-run. The effect was a decrease in the positive skew (0.44) and a change to negative kurtosis (-.92), $W = 0.94$, $p < .000$.
- The distribution for the ***average bet size*** in bingo showed negative kurtosis, with the distribution spread fairly evenly between average bet sizes of 50 to 300 credits. The average bet size is around the centre of the distribution (M=168 credits). There are also modal 'peaks' with average bet size clustering on the available bet sizes for the bingo game (functionally indicating that people are often sticking to one bet size only for all their game-turns): 50 credits (9%), 100 credits (3.7%), 150 credits (2.6%), 200 credits (11.1%), 250 credits (3.7%), and 300 credits (4.8%). A logit transformation with reflection was conducted, which brought the distribution further *away* from normality, with an increased in the negative skew (-2.61) and a change to positive kurtosis (7.38), $W = 0.69$, $p < .000$.
- The distribution for the ***average bet speed*** for a bingo game showed a positive skew and a strong positive kurtosis, with 70.9% of the sample taking an average of 3 seconds to place a bet for their bingo game. There was 1 outlier case which took on average 17 seconds to select their bet. Analysis was re-run with a threshold of 12 seconds applied, and the effect was a move towards a normal distribution with a slight decrease in positive skew (2.56) and decrease in positive kurtosis (3.74), $W = 0.59$, $p < .000$.
- The distribution for the ***average credits remaining when ending the game session*** for bingo showed a positive skew and negative kurtosis. In total, 38.1% of the sample ended their bingo game session with 0 credits remaining. As per the roulette game, this outcome of gambling all credits away is to be expected based on previous research findings (cf., Rockloff et al. 2012; Rockloff et al. 2010; Rockloff et al. 2010; Rockloff & Greer 2008). When excluding cases with a 0 credit ending balance the distribution approaching normal with a slight positive skew (0.64) and positive kurtosis (0.11), $W = 0.96$, $p = .003$.

Table 26. Distribution of Bingo Game Data

Bingo Game Data	N	Min	Max	Mean	SE. Mean	SD. Mean	Skew	Kurt	Test of Normality	
									Stat	Sig.
Number of Games Played	189	1	27	7.95	0.39	5.41	0.72	0.15	0.94	<.000
Session Duration (mins)	189	2	97	26.09	1.30	17.86	0.74	0.29	0.94	<.000
Bet Size	189	50	300	168.85	5.37	73.88	-0.02	-1.05	0.96	<.000
Bet Speed (secs)	189	1	17	3.84	0.16	2.26	2.56	7.62	0.58	<.000
Credits Remaining	189	0	3050	798.15	57.80	794.64	0.65	-0.47	0.87	<.000

The following edits to the bingo game data were made to bring, where applicable, the distribution closer to normal:

- Number of games played: thresholding number of games played above 20 games to 20 games
- Session duration (minutes): thresholding sessions above 62 minutes to 62 minutes
- Bet size: raw data
- Bet speed (seconds): thresholding speeds above 12 seconds to 12 seconds
- Credits remaining: raw data

RESULTS

ROULETTE

Roulette Game Outcomes and Player Demographics

Table 27 shows correlations between player demographics (age, PGSI score) and roulette game play outcomes, which have been aggregated across the conditions. The roulette game outcomes are interpreted as indicators of gambling intensity, which is defined as any trace of behaviour that contributes to greater losses in long run play (i.e., greater theoretical losses).

As expected there were significant relationships between game play outcomes. Longer sessions meant more games played, larger bet sizes, lower bet speeds and less credits remaining at the end of play. Higher average bet sizes were related to more bets placed per game.

There was a significant relationship between age and number of games played as well as session duration – the older the player, the greater number of games and longer sessions played.

Lower risk scores for problem gambling were significantly related to more games played and on average longer sessions.

Table 27. Correlation Matrix of Age, PGSI Score, and Roulette Game Outcomes

Roulette Variables	N	Age (years)	PGSI Score	Number Games Played	Session Duration (mins)	Bet Size	Bet Speed -First Bet (secs)	Bet Speed -Last Bet (secs)	Number of Bets per Game
Age (years)	212								
PGSI Score	212	-.162							
Number of Games Played	212	**.210****	**-.160***						
Session Duration (mins)	212	**.197****	**-.144***	**.992****					
Bet Size	209	-.030	.014	**.255****	**.267****				
Bet Speed – First Bet (secs)	210	-.001	-.012	**-.145***	**-.149***	**-.220****			
Bet Speed – Last Bet (secs)	202	-.092	.066	**-.28****	**-.288****	**-.172***	**.397****		
Number of Bets per Game	212	-.025	.126	.103	.120	**.427****	**-.406****	**.266****	
Credits Remaining	212	-.040	-.001	**-.474****	**-.477****	**-.250****	**.230****	**.225****	**-.129***

**p < .05, **p<.01*

To identify gender differences in how the VICES experimental conditions affected roulette game outcomes, one-way ANOVAs were conducted with gender and condition as cross factors by game outcomes. In these models, as displayed in Table 28, there were some significant gender differences. On average, males had greater gambling intensity than females, as indicated by larger bet sizes and more bets placed per game. Whereas, on average females betting speed to place all bets was faster than males – most likely this is related to placing fewer bets on average per game turn than males (i.e. the more bets one places, then the longer it takes to place all of these bets) . No significant interactions between gender and condition were found.

Table 28. ANOVAs for Gender x VICES Experimental Condition for Roulette Game Outcomes

Roulette Game Variable	*n*	Male (n=117)		Female (n=95)		*MS*	*F*	*p*	*Eta²*
		M	*SE*	*M*	*SE*				
Number of Games Played	212	10.29	0.43	10.17	0.48	0.01	0.03	.854	.000
Session Duration (mins)	212	8.85	0.41	8.71	0.46	0.01	0.05	.821	.000
Bet Size	209	118.44	5.32	96.80	5.96	23501.60	7.34	.007	.036
Bet Speed – First Bet (secs)	210	11.74	0.31	11.85	0.34	0.53	0.05	.823	.000
Bet Speed – Last Bet (secs)	202	20.63	0.49	18.93	0.56	137.56	5.19	.024	.027
Number of Bets per Game	212	5.71	0.28	4.11	0.32	1.30	14.12	<.000	.066
Credits Remaining	212	890.92	46.13	958.03	51.50	492254.22	2.03	.076	.048

Roulette Game Outcomes and VICES Experimental Condition

To measure how the VICES features impacted gambling intensity, each roulette game outcome was analysed using an ANCOVA model with Age and Gender as covariates, and experimental condition and PGSI problem gambling status (0-2 no-to-low risk, 3+ moderate-to-high risk) as crossed factors.

As shown in Table 29, omnibus significant differences by condition were found for average bet speed (first bet), average bet speed (last bet), and the number of bets per game. No measures of gambling intensity were significantly different by problem gambling status. Furthermore, no significant interactions between condition and problem gambling status on gambling intensity were found.

Table 29. ANCOVAs for VICES Experimental Condition x Problematic Gambling Severity (no/low-risk, moderate-risk/problem gambling) for Roulette Game Outcomes

Roulette Game Variable	*n*	Control (n=34)		Visual/Audio (n=28)		Illusion of Control (n=31)		Complexity (n=40)		Expedited Play (n=40)		Social (n=39)		*MS*	*F*	*p*	*Eta²*
		M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*				
Number of Games Played	212	11.03	0.92	9.97	1.12	9.87	0.98	9.39	0.79	10.28	0.73	10.15	0.75	0.08	0.40	.851	.010
Session Duration (mins)	212	9.88	0.88	8.97	1.07	8.97	0.94	8.31	0.75	6.91	0.70	9.12	0.71	0.33	1.78	.119	.043
Bet Size	209	110.53	11.47	136.21	13.94	101.41	12.25	104.54	9.83	86.68	9.38	106.91	9.40	5869.89	1.84	.107	.045
Bet Speed – First Bet (secs)	210	12.59	0.66	13.30	0.80	11.58	0.71	11.98	0.57	7.78	0.54	13.78	0.54	157.86	14.90	<.000	.275
Bet Speed – Last Bet (secs)	202	18.86	1.18	20.37	1.28	23.17	1.13	20.83	0.91	12.12	0.88	24.46	0.86	626.48	23.45	<.000	.384
Number of Bets per Game	212	4.08	0.61	5.28	0.74	5.67	0.65	5.47	0.52	3.73	0.48	6.48	0.49	0.36	3.99	<.002	.091
Credits Remaining	212	862.33	101.86	968.01	123.71	721.43	108.65	966.77	87.27	1051.47	80.97	935.89	82.66	333334	1.33	.255	.032

Post-hoc testing using pairwise comparisons for experimental condition revealed:

- There were *NO* significant differences on the **average number of games played** between the control and the other enhanced conditions (see Figure 55).

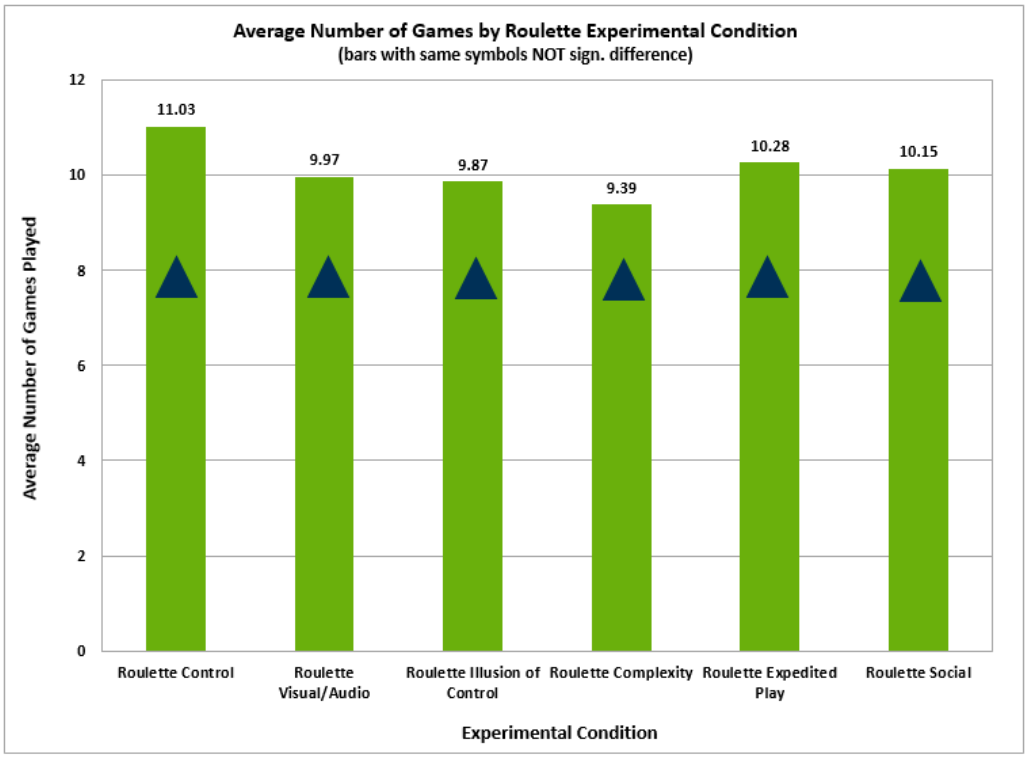


Figure 55. Average Number of Roulette Games Played by Experimental Condition

- **Session duration** was longer for Expedited Play condition compared to the control (see Figure 56).

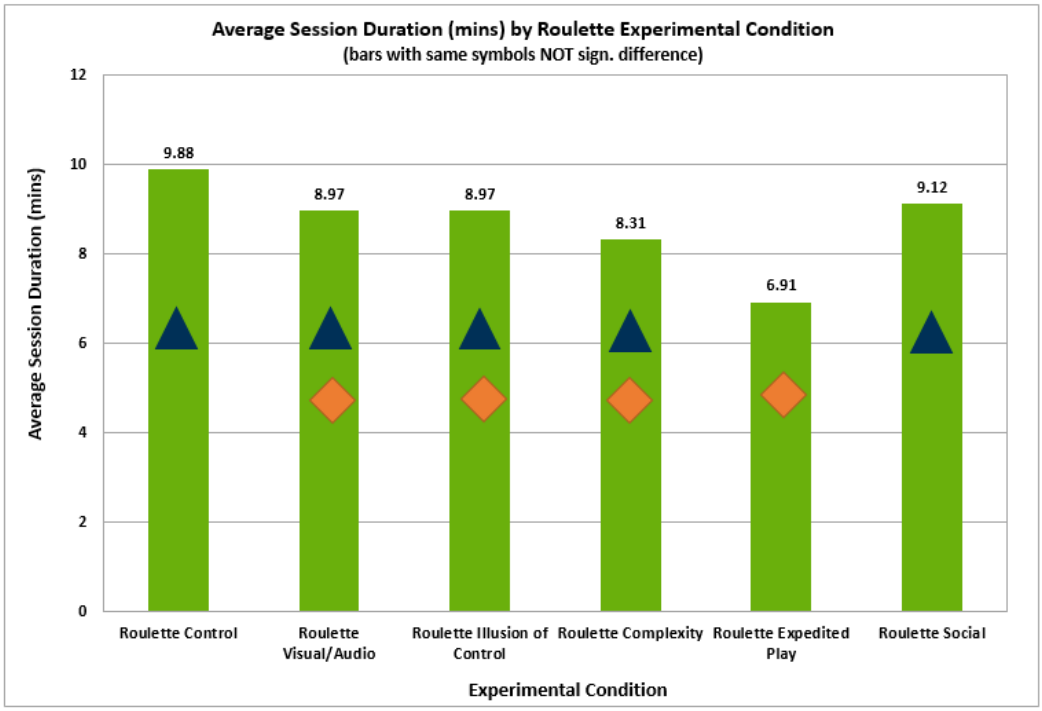


Figure 56. Average Session Duration (minutes) by Roulette Experimental Condition

- There were *NO* significant **bet size** differences between the control and any of the other enhanced conditions (see Figure 57).

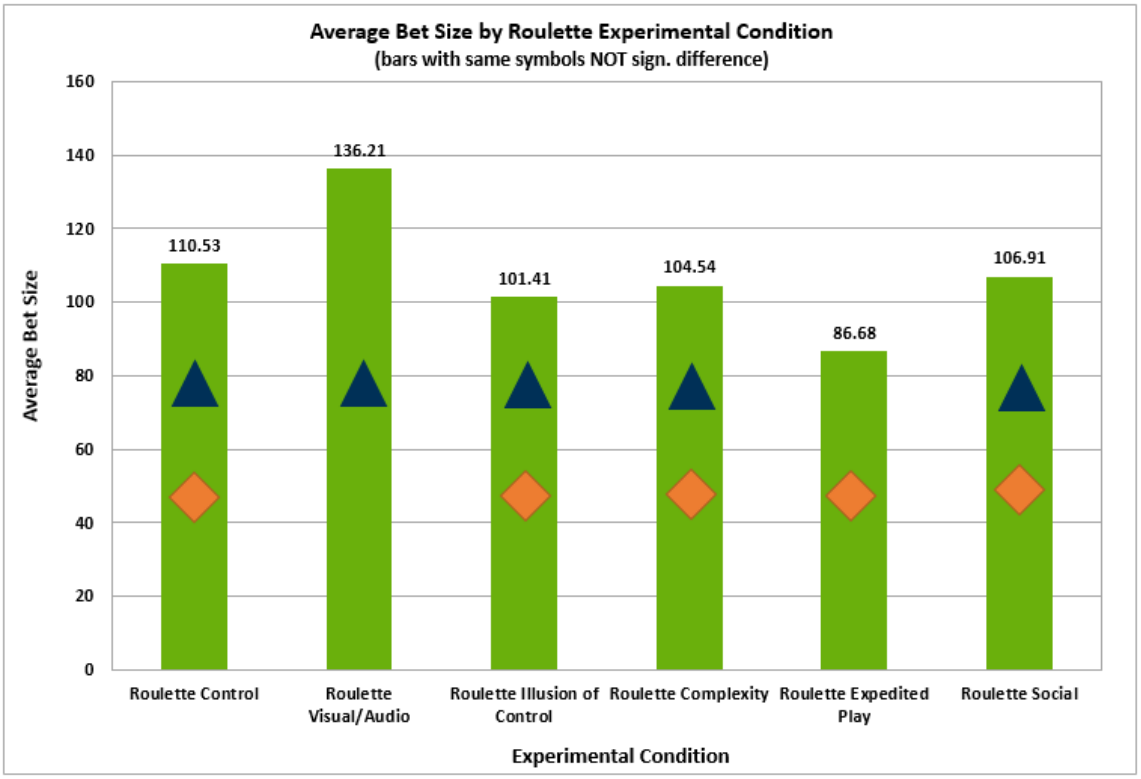


Figure 57. Average Bet Size (Credits) by Roulette Experimental Condition

- The Expedited Play condition had faster **first bet-speeds** than the Control condition (see Figure 58).

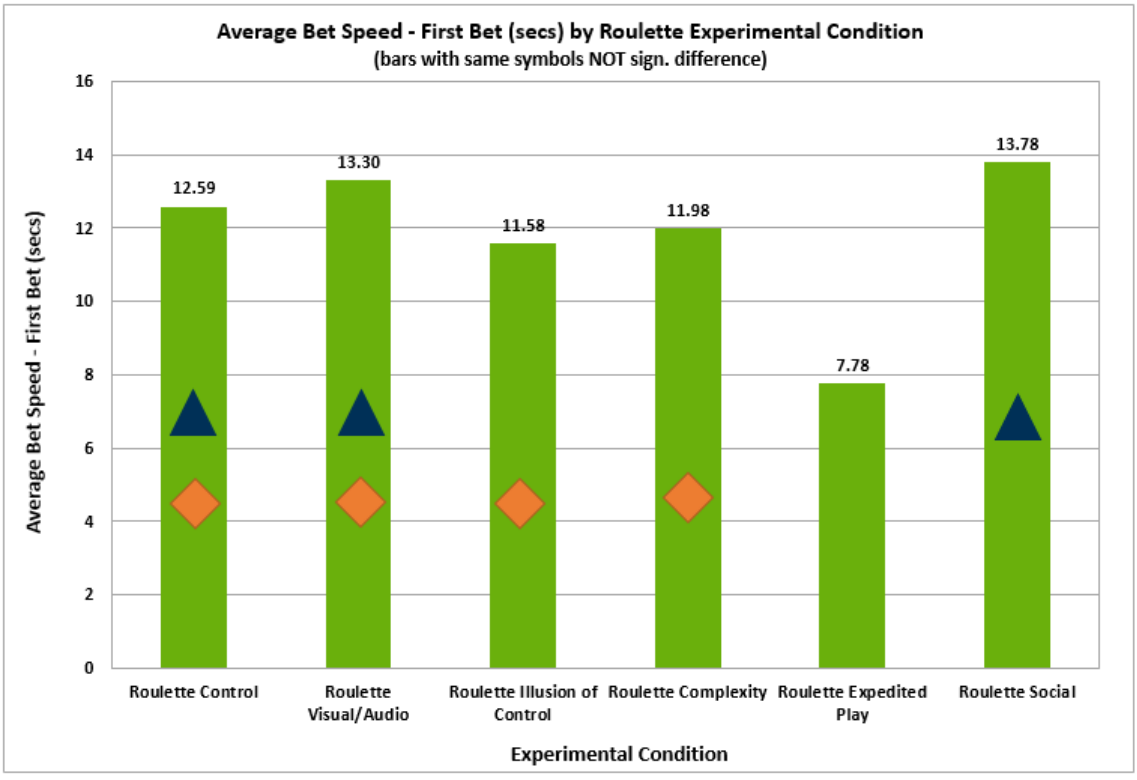


Figure 58. Average Bet Speed (First Bet) by Roulette Experimental Condition

- Both the Illusions of Control condition and the Social condition had significantly slower last bet-speeds than the control (see Figure 59).
- Moreover, the Expedited Play condition had significantly faster last-bet-speeds than the Control.

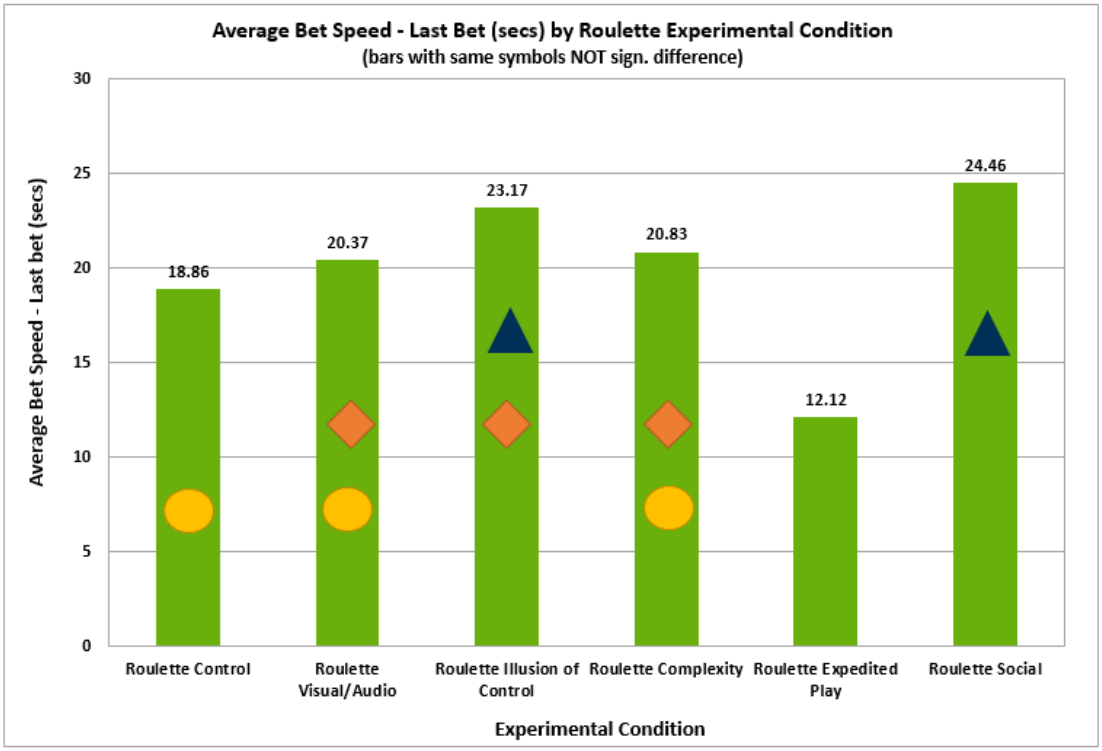


Figure 59. Average Bet Speed (Last Bet) by Roulette Experimental Condition

- The Social condition had significantly more bets-per-game than the Control (see Figure 60).

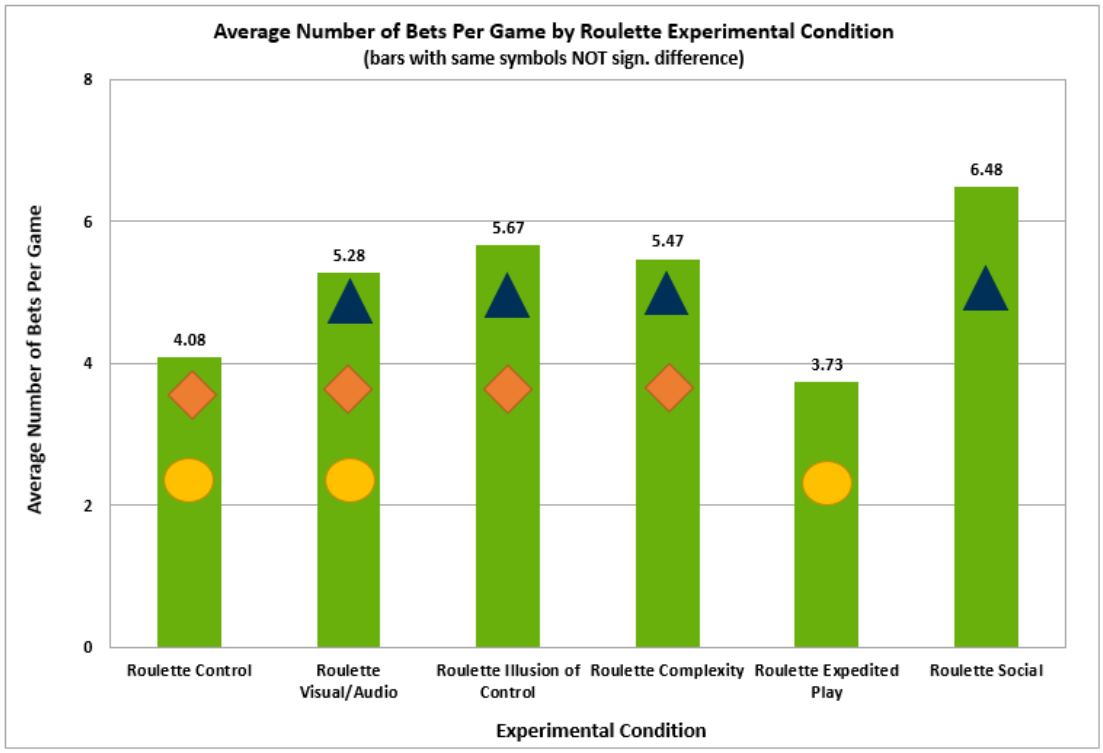


Figure 60. Average Number of Bets per Game by Roulette Experimental Condition

- There were *NO* significant differences in credits remaining between the Control and the other enhanced conditions. See Figure 61.

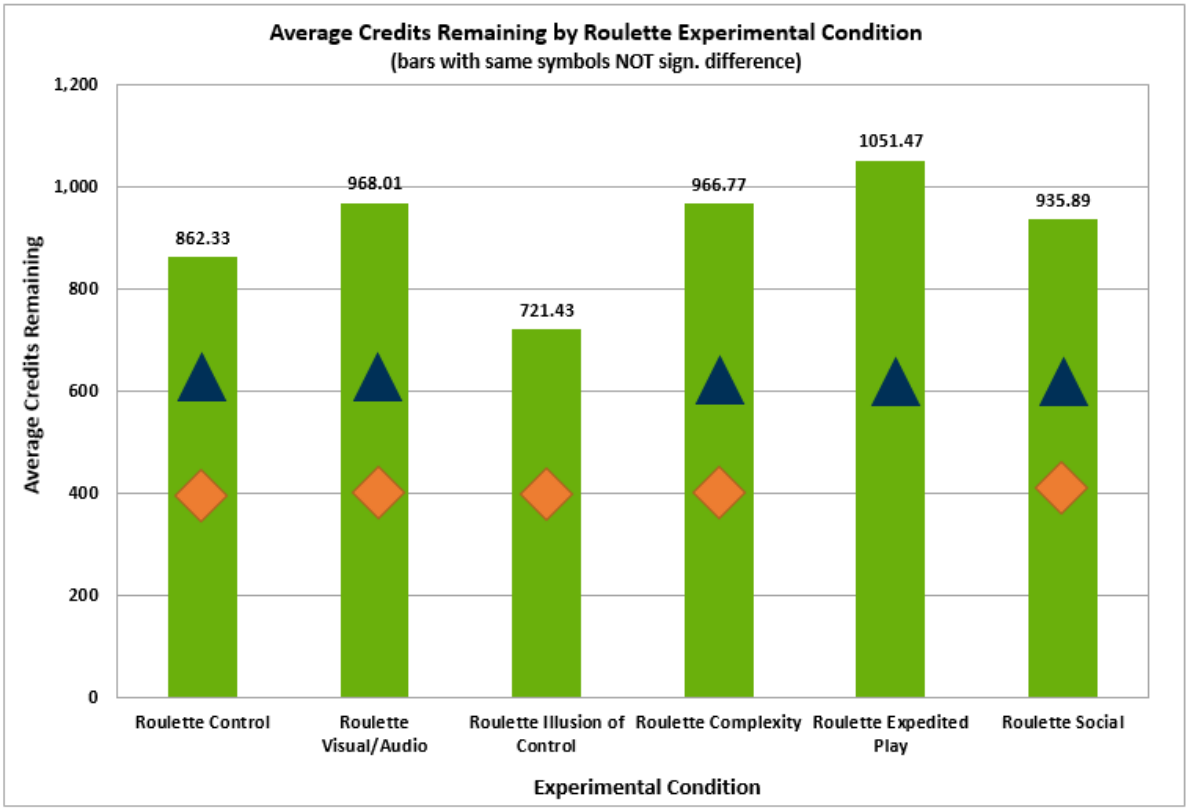


Figure 61. Average Number of Credits Remaining by Roulette Experimental Condition

We also applied generalised linear models to analyse average credits remaining in the roulette games, in order to properly take into account the over dispersion (positive skew) and concentration of zero-scores observed for this response. Specifically, we applied two-parameter Tweedie (i.e. generalised gamma; Puig and Valero 2006) distributions, with an empirically estimated power function of 1.2. However, applying this more sophisticated error distribution model did not change the pattern of results.

Roulette Game Outcomes and Gambling Experience

We hypothesized that prior gambling experiences of participants could potentially influence how people gambled in each of our experimental conditions. Participants were categorised into a gambler type: novice, experienced, and high frequency (including problem) gamblers. For each roulette game outcome (the measure of gambling intensity), separate ANCOVAs were conducted with Age and Gender as covariates, and experimental condition and gambler type as crossed factors. As shown in Table 30, there were no significant differences in gambling intensity by 'gambling experience' as measured by type of gambler. Furthermore, no significant interactions between condition and gambler type for gambling-intensity were found.

Table 30. ANCOVAs for VICES Experimental Condition x Gambler Type (Novice, Experienced, Problem Gambler) for Roulette Game Outcomes

Roulette Game Variable	*n*	Novice Gambler (n=97)		Experienced Gambler (n=17)		Problem Gambler (n=98)		*MS*	*F*	*p*	*Eta²*
		M	*SE*	*M*	*SE*	*M*	*SE*				
Number of Games Played	212	10.07	0.47	9.82	1.14	10.53	0.47	0.07	0.33	.722	.003
Session Duration (mins)	212	8.70	0.45	8.16	1.08	9.04	0.45	0.07	0.35	.704	.004
Bet Size	209	111.02	5.97	98.86	14.29	109.85	5.88	1004.35	0.31	.733	.003
Bet Speed – First Bet (secs)	210	11.96	0.34	10.86	0.82	11.83	0.34	8.16	0.76	.470	.008
Bet Speed – Last Bet (secs)	202	20.42	0.55	18.28	1.33	19.62	0.55	35.21	1.30	.276	.014
Number of Bets per Game	212	5.02	0.32	4.29	0.78	5.12	0.32	0.05	0.49	.616	.005
Credits Remaining	212	959.74	51.48	1000.72	124.54	868.25	51.11	120717	0.49	.782	.013

BINGO

Bingo Game Outcomes and Player Demographics

Table 31 shows correlations between player demographics (age, PGSI score) and bingo game play outcomes, which have been aggregated across conditions. As per the roulette games, the bingo game outcomes are interpreted as indicators of gambling intensity, which is defined as any trace of behaviour that contributes to greater losses in long run play (i.e., greater theoretical losses).

As expected there were significant relationships amongst bingo game play outcomes.

Greater number of bingo games played was significantly related to longer session durations and less credits remaining. Longer sessions were also related to less credits remaining at the end of play. Age was also significantly positively correlated with number of games played and session duration.

Severity of gambling problems (PGSI score), independent of condition, was not correlated with any outcome.

Table 31. Correlation Matrix of Age, PGSI Score, and Bingo Game Outcomes

Bingo Condition, Age, and Game Play Variables	N	Age (years)	PGSI Score	Number of Games Played	Session Duration (mins)	Bet Size	Bet Speed (secs)
Age (years)	189						
PGSI Score	189	-.115					
Number of Games Played	189	**.335****	-.125				
Session Duration (mins)	189	**.332****	-.120	**.997****			
Bet Size	189	-.062	.039	-.031	-.024		
Bet Speed (secs)	189	.095	-.037	-.107	-.102	-.045	
Credits Remaining	189	-.323	-.011	**-.612****	**-.610****	.142	.124

***p<.01*

One-way ANOVAs were also conducted with gender and condition as cross factors by game outcomes. As shown in Table 32, males and females only differed significantly in their average bet sizes for the bingo games with greater gambling intensity for males; who on average placed larger bets than females. No significant interactions between gender and condition were found.

Table 32. ANOVAs for Gender x VICES Experimental Condition for Bingo Game Outcomes

Bingo Game Variable	*n*	Male (n=100)		Female (n=89)		*MS*	*F*	*p*	*Eta²*
		M	*SE*	*M*	*SE*				
Number of Games Played	189	7.46	0.53	8.22	0.55	25.34	0.97	.325	.005
Session Duration (mins)	189	24.16	1.71	27.55	1.80	511.90	1.87	.174	.010
Bet Size	189	181.92	7.60	155.66	7.98	30675.34	5.68	.018	.031
Bet Speed (secs)	189	3.93	0.09	3.79	0.09	0.97	1.30	.255	.007
Credits Remaining	189	831.87	81.28	767.60	85.31	183812.98	0.30	.586	.002

Bingo Game Outcomes and VICES Experimental Condition

To measure how the VICES features impacted gambling intensity, each bingo game outcome was analysed using an ANCOVA model with Age and Gender as covariates, and experimental condition and PGSI problem gambling status (0-2 no-to-low risk, 3+ moderate-to-high risk) as crossed factors.

As shown in Table 33, significant omnibus differences by condition were found for average bet speed and credits remaining at the end of play. No other measures of gambling intensity were significantly different by problem gambling status.

We also applied generalised linear models to analyse average credits remaining in the bingo games, in order to properly take into account the over dispersion and concentration of zero-scores observed for this response. As noted for the previous analysis, we applied two-parameter Tweedie (i.e. generalised gamma) distributions, with an empirically estimated power function of 1.2. However, the same pattern of results were found.

Table 33. ANCOVAs for VICES Experimental Condition x Problematic Gambling Severity (no/low-risk, moderate-risk/problem gambling) for Bingo Game Outcomes

Bingo Game Variable	*n*	Control (n=22)		Visual/Audio (n=34)		Illusion of Control (n=30)		Complexity (n=34)		Expedited Play (n=32)		Social (n=37)		*MS*	*F*	*p*	*Eta²*
		M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*				
Number of Games Played	189	7.41	1.04	8.92	0.85	7.06	0.89	6.60	0.98	8.97	1.10	7.56	0.89	24.48	1.05	.390	.029
Session Duration (mins)	189	27.27	3.38	31.84	2.76	25.16	2.90	23.74	3.21	18.99	3.59	27.07	2.92	448.79	1.81	.113	.049
Bet Size	189	151.55	15.88	179.61	12.95	174.37	13.62	178.58	15.07	176.32	16.84	164.56	13.70	2800.18	0.51	.767	.014
Bet Speed (secs)	189	3.04	0.17	2.94	0.14	8.19	0.15	2.99	0.16	2.83	0.18	3.06	0.15	130.20	200.94	<.000	.852
Credits Remaining	189	939.90	158.48	647.83	129.28	762.03	135.98	823.78	150.37	323.27	168.09	1044.95	136.75	1437740	2.64	.025	.070

Post-hoc testing using pairwise comparisons for experimental condition revealed:

- There were *NO* significant differences on the **average number of bingo games played** between the control and the other enhanced conditions. See Figure 62.

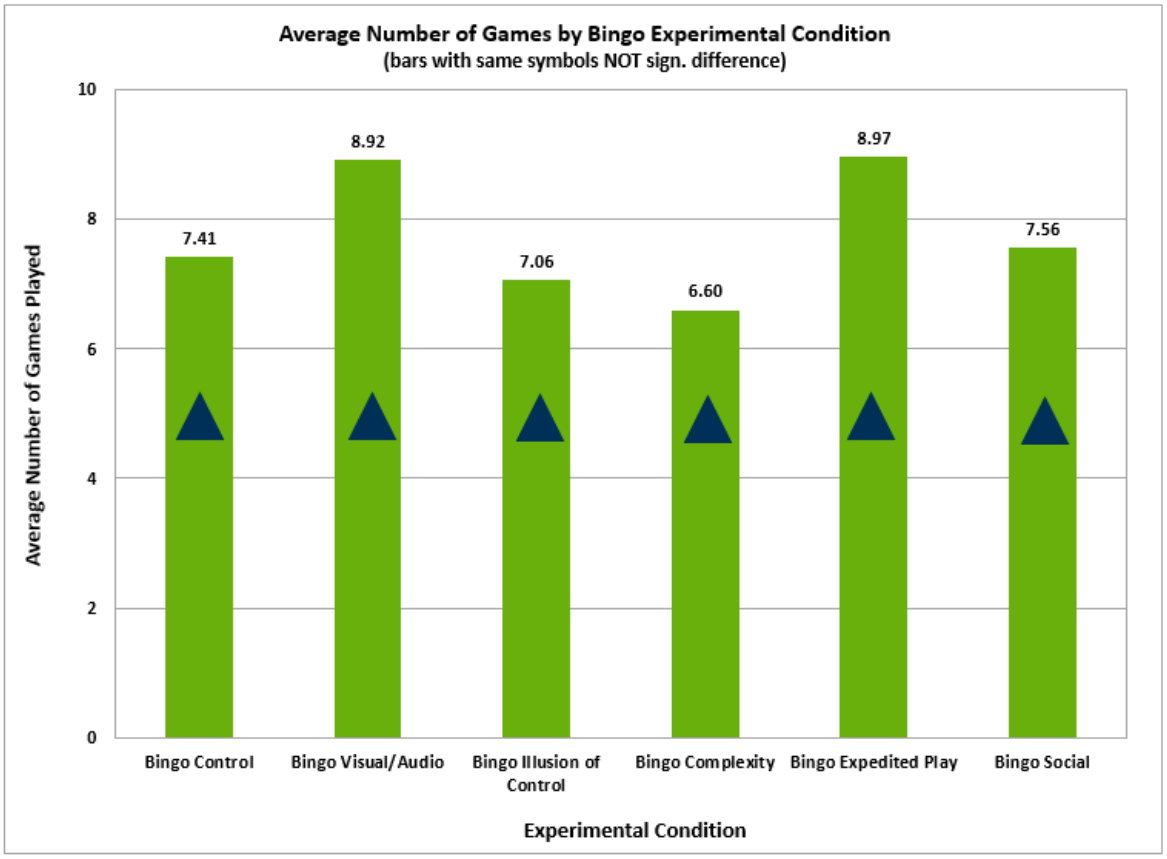


Figure 62. Average Number of Games Played by Bingo Experimental Condition

- There were *NO* significant differences in average **session duration** to the Control condition and the other enhanced conditions. See Figure 63.
- Session duration was significantly longer for the Expedited Play condition compared to the Visual/Audio condition.

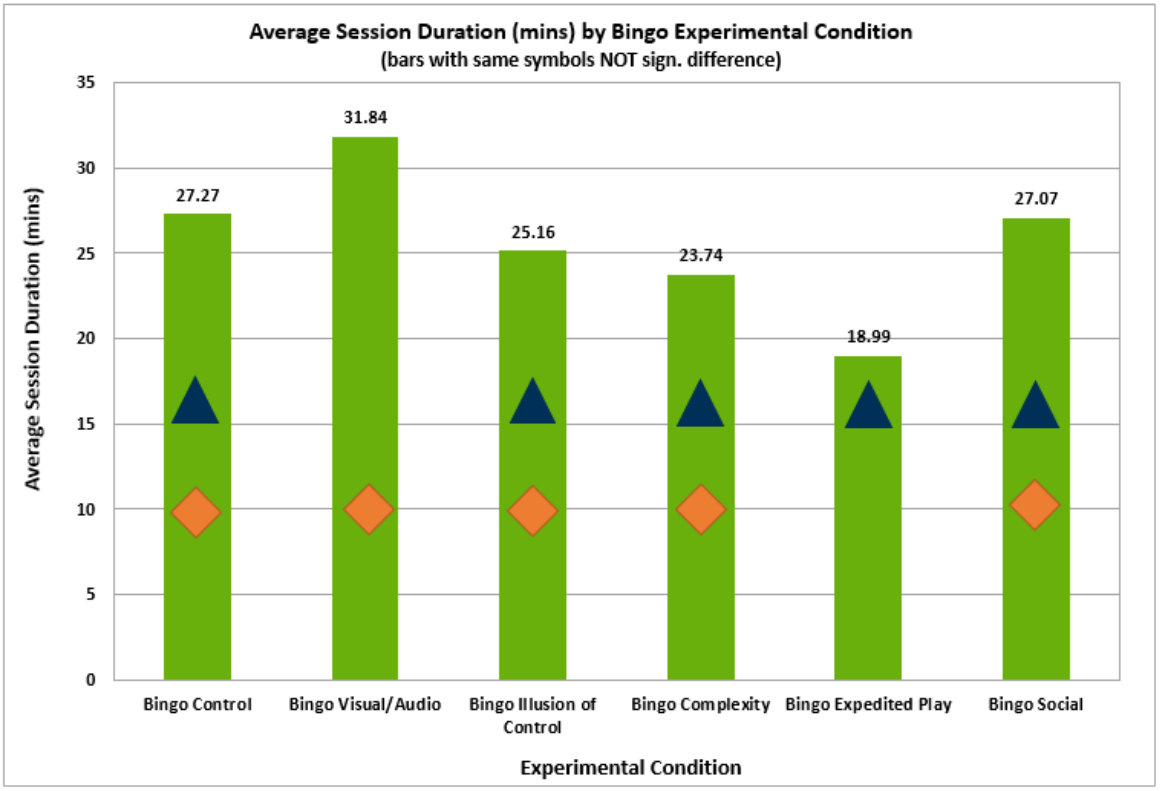


Figure 63. Average Session Duration (minutes) by Bingo Experimental Condition

- There were *NO* significant **bet size** differences between the Control and any of the other enhanced conditions. See Figure 64.

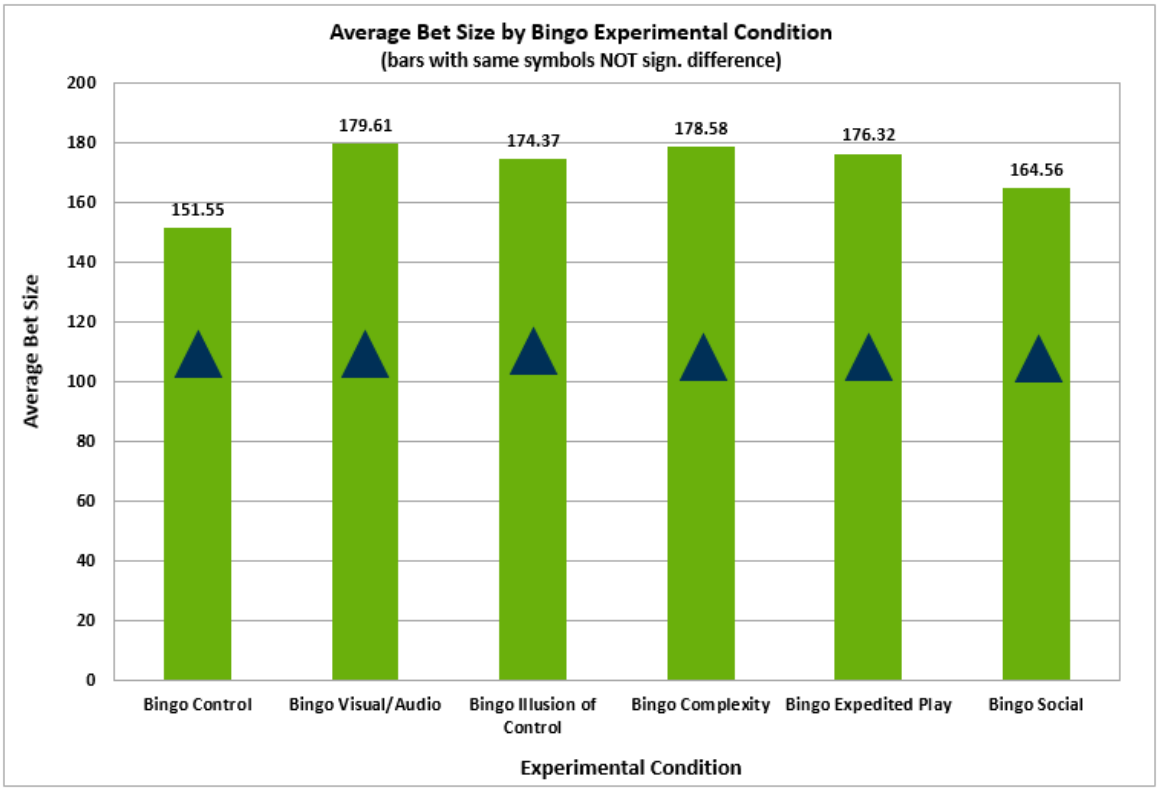


Figure 64. Average Bet Size by Bingo Experimental Condition

- The Illusion of Control condition had significantly slower **bet speeds** than the Control, and all other enhanced conditions. These findings may be attributable to the enhanced set-up of the Illusion of Control bingo game which timed 'bet speed' as selection of both the bingo card and bet size. The other conditions were designed for selection of bet size only. See Figure 65.

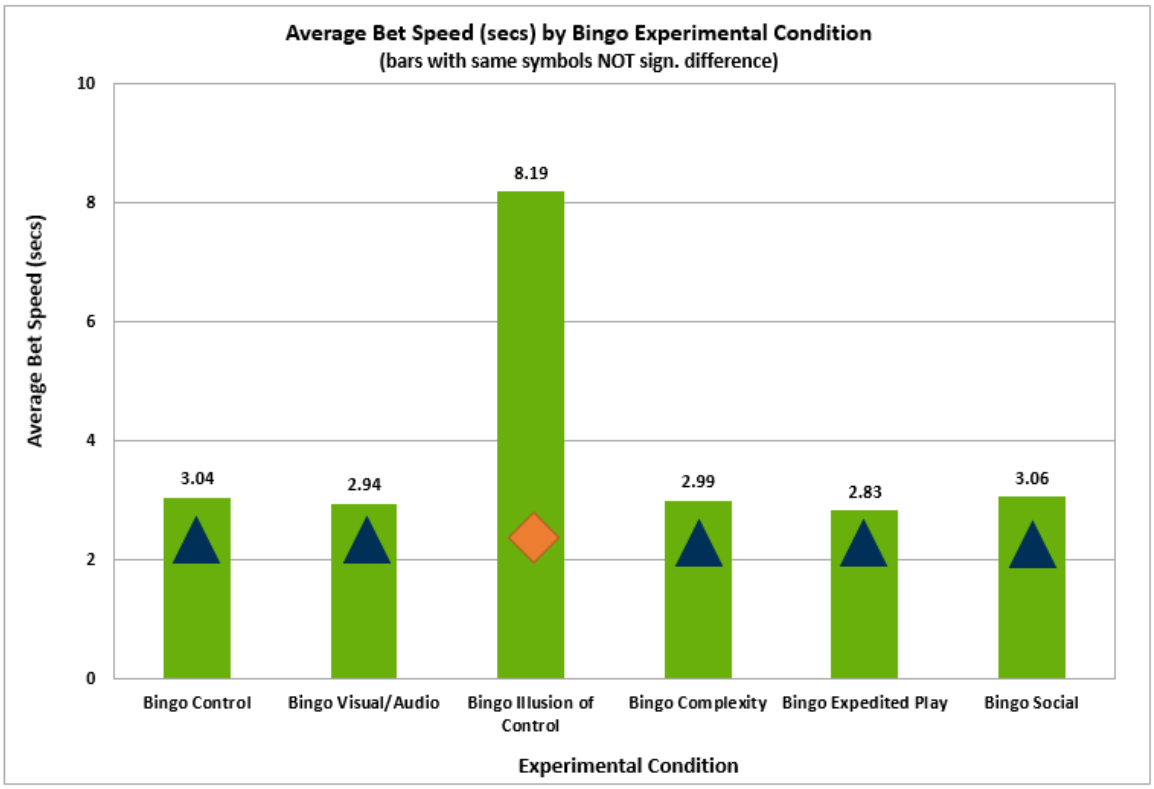


Figure 65. Average Bet Speed (secs) by Bingo Experimental Condition

- A significant interaction between condition and problem gambling status for average betting speed was found, $F(5) = 4.20$, $p = .001$, in that moderate-risk to problem gambler players bet faster (M=7.45 secs) than no to low-risk gamblers (M=8.93) in the Illusion of Control condition. See Figure 66.

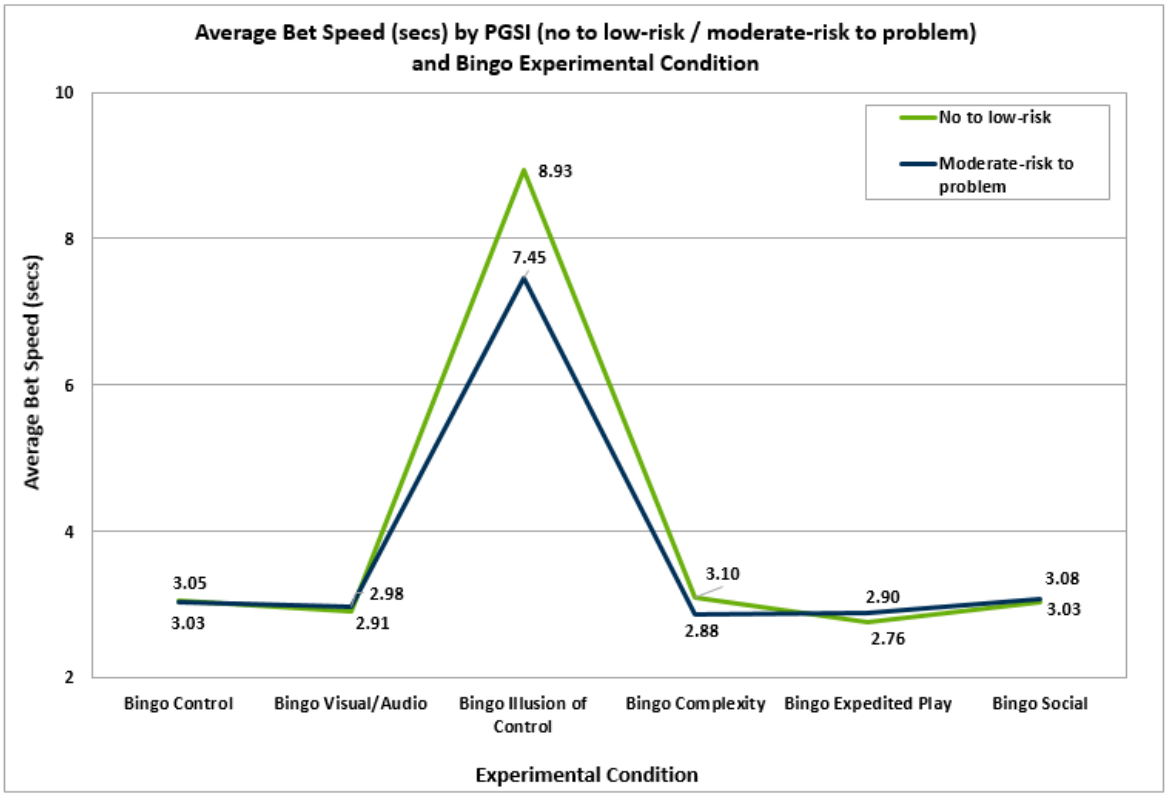


Figure 66. Average Bet Speed (secs) by PGSI and Bingo Experimental Condition

- The Expedited Play condition had significantly less **credits remaining** at the end of play than the Control. See Figure 67.
- Credits remaining were also significantly lower for the Expedited Play condition compared to the Illusion of Control, Complexity, and Social conditions.
- The Visual/Audio enhancement condition had significantly lower credits remaining than the Social condition.

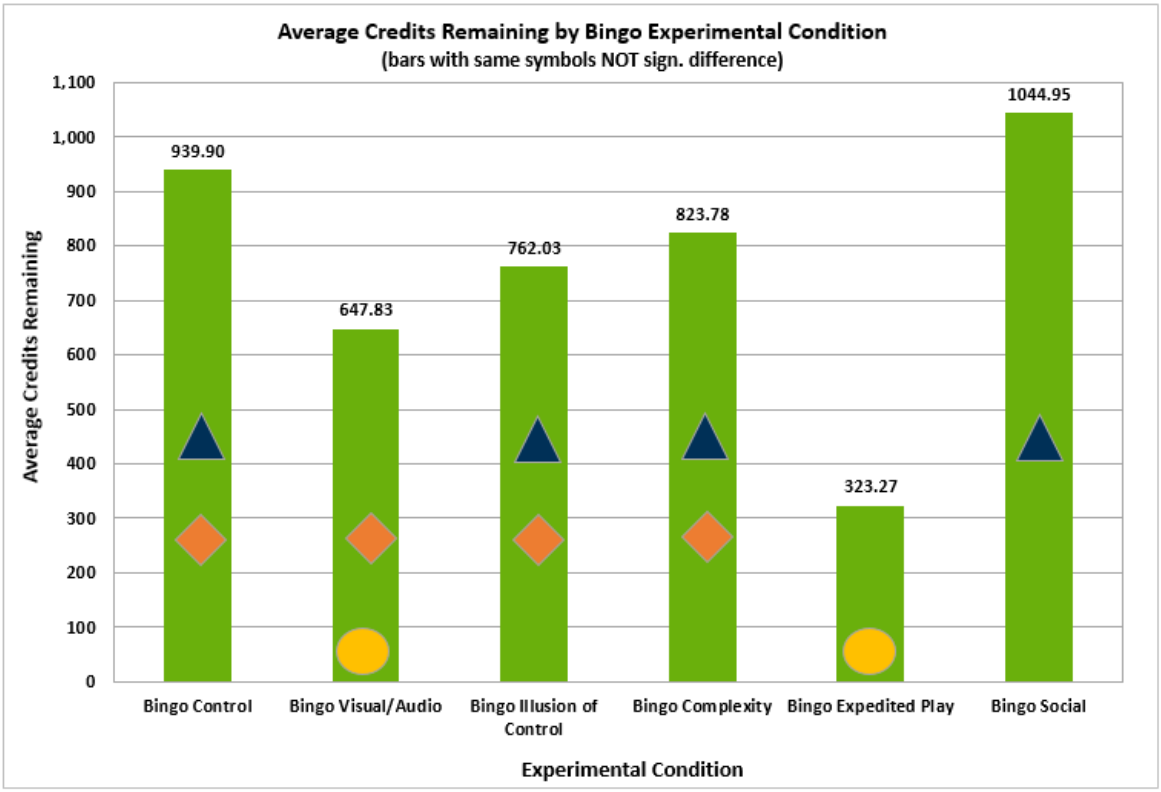


Figure 67. Average Credits Remaining by Bingo Experimental Condition

Bingo Game Outcomes and Gambling Experience

The interaction between bingo gambling intensity and the past gambling experiences of participants, as measured by categorised gambler type (novice, experienced, and problem gambler), was analysed by conducting ANCOVAs for each game outcome, with Age and Gender as covariates, and experimental condition and gambler type as crossed factors. As shown in Table 34, there were no significant differences in bingo gambling intensity by gambling experience as measured by type of gambler. Furthermore, no significant interactions between condition and gambler type for gambling intensity were found.

Table 34. ANCOVAs for VICES Experimental Condition x Gambler Type (Novice, Experienced, Problem Gambler) for Bingo Game Outcomes

Bingo Game Variable	*n*	Novice Gambler (n=81)		Experienced Gambler (n=16)		Problem Gambler (n=92)		*MS*	*F*	*p*	*Eta²*
		M	*SE*	*M*	*SE*	*M*	*SE*				
Number of Games Played	189	8.67	0.57	8.46	1.26	7.20	0.50	45.39	1.97	.143	.023
Session Duration (mins)	189	28.19	1.87	27.34	4.10	24.01	1.64	376.02	1.53	.220	.018
Bet Size	189	163.23	8.86	162.41	19.40	176.32	7.78	4156.14	0.75	.472	.009
Bet Speed (secs)	189	3.95	0.10	3.93	0.21	3.81	0.09	0.47	0.71	.492	.008
Credits Remaining	189	753.71	90.04	906.37	197.20	783.20	79.05	153905	0.27	.764	.003

DISCUSSION

Our results for both the Roulette and Bingo games focused on the relationship between the base-game, as represented in the control condition, and the enhanced games that were modified according to the potential technological innovations suggested by the VICES framework. To make these comparisons meaningful and tractable, we place less emphasis on other pairwise differences in conditions, since these are prone to type 2 errors from multiple comparisons. The control condition is a game that lacks some of the key enhancements made possible by the technology. Although our games are not likely to be as attractive as commercial automated games (e.g. a roulette in-venue game or a casino-game with a live croupier, a bingo game in-venue with a live caller or the ability to use a hand-held electronic device–PET), they provides a useful basis for understanding how particular classes of automated enhancements may modify betting behaviour. **Table 35** below summarises our findings from both experiments.

Table 35. Significant differences between the Control condition and the VICES experimental conditions for Roulette and Bingo Games

VICES Experimental Condition	Differences from the Control Condition	
	Roulette	Bingo
Audio/Visual	Nil	Nil
Illusion of Control	⇧ speed of last bet	⇩speed of bet
Complexity	Nil	Nil
Expedited Play	⇩session duration, ⇧ speed of first bet, ⇧ speed of last bet	⇩credits remaining
Social	⇧ speed of last bet, ⇧ bets per game	Nil

As shown in Table 35, there were no reliable findings from the control in relation to either Audio/Visual enhancements or Complexity enhancements on any outcome measures for Roulette or Bingo.

The Illusions of Control / Clustering Illusion condition increased the speed of the last bet for Roulette. Taken in isolation, increases in the speed of betting will reflect greater long term losses from gambling. While the Illusion of Control for Bingo showed the opposite finding of slower better speeds, this is probably as a consequence of the design of the Illusion of Control for this game, which had

an enhanced feature for the player to select their bingo card as well as their bet size (which functionally takes more time).

It is important to note that our attempt to manipulate illusions of control for the Roulette game relied on the clustering illusion. The clustering illusion occurs when people see patterns in random data as non-random. The information we provided on past wins (e.g., history of red vs. black) was meant to encourage this type of illusion. It was our assumption that this introduced information, which is common in automated games, would make people believe that they could control future outcomes through their betting choices. A potentially superior and more direct manipulation of illusion of control, however, would allow people to exert some inconsequential choice - such as starting the spin of the wheel or the drop of the ball - that would make them feel in more in control of the outcome. Future research should take this more direct route to manipulating illusions of control. In our Bingo game, we used this more direct route by allowing people to select their card.

In the Roulette Expedited Pay condition, the session duration was reduced, whereas the speed of both the first and last bet were increased. Although a reduction in session length would tend to limit long term losses, this may be compensated by faster betting speed that increases losses. As a consequence, it is unclear how Expedited Play might influence player losses.

The Bingo Expedited Play condition decreased the number of credits remaining compared to the control, another indicator of long term loses. Other than this finding for Bingo, there were no other consequential differences in the final credits remaining between the control and other enhanced conditions for Roulette or Bingo. However, it should be borne in mind that our results reflect a limited amount of play from a relatively small number of subjects.

Lastly, the Roulette Social Condition had both faster bet speeds and a greater number of bets per game than the control condition, and both factors tend to increase long-run losses. Thus, the behavioural evidence suggests that there is a possibility of greater long term losses from social enhancements to this roulette game. Unlike Roulette, the Social condition enhancements to the Bingo game had no differences in relation to the control game.

LIMITATIONS

Since we could not control many aspects of player outcomes (e.g., the number of wins and losses) when betting choices were necessarily under the control of the players, we had to accept a great deal of variability in player experience due their own in-game betting decisions. This was unavoidable, as player discretion in choosing bets is intrinsic to the appeal of table games. Unfortunately, a consequence of this is an additional source of variation in the pay-offs experienced by individual players, which is a source of uncontrolled random variation in several of our key response variables. Consequently, a lack of significant differences on some outcome measures should not be interpreted as a definition conclusion that there is no effect of technological enhancements on player behaviour. Rather, for the observed non-significant differences, the effect of enhancements were not detectable given the statistical power of the design.

Our chosen manipulations for Roulette and Bingo games were not the only alterations that were possible, nor were they necessarily the most impactful changes that could have been made to represent each of the VICES enhancements. Therefore, it is important to also consider that any lack of findings for particular factors, such as Audio/Visual enhancements or Complexity, could simply result from non-optimal choices in trying to represent these dimensions faithfully. Ultimately, it may

be helpful to create new experiments to reproduce the specific future enhancements that emerge in the marketplace.

SUMMARY

In summary, features of automated roulette games that invoke the clustering illusion and enhance the social aspects of gambling, including broadcasting the bets and wins of other players, are likely to contribute to greater spend than games without these features. Moreover, play on these automated games could exceed the expenditure on traditional products without such features.

Furthermore, features of the electronic bingo game that increase the rate of play are likely to contribute to greater spend on online bingo games, as opposed to the traditional in-venue bingo caller who controls the speed of the game.

DISCUSSION

Technological innovations to gambling products can improve on their profitability in at least four ways. First, the games can potentially be made more attractive to consumers by incorporating features that are not possible or practical to implement without the aid of automation. Second, games can be structurally designed to extract more revenue from players, such as increasing the speed of betting. Third, the games can simply be more efficient in terms of occupying a smaller footprint within a venue, and/or reduce the need for labour inputs such as a croupier or cashier to attend to the game. Last, the provision of automated forms can provide a differentiated product that appeals to a new market segment that is not well served by traditional games.

Gambling Research Australia questioned how these products produced a different experience from traditional games and whether or not these products could contribute to riskier play. Our results showed that these products are mostly played by people who already play traditional versions of the games, and that - in general - the traditional forms are preferred. This may simply reflect the current state-of-the-art for these games, which may not yet provide enough attractive new features to overcome the inherent disadvantages of removing a croupier and/or the interaction between patrons that is common and valued in traditional forms of gambling. There are a minority of patrons, of course, who prefer these innovated products; and therefore the profitability may be enhanced by appealing to a small segment of these consumers.

Simply because these games do not appear at the moment to represent a significant added risk to players does not mean that they are either safe or might not represent a future cause for special concern. Gambling games are inherently risky by virtue of subtracting the resources of time and money that people can devote to other important aspects of their lives. Importantly, the current report showed some evidence for certain features of such automated games both being relatively more attractive to people with current gambling problems, and being sources for greater intensity of play. In particular, innovated games that used customised social elements to broadcast the bets and wins of other players can influence gambling intensity. Moreover, features of such games that contribute to illusions of control over gambling outcomes may motivate at-risk gamblers to gamble faster, and potentially lose more money over time.

Our conceptual framework for the project represents a significant advance in the understanding of how to evaluate future technological change in gambling products. It allows a means for policy makers to consider specific features of new technology applied to traditional games, and analyse how new feature sets might make a difference to consumer protection. The VICES acronym; encapsulating visual/auditory enhancements, illusions of control, cognitive complexity, expedited play, and social customisation; is a useful shortcut for summarising the domains across which innovation can change the subjective experience of traditional games. Electronic enhancements can provide a rich visual and auditory experience that people with gambling problems, in particular, find to be attractive. Illusions of control are inherent in many traditional games, but can be magnified by special, often non-consequential, choices introduced into automated games. Cognitive complexity of games can be added to games, but also removed - which has a differential appeal to gamblers. Some gamblers prefer complex games, whereas others find them confusing or otherwise unattractive. Expedited play introduces a potential means for extracting more bets within any given period of time from players, but also may face natural limits as gamblers seek to get the best entertainment value from the time they invest into gambling. Lastly, social customisation is a feature often lacking from current innovated games, but could represent a popular trend that mirrors the

social-networking revolution affecting many other software products (e.g., Facebook, Multiplayer computer games, etc.).

Technological changes to gambling games should be a cause for continuing concern for regulators and policy makers who are responsible for minimising the gambling-related harm. Future research will be needed to periodically evaluate new product trends as they arise and gain in popularity. The source of the greatest gambling harm may not remain fixed. In the United Kingdom, for instance, racing was once the principal source of harm, whereas the innovation in the form of Fixed Odds Betting Terminals (FOBTs) has largely supplanted racing in terms of aggregate harm. While Pokies are currently the most harmful form of gambling in Australia, technological change may make other games - including innovated forms of traditional games - a future threat. Applying known cognitive principles, such as those encapsulated within the VICES framework, to the new innovations can help to minimise the risk that newer forms of gambling may come to supplant Pokies and undermine efforts to effectively support player protection.

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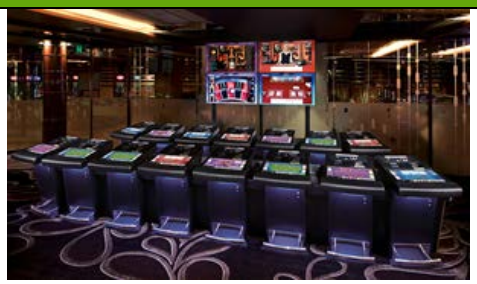
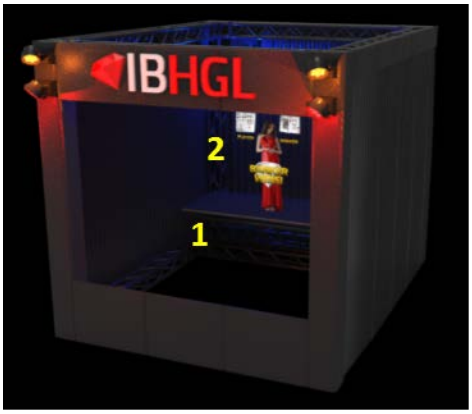
APPENDICES

Appendix 1. Environmental Scan: examples of innovative products

Innovative Product Type / Feature	Examples
Level of Automation	
Semi-Automated This image shows an innovative product that still requires a croupier to handle bets as it has manual betting using chips (1) but all game play is presented digitally on individual and shared screens.	International Gaming Technology - Dragon Baccarat 
Fully-Automated This Craps products does not require a croupier as it has fully digitalised betting and gameplay (1) but relies on an automated dice cylinder in the centre to determine game outcomes (2). The cylinder shuffles physical dice and the outcome is then processed electronically.	Aruze - Shoot to Win Craps 
Fully-digitized These products are fully-digitalised as all wagering is conducted electronically on individual playing screens (1), gameplay is digitalised and outcomes are generated electronically and presented on screens (1, 2 & 3). The system uses a digital host and no croupier (3).	Bally Technologies/SHFL - Table Master Fusion  Aruze - Dealers Angel Baccarat

Innovative Product Type / Feature	Examples
	
Mechanical components of fully-automated products	
Automated roulette wheel This system mechanically spins a real ball around a roulette wheel in a glass dome (1). The spin is filmed so it can be viewed on screen by gamblers(2) and the outcome is automatically entered digitally to calculate payouts (3).These systems are then linked to a number of individual playing stations on which the gamblers wager and view live gameplay.	Interblock - G5 Roulette 
Dice dome by Interblock The dice dome uses the same principals as the automated roulette wheel. The dice are shuffled in a central dome (1) which is filmed and displayed on screen (2). Outcomes are then entered digitally to calculate payouts electronically (3). These systems are then linked to a number of playing stations on which gamblers wager and view live gameplay.	Interblock - Dice Dome 
SIMULTANEOUS PLAYERS	
Simultaneous Players	Bally Technologies/SHFL - Vegas Star

Innovative Product Type / Feature	Examples
Many automated products for large or extended numbers of simultaneous players. In this example, bays or banks of machines can be added to accommodate small or large numbers of people.	 Interblock - G4 Organic Live Pulse 
VICES	
Visual/Audio Enhancement This is an image of the holographic gaming lounge by Interblock. It is designed to be a physical stage (1) that presents all game play and hosts through 3D holograms (2). This is linked to electronic terminals where gamblers place wagers digitally.	Interblock - Holographic Gaming Lounge 
Individual Playing Screen This is an example as to what some of the playing screens of automated casino style games looks like. Apparent on this playing screen is gameplay footage (1), wagering (2), odds/rules (3), and history (4). While not visible from this image, the screen also includes other game play options (i.e., keep bets open) (5), game rules (6) and betting information (i.e., wins, bets and credits) (7).	Aruze - Shoot to Win Craps 

Innovative Product Type / Feature	Examples
Illusion of Control The Aruze Lucky Big Wheel uses a lever to the right of the player that allows them to initiate game play and spin the wheel themselves (1). The faster players pull, the faster the wheel spins. Regardless of spend, the outcomes are determined by a random number generator. Control of the wheel is determined either by taking turns or the person who places the highest bet.	Aruze - Lucky Big Wheel  
Community / Novelty Games	
Digitised Bingo Machines These images show examples of fully digitalised bingo machines that are presented similarly to electronic gaming machines. These are individual units with electronic wagering and gameplay.	Ortiz Bingo Machine  Ortiz Bingo Machine  Spielo/Video King - Pick N Play Bingo

Innovative Product Type / Feature	Examples
	
Bubble Generator for linked systems In some of their multi-game systems, Interblock includes Bingo/Keno games. These systems work in a similar way to their dice dome and roulette wheel. Numbers are generated using physical balls to determine an outcome. Gameplay is filmed so it can be viewed on screen by gamblers (2) and the outcome is automatically entered digitally to calculate payouts (3).These systems are then linked to a number of individual playing stations on which the gamblers wager and view live gameplay.	Interblock - G5 Diamond Bubble/Ball Generator 
Standalone Automated Bingo/Roulette This system uses a mechanical spinning drum to determine game outcomes. The number is then processed digitally and payouts and wagering are conducted electronically. These systems are not linked but standalone, individual units.	

Innovative Product Type / Feature	Examples
Individual Bingo playing screens Here are examples of the individual playing screens presented on community style or novelty games. Some of which allow up to four games simultaneously (Video Bingo/Six Bingo).	Video Bingo By Ortiz  Video King By Ortiz  Six Bingo Ortiz 

Appendix 2. National Survey - Sample Demographics

Sample Demographics	N	%
Total	**13,748**	**100%**
Gender		
Male	6,101	44.4%
Female	7,647	55.6%
Age		
18-25	1,309	9.5%
26-35	2,777	20.2%
36-45	2,318	16.9%
46-55	2,649	19.3%
56-65	2,783	20.2%
65+	1,912	13.9%
Problematic Gambling Severity		
Non-problem gambler	6,968	50.7%
Low-risk gambler	2,755	20.0%
Moderate-risk gambler	1,919	14.0%
Problem gambler	1,895	13.8%
Unknown	211	1.5%
Marital Status		
Single (never married)	3,061	22.3%
Widowed	432	3.1%
Divorced/Separated	1,532	11.1%
Married	6,811	49.5%
De facto	1,887	13.7%
Other	25	0.2%
State		
NSW	4,321	31.4%
VIC	3,477	25.3%
QLD	3,233	23.5%
SA	1,037	7.5%
WA	881	6.4%
TAS	304	2.2%
ACT	251	1.8%
NT	47	0.3%
Unknown	197	1.4%
Country of Birth		
Australia	11,103	80.8%
Other	2,645	19.2%
Aboriginal and/or Torres Strait Islander		
Yes	317	2.3%
No	13,431	97.7%
Highest Level of Education		
No schooling	11	0.1%

Sample Demographics	N	%
Year 8/equivalent or below	213	1.5%
Year 9/equivalent	338	2.5%
Year 10/equivalent	1,580	11.5%
Year 11/equivalent	615	4.5%
Year 12/equivalent	2,263	16.5%
Technical studies, Trade Certificate, etc	2,333	17.0%
Tertiary studies, Diploma, Advanced Diploma	2,221	16.2%
Tertiary studies, Bachelor degree	2,594	18.9%
Tertiary studies, Graduate Diploma, Diploma	641	4.7%
Tertiary studies, Postgraduate including Masters, PhD	893	6.5%
Not answered	46	0.3%
Employment Status		
Employed full-time	5,013	36.5%
Employed part-time	1,666	12.1%
Employed casual	757	5.5%
Self-employed (full-time equivalent)	438	3.2%
Self-employed (part-time equivalent)	245	1.8%
Self-employed (casual equivalent)	121	0.9%
Unemployed	580	4.2%
Home duties	1,086	7.9%
Student	528	3.8%
Retired	2,294	16.7%
Pensioner	807	5.9%
Not answered	213	1.5%
Income - Personal		
Negative/Nil income	1,157	8.4%
$1-$199 weekly ($1-$10,399 per year)	883	6.4%
$200-$299 weekly ($10,400-$15,599 per year)	1,001	7.3%
$300-$399 weekly ($15,600-$20,799 per year)	1,329	9.7%
$400-$599 weekly ($20,800-$31,199 per year)	1,888	13.7%
$600-$799 weekly ($31,200-$41,599 per year)	1,463	10.6%
$800-$999 weekly ($41,600-$51,999 per year)	1,341	9.8%
$1,000-$1,249 weekly ($52,000-$64,999 per year)	1,474	10.6%
$1,250-$1,499 weekly ($65,000-$77,999 per year)	964	9.8%
$1,500-$1,999 weekly ($78,000-$103,999 per year)	1,149	10.7%
$2,000-$2,499 weekly ($104,000-$129,999 per year)	454	7.0%
$2,500-$2,999 weekly ($130,000-$155,999 per year)	177	8.4%
$3,000-$3,499 weekly ($156,000-$181,999 per year)	93	3.3%
$3,500-$3,999 weekly ($182,000-$207,999 per year)	51	1.3%
$4,000-$4,999 weekly ($208,000-$259,999 per year)	37	0.7%
$5,000 or more weekly ($260,000 or more per year)	57	0.4%
Not answered	230	1.7%
Income - Household		

Sample Demographics	N	%
Negative/Nil income	735	5.3%
$1-$199 weekly ($1-$10,399 per year)	210	1.5%
$200-$299 weekly ($10,400-$15,599 per year)	305	2.2%
$300-$399 weekly ($15,600-$20,799 per year)	509	3.7%
$400-$599 weekly ($20,800-$31,199 per year)	1,193	8.7%
$600-$799 weekly ($31,200-$41,599 per year)	1,248	9.1%
$800-$999 weekly ($41,600-$51,999 per year)	1,159	8.4%
$1,000-$1,249 weekly ($52,000-$64,999 per year)	1,323	9.6%
$1,250-$1,499 weekly ($65,000-$77,999 per year)	1,181	8.6%
$1,500-$1,999 weekly ($78,000-$103,999 per year)	1,965	14.3%
$2,000-$2,499 weekly ($104,000-$129,999 per year)	1,261	9.2%
$2,500-$2,999 weekly ($130,000-$155,999 per year)	920	6.7%
$3,000-$3,499 weekly ($156,000-$181,999 per year)	484	3.5%
$3,500-$3,999 weekly ($182,000-$207,999 per year)	315	2.3%
$4,000-$4,999 weekly ($208,000-$259,999 per year)	263	1.9%
$5,000 or more weekly ($260,000 or more per year)	234	1.7%
Not answered	443	3.2%
Region		
Urban	7,227	52.6%
Regional town or city	5,148	37.4%
Rural	1,322	9.6%
Unknown	51	0.4%

Appendix 3. National Survey - Demographic characteristics of sample playing traditional and/or automated table games

Demographic characteristic	ATG and TTG (%)	ATG only (%)	TTG only (%)	Neither ATG nor TTG (%)	*TOTAL ATG (%)*	*TOTAL TTG (%)*
Overall	**27.9**	**4.1**	**26.1**	**41.9**	***31.6***	***53.9***
Gender						
Male	35.0	3.9	27.3	33.8	*38.5*	*62.3*
Female	22.1	4.3	25.1	48.4	*26.1*	*47.2*
Age						
18-25 years	41.6	7.3	23.0	28.0	*48.4*	*64.6*
26-35 years	43.5	6.2	24.6	25.7	*49.3*	*68.1*
36-45 years	35.1	3.7	26.0	35.1	*38.6*	*61.1*
46-55 years	23.5	4.1	28.3	44.1	*27.1*	*51.8*
56-65 years	15.3	2.5	28.4	53.8	*17.5*	*43.7*
65+ years	11.1	1.8	23.8	63.3	*12.7*	*34.9*
Problematic Gambling Severity						
Non-problem	16.0	3.7	28.5	51.8	*19.5*	*44.5*
Low-risk	26.0	4.4	29.6	40.0	*30.0*	*55.6*
Moderate-risk	36.0	3.8	24.9	35.4	*39.2*	*60.8*
Problem gambler	65.1	5.3	14.2	15.5	*69.0*	*79.2*
State						
NSW	29.1	4.9	24.2	41.7	*33.6*	*53.3*
VIC	29.3	3.3	24.6	42.8	*32.2*	*54.0*
QLD	23.9	3.8	28.5	43.8	*27.4*	*52.5*
SA	24.0	3.2	27.5	45.3	*26.6*	*51.5*
WA	36.3	5.0	26.9	31.8	*40.6*	*63.1*
TAS	20.5	5.7	26.9	46.8	*26.0*	*47.5*
ACT	29.7	3.3	30.5	36.6	*32.7*	*60.2*
NT	17.8	4.4	35.6	42.2	*21.3*	*53.3*
Marital Status						
Single (never married)	34.8	4.7	25.6	34.9	*39.1*	*60.4*
Widowed	15.8	1.4	22.5	60.3	*16.7*	*38.3*
Divorced/Separated	19.2	3.5	26.2	51.1	*22.3*	*45.4*
Married	26.8	3.8	26.3	43.1	*30.2*	*53.1*
De facto	30.3	5.7	26.5	37.6	*35.6*	*56.7*
Other	21.7	0.0	34.8	43.5	*20.8*	*56.5*
Country of Birth						
Australia	28.3	4.0	25.7	42.1	*31.8*	*54.0*
Overseas	26.2	4.7	27.6	41.5	*30.4*	*53.8*
Aboriginal and/or Torres Strait Islander						
Yes	47.4	6.5	15.7	30.4	*53.1*	*63.1*
No	27.4	4.1	26.3	42.2	*31.1*	*53.7*
Highest Level of Education						
Year 11 below	17.4	3.5	23.7	55.3	*20.5*	*41.1*

Demographic characteristic	ATG and TTG (%)	ATG only (%)	TTG only (%)	Neither ATG nor TTG (%)	*TOTAL ATG (%)*	*TOTAL TTG (%)*
Year 12	26.8	3.8	25.6	43.8	*30.2*	*52.4*
TAFE / Trade Certificate	22.7	4.3	26.9	46.1	*26.5*	*49.6*
University	34.7	4.4	26.9	34.1	*38.7*	*61.5*
Employment Status						
Full-time	39.3	4.7	26.6	29.3	*43.7*	*65.9*
Part-time	25.1	4.7	26.9	43.3	*29.5*	*52.0*
Casual	26.1	4.1	24.9	44.9	*29.8*	*51.0*
Unemployed	17.2	3.3	25.3	54.2	20.1	42.5
Employment Status						
Employed	34.6	4.7	26.5	34.2	*38.9*	*61.1*
Not employed	17.2	3.3	25.3	54.2	*20.1*	*42.5*
Income – Personal						
$0-$599 weekly ($0-$31,199 per year)	19.4	3.8	24.7	52.1	*22.8*	*44.1*
$600-$999 weekly ($32,000-$51,999 per year)	30.3	4.5	25.9	39.3	*34.6*	*56.2*
$1,000-$1,499 weekly ($52,000-$77,999 per year)	38.6	4.6	26.9	29.9	*42.9*	*65.5*
$1,500-$1,999 weekly ($78,000-$103,999 per year)	37.4	4.6	28.8	29.2	*41.5*	*66.2*
$2,000 or more weekly ($104,000 or more per year)	40.4	3.4	28.8	27.3	*43.6*	*69.3*
Income – Household						
$0-$599 weekly ($0-$31,199 per year)	19.6	3.8	24.1	52.5	*22.7*	*43.7*
$600-$999 weekly ($32,000-$51,999 per year)	22.2	3.4	24.0	50.4	*25.3*	*46.2*
$1,000-$1,499 weekly ($52,000-$77,999 per year)	27.9	4.1	26.4	41.6	*31.8*	*54.3*
$1,500-$1,999 weekly ($78,000-$103,999 per year)	31.0	5.3	28.1	35.5	*35.9*	*59.2*
$2,000 or more weekly ($104,000 or more per year)	37.1	4.6	27.4	30.9	*41.4*	*64.6*
Residential Area Type						
Urban	33.0	4.2	25.9	36.8	*36.8*	*59.0*
Regional town or city	23.8	4.1	25.7	46.5	*27.4*	*49.4*
Rural	15.2	4.0	28.1	52.7	*18.8*	*43.3*
Cultural Background						
Australian	25.7	4.0	26.0	44.3	*29.3*	*51.8*
Non-Australian	34.3	4.6	26.1	35.0	*38.3*	*60.5*
Cultural Background - detailed						
Australian	25.7	4.0	26.0	44.3	*29.3*	*51.8*
English	22.4	3.6	27.6	46.4	*25.5*	*50.0*
Chinese	52.2	6.8	25.6	15.4	*57.9*	*77.8*
Indian	61.0	3.5	22.9	12.6	*63.7*	*84.0*
Italian	38.9	3.1	26.2	31.9	*40.9*	*65.1*

Demographic characteristic	ATG and TTG (%)	ATG only (%)	TTG only (%)	Neither ATG nor TTG (%)	*TOTAL ATG (%)*	*TOTAL TTG (%)*
New Zealand	20.6	7.5	23.8	48.1	*27.6*	*44.4*
Greek	38.8	3.3	28.1	29.8	*41.5*	*66.9*
Irish	20.6	4.1	21.6	53.6	*24.7*	*42.3*
American	34.1	14.1	21.2	30.6	*46.6*	*55.3*
German	23.5	2.4	22.4	51.8	*25.6*	*45.9*
Scottish	16.7	3.6	28.6	51.2	*19.8*	*45.2*
Vietnamese	64.9	8.1	16.2	10.8	*72.0*	*81.1*
Filipino	42.9	3.2	28.6	25.4	*43.9*	*71.4*
Dutch	27.9	1.6	27.9	42.6	*29.5*	*55.7*
Malaysian	51.0	7.8	17.6	23.5	*57.7*	*68.6*
South African	42.1	0.0	31.6	26.3	*42.1*	*73.7*
Japanese	47.1	0.0	23.5	29.4	*44.4*	*70.6*
Swedish	25.0	0.0	25.0	50.0	*23.1*	*50.0*
Swiss	27.3	0.0	45.5	27.3	*25.0*	*72.7*
Other	32.8	4.3	29.3	33.8	*36.7*	*62.0*

Appendix 4. National Survey - Mean Importance of VICES Features of Gambling Product for ATG and Non-ATG Players by Problem Gambling Severity Level (PGSI)

VICES Feature	No problem	Low-Risk	Medium-Risk	Problem	Overall
Mean Importance of Feature for Automated Table Game Played Most Often (VICES)*					
V - Graphics & animation	2.61	2.73	2.77	2.71	2.69
V - Multiple displays	2.31	2.47	2.54	2.71	2.50
V - In-game sound effects	2.16	2.23	2.32	2.66	2.35
I - Real-time player feedback	2.99	3.17	3.10	2.96	3.04
I - Game statistics	2.84	3.02	3.02	2.88	2.92
I - Game help/instructions	2.81	2.90	2.84	2.83	2.84
I - Game control	2.75	2.86	2.91	2.86	2.84
I - Decision making	2.74	2.86	2.85	2.85	2.82
I - Personalise game	2.31	2.48	2.56	2.77	2.53
C - Multiple betting	2.73	2.92	2.98	2.92	2.87
C - Progressive jackpots	2.74	2.90	2.96	2.91	2.86
C - Multiple game choice	2.31	2.49	2.58	2.78	2.54
C - Additional mini-games	1.99	2.03	2.18	2.67	2.24
E - Instant pay out	3.22	3.39	3.39	3.03	3.22
E - Calculated win & loss	2.90	3.05	2.99	2.89	2.95
E - Less game down-time	2.51	2.66	2.73	2.84	2.68
E - Faster Games	2.45	2.63	2.66	2.83	2.64
E - Side Bets	2.28	2.47	2.58	2.75	2.51
E - Multiple Game Play	2.00	2.13	2.23	2.73	2.28
S - Privacy	3.13	3.27	3.26	2.97	3.13
S - Live dealer (croupier)	2.37	2.53	2.57	2.77	2.56
S - Socialising when you play	2.48	2.50	2.45	2.71	2.55
S - Automated dealer (croupier)	2.15	2.24	2.24	2.69	2.35
Mean Importance of Gambling Product Feature - Non ATG Players (VICES)**					
V - In-game sound effects	1.60	1.85	1.95	2.11	1.72
I - Real-time player feedback	2.34	2.63	2.67	2.59	2.45
I - Game statistics	2.04	2.36	2.35	2.41	2.17
I - Game help/instructions	2.38	2.67	2.71	2.57	2.49
I - Game control	2.23	2.53	2.56	2.53	2.35
I - Decision making	2.14	2.45	2.52	2.51	2.27
I - Personalise game	1.83	2.09	2.20	2.37	1.96
C - Multiple betting	2.03	2.38	2.47	2.55	2.19
C - Progressive jackpots	2.20	2.60	2.81	2.76	2.39
C - Multiple game choice	1.84	2.15	2.30	2.42	2.00
C - Additional mini-games	1.60	1.85	1.90	2.10	1.72
E - Instant pay out	2.78	3.14	3.20	3.06	2.92
E - Calculated win & loss	2.19	2.51	2.54	2.49	2.32
E - Less game down-time	1.85	2.16	2.29	2.44	2.01
E - Faster Games	1.80	2.10	2.19	2.36	1.94

VICES Feature	No problem	Low-Risk	Medium-Risk	Problem	Overall
E - Side Bets	1.57	1.79	1.86	2.13	1.69
E - Multiple Game Play	1.46	1.63	1.77	2.02	1.57
S - Privacy	2.93	3.22	3.24	3.11	3.04
S - Live dealer (croupier)	1.89	2.09	2.05	2.14	1.97
S - Socialising when you play	2.09	2.23	2.19	2.20	2.14
S - Automated dealer (croupier)	1.33	1.47	1.49	1.76	1.41

**Base: Has played ATG in the last 12 months and has PGSI category (n = 4,198). PGSI: non-problem (1,343), low-risk (n = 818), moderate-risk (n = 740), problem (n = 1,297).*
***Base: Has not played ATG in the last 12 months and has PGSI category (n = 9,196). PGSI: non-problem (5,558), low-risk (n = 1,906), moderate-risk (n = 1,150), problem (n = 582).*

Appendix 5. National Survey: Mean Importance of VICES features in Online Gambling Experience rated by Sports Bettors/Racing Wagerers who have Bet Online

VICES Feature	No problem	Low-Risk	Medium-Risk	Problem	Overall
Mean Importance of Features in Online Gambling Experience (VICES) – Sports Bettors/Racing Wagerers who have bet online					
V - Animations of events	1.71	1.93	2.06	2.73	2.06
V - Win/loss animations	1.88	2.16	2.25	2.78	2.22
V - Dynamic & colourful displays	2.15	2.30	2.31	2.76	2.35
I - Personalisation	1.84	2.08	2.16	2.78	2.17
I - Personal play statistics	2.45	2.75	2.73	2.91	2.68
I - General play statistics	2.56	2.85	2.79	2.88	2.74
C - Graphical representations of odds	2.55	2.78	2.74	2.86	2.71
C - Experimentation with betting products	2.45	2.78	2.80	2.97	2.71
C - Multi Betting Styles	2.54	2.84	2.88	2.93	2.76
E - Able to bet on multiple events	2.87	3.10	3.15	3.02	3.00
E - Instant calculation of complex betting costs	2.98	3.20	3.20	3.03	3.08
E - Ability to bet wherever and whenever you like	3.15	3.38	3.36	3.08	3.22
E - Convenience	3.52	3.57	3.48	3.04	3.41
S - Privacy	3.43	3.50	3.41	3.09	3.36
S - Security	3.70	3.77	3.68	3.28	3.61

Appendix 6. National Survey: Mean likelihood VICES product feature would influence using online gambling product rated by Sports Bettors/Racing Wagerers who NOT Bet Online

VICES Feature	No problem	Low-Risk	Medium-Risk	Problem	Overall
Mean Likeliness Online Product Feature Will Influence Use (VICES) - Sports Bettors/Racing Wagerers who have NOT bet online					
V - Animations of events	1.71	1.91	2.15	2.51	1.90
V - Win/loss animations	1.79	2.04	2.22	2.59	1.99
V - Dynamic & colourful displays	1.80	2.00	2.23	2.52	1.97
I - Personalisation	1.73	1.98	2.14	2.54	1.92
I - Personal play statistics	2.05	2.31	2.47	2.67	2.22
I - General play statistics	2.10	2.36	2.47	2.74	2.27
C - Betting exchange	1.48	1.62	1.89	2.40	1.66
C - Novel Wagering	1.61	1.85	1.95	2.49	1.80
C - Multi Betting Styles	1.90	2.22	2.40	2.62	2.11
C - Fractional bets	1.87	2.22	2.40	2.76	2.11
C - Graphical representations of odds	1.87	2.15	2.29	2.61	2.06
C - Exotic betting	2.01	2.38	2.55	2.80	2.24
C - Experimentation with betting products	1.92	2.17	2.37	2.68	2.11
E - Able to bet on multiple events	2.05	2.32	2.53	2.68	2.24
E - Instant calculation of complex betting costs	2.18	2.52	2.63	2.79	2.37
E - Ability to bet wherever and whenever you like	2.16	2.47	2.59	2.81	2.35
E - Convenience	2.46	2.71	2.86	2.92	2.62
S - Privacy	2.61	2.92	2.99	3.03	2.77
S - Security	2.74	3.09	3.12	3.07	2.90

Appendix 7. Experiments Survey - Sample Demographics by Roulette Experimental Condition

Sample Demographics	Bingo Control		Bingo Visual/Audio		Bingo Illusion of Control		Bingo Complexity		Bingo Expedited Play		Bingo Social		Bingo Total	
Total	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Gender														
Male	21	61.8	14	50.0	19	61.3	23	57.5	21	52.5	19	48.7	117	55.2
Female	13	38.2	14	50.0	12	38.7	17	42.5	19	47.5	20	51.3	95	44.8
Age														
18-24	1	2.9	1	3.6	1	3.2	2	5.0	-	-	1	2.6	6	2.8
25-34	11	32.4	4	14.3	3	9.7	12	30.0	8	20.0	9	23.1	47	22.2
35-44	8	23.5	8	28.6	7	22.6	6	15.0	10	25.0	7	17.9	46	21.7
45-54	6	17.6	8	28.6	9	29.0	11	27.5	9	22.5	8	20.5	51	24.1
55-64	3	8.8	3	10.7	7	22.6	2	5.0	10	25.0	6	15.4	31	14.6
65+	5	14.7	4	14.3	4	12.9	7	17.5	3	7.5	8	20.5	31	14.6
Mean age	43.24		46.93		50.77		44.13		46.85		48.56		46.66	
Problematic Gambling Severity														
Non-problem	19	55.9	16	57.1	19	61.3	18	45.0	18	45.0	16	41.0	106	50.0
Low risk	7	20.6	7	25.0	5	16.1	10	25.0	6	15.0	8	20.5	43	20.3
Moderate risk	4	11.8	2	7.1	3	9.7	4	10.0	7	17.5	8	20.5	28	13.2
Problem	4	11.8	3	10.7	4	12.9	8	20.0	9	22.5	7	17.9	35	16.5
Gambler Type														
Novice	16	47.1	15	53.6	11	35.5	22	55.0	18	45.0	15	38.5	97	45.8
Experienced	2	5.9	2	7.1	4	12.9	3	7.5	3	7.5	3	7.7	17	8.0
Problem	16	47.1	11	39.3	16	51.6	15	37.5	19	47.5	21	53.8	98	46.2
State														
NSW	14	41.2	9	32.1	8	25.8	13	32.5	11	27.5	10	25.6	65	30.7
VIC	9	26.5	5	17.9	12	38.7	9	22.5	9	22.5	13	33.3	57	26.9
QLD	3	8.8	7	25.0	4	12.9	8	20.0	12	30.0	9	23.1	43	20.3
SA	4	11.8	3	10.7	2	6.5	2	5.0	2	5.0	2	5.1	15	7.1
WA	1	2.9	2	7.1	5	16.1	7	17.5	5	12.5	4	10.3	24	11.3
TAS	1	2.9	-	-	-	-	1	2.5	-	-	1	2.6	3	1.4
ACT	1	2.9	2	7.1	-	-	-	-	1	2.5	-	-	4	1.9
NT	1	2.9	-	-	-	-	-	-	-	-	-	-	1	0.5
Aboriginal and/or Torres Strait Islander														
Yes	-	-	1	3.6	1	3.2	3	7.5	1	2.5	-	-	6	2.8
No	34	100	27	96.4	30	96.8	37	92.5	39	97.5	39	100	206	97.2
Cultural Background														
Australian	20	58.8	19	67.9	24	77.4	29	72.5	25	62.5	27	69.2	144	67.9
Non-Australian	14	41.2	9	32.1	7	22.6	11	27.5	15	37.5	12	30.8	68	32.1

Appendix 8. Experiments Survey - Sample Demographics by Bingo Experimental Condition

Sample Demographics	Bingo Control		Bingo Visual/Audio		Bingo Illusion of Control		Bingo Complexity		Bingo Expedited Play		Bingo Social		Bingo Total	
Total	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Gender														
Male	10	45.5	14	41.2	16	53.3	22	64.7	20	62.5	18	48.6	100	52.9
Female	12	54.5	20	58.8	14	46.7	12	35.3	12	37.5	19	51.4	89	47.1
Age														
18-24	2	9.1	2	5.9	3	10.0	2	5.9	4	12.5	2	5.4	15	7.9
25-34	3	13.6	7	20.6	4	13.3	7	20.6	6	18.8	8	21.6	35	18.5
35-44	5	22.7	11	32.4	6	20.0	8	23.5	11	34.4	7	18.9	48	25.4
45-54	3	13.6	4	11.8	8	26.7	11	32.4	2	6.3	6	16.2	34	18.0
55-64	4	18.2	6	17.6	3	10.0	1	2.9	3	9.4	6	16.2	23	12.2
65+	5	22.7	4	11.8	6	20.0	5	14.7	6	18.8	8	21.6	34	18.0
Mean age	47.6		44.7		46.8		44.9		43.2		47.9		45.8	
Problematic Gambling Severity														
Non-problem	8	36.4	14	41.2	14	46.7	18	52.9	22	68.8	19	51.4	95	50.3
Low risk	4	18.2	6	17.6	3	10.0	8	23.5	4	12.5	8	21.6	33	17.5
Moderate risk	5	22.7	7	20.6	7	23.3	5	14.7	4	12.5	5	13.5	33	17.5
Problem	5	22.7	7	20.6	6	20.0	3	8.8	2	6.3	5	13.5	28	14.8
Gambler Type														
Novice	6	27.3	13	38.2	12	40.0	18	52.9	14	43.8	18	48.6	81	42.9
Experienced	-	-	4	11.8	3	10.0	2	5.9	4	12.5	3	8.1	16	8.5
Problem	16	72.7	17	50.0	15	50.0	14	41.2	14	43.8	16	43.2	92	48.7
State														
NSW	7	31.8	10	29.4	18	60.0	6	17.6	7	21.9	13	35.1	61	32.3
VIC	6	27.3	12	35.3	4	13.3	9	26.5	11	34.4	6	16.2	48	25.4
QLD	5	22.7	7	20.6	3	10.0	11	32.4	4	12.5	8	21.6	38	20.1
SA	2	9.1	1	2.9	1	3.3	5	14.7	2	6.3	4	10.8	15	7.9
WA	1	4.5	3	8.8	2	6.7	3	8.8	6	18.8	3	8.1	18	9.5
TAS	-	-	-	-	1	3.3	-	-	1	3.1	2	5.4	4	2.1
ACT	1	4.5	1	2.9	1	3.3	-	-	1	3.1	1	2.7	5	2.6
NT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aboriginal and/or Torres Strait Islander														
Yes	-	-	1	2.9	2	6.7	-	-	-	-	1	2.7	4	2.1
No	22	100	33	97.1	28	93.3	34	100	32	100	36	97.3	185	97.9
Cultural Background														
Australian	16	72.7	28	82.4	24	80.0	26	76.5	26	81.3	31	83.8	151	79.9
Non-Australian	6	27.3	6	17.6	6	20.0	8	23.5	6	18.8	6	16.2	38	20.1

Appendix 9. National Survey Questionnaire

Automated Casino Games and Online Sports Betting

In recent years, innovations in technology have led to changes to traditional gambling products. Traditional casino table games such as Roulette, Blackjack and Baccarat can now be played in electronic cabinets similar to poker machines. In addition, online computer technology has introduced new ways to place bets on racing and sports events. We are interested in how people are using these new innovative products.

What you will be asked to do

Central Queensland University's Professor Matthew Rockloff is inviting participants to take part in a study looking into new electronic versions of casino gambling games, as well as online betting and wagering. Participation in this research project will take place through an online survey. The questions we ask both should take about 10 minutes to complete in total.

How your confidentiality will be protected

We will protect your anonymity and the confidentiality of your responses to the fullest possible extent, within the limits of the law. Should you choose to provide your name and contact details, they will be kept in a separate, password protected computer file from any data you supply. Your name will not appear in the final report. We will also remove any references to personal information that might allow someone to guess your identity. The data will be kept securely by CQUniversity. In accordance with the Productivity Commission's recommendations to improve research into gambling, the de-identified data (the data collected without any way of identifying you) will be data warehoused and may be used by other researchers in the future. These researchers would need to supply an appropriate research proposal and have obtained approval from the Human Research Ethics Committee before access to the de-identified data would be given.

How you will receive feedback

This research is being conducted for Gambling Research Australia. The final report will be publicly available on their website at the end of 2016.

Participation will not prejudice you in any way

Please be advised that your participation in this study is completely voluntary. Should you wish to withdraw at any stage, any unprocessed data you have supplied will not be used - and you are free to do so without prejudice.

Where you can get further information

Should you require any further information, or have any concerns, please do not hesitate to contact the Chief Investigator. You are also welcome to contact the Ethics and Compliance Officer at the Office of Research on 07 4923 2603.

We are interested in everyone's answers regardless of their experiences with gambling. Nevertheless, some of the questions will be about problems you may have experienced because of your gambling. If you feel you may have gambling-related problems, you can contact The Gambling Helpline (1800 858 858). This is a free and confidential telephone help service that operates 24 hours a day, 7 days a week.

How you agree to participate

If you would like to participate, you will be asked to indicate that you have read and understood this information by indicating your consent below* before commencing the online survey.

Professor Matthew Rockloff (Chief Investigator)

Head, Population Research Laboratory, Ph: 07 4150 7138

*I consent to participation in this research project and agree that:

1. I have read and understood the Information Sheet that describes this study;
2. Any questions I had about the project were answered by either the Information Sheet or the researcher;
3. I have the right to withdraw from the project at any time without penalty;
4. The research findings will be included in the researcher's publication(s) on the project; and this may include conference presentations and research articles as well as other media described in the Information Sheet;
5. To protect my privacy, my name will not be used in publication(s);
6. I am providing informed consent to participate in this project.

Click "Yes" to indicate your agreement to the points above. Otherwise click "No" to exit.

1 YES

2 NO

Post-Skip: If no consent skip to end survey

<u>Section 1 - Automated Table Games</u>

In answering the following question please consider gaming products such as poker machines, casino table games, horse racing and sports betting, but not lotteries, scratch tickets or Keno.

Q1a: Have you gambled in the last 12 months?

1 Yes

2 No

Post-Skip: Skip from Q1a to Q27 If Q1a=2

If no gambling in past 12 months skip to Q27 (Demographics)

Q1b: 'Automated games' use games-cabinets or kiosks, similar to electronic Pokies, to deliver traditional casino-style table games. Have you gambled on automated versions of traditional table games such as Roulette, Baccarat or Blackjack at a casino or other venue?

1 Yes
2 No

Post-Skip: Skip from Q1b to Q12 If Q1b=2
If never played automated games skip to Q12

Q2: Which of the following automated table games have you played? Select all that apply.

1 Electronic Roulette
2 Electronic Baccarat
3 Electronic Blackjack
4 Electronic Big Wheel
5 Electronic Sic Bo
6 Other (please specify)

Q3: Which automated table game do you play most often? Select one option only.

1 Electronic Roulette
2 Electronic Baccarat
3 Electronic Blackjack
4 Electronic Big Wheel
5 Electronic Sic Bo
6 Other (please specify)

Q4: Thinking about the automated table game you play most often, *[Q3 ANSWER HERE]*, would you generally prefer to play a traditional table version or electronic version if both were available?

1 Traditional table game
2 Electronic table game

Q5: Where do you play automated table games most frequently?

1 Australian Casino
2 Australian Club or Venue
3 International Casino
4 Other (please specify) [Respondent Specify]

Q6: Approximately how often do you play automated table games?

1 At least once a week
2 At least once a month
3 A few times a year
4 Less than once per year

Q7: Try to think of a time when you DID NOT WIN money on automated table games. About how much did you spend on the automated table games during this session?

1 Less than $5
2 $5 - $10
3 $10 - $20
4 $20 - $50
5 $50 - $100
6 More than $100
7 I never lost money

Q8: Try to think of a time when you DID NOT WIN money on TRADITIONAL (non-automated) table games. About how much money did you spend on traditional table games during this session?

1 I don't play traditional table games
2 Less than $5
3 $5 - $10
4 $10 - $20
5 $20 - $50
6 $50 - $100
7 More than $100
8 I never lost money

Q9: On average, how much time do you spend on automated table games when you play?

1 Less than 30 minutes
2 More than 30 minutes but less than 1 hour
3 More than 1 hour but less than 2 hours
4 More than 2 hours but less than 3 hours
5 More than 3 hours

Q10: On average, how much time do you spend on TRADITIONAL (non-automated) table games when you play?

1 I don't play traditional table games
2 Less than 30 minutes
3 More than 30 minutes but less than 1 hour
4 More than 1 hour but less than 2 hours
5 More than 2 hours but less than 3 hours
6 More than 3 hours

Q11: Thinking about the automated table game you play most often, *[Q3 ANSWER HERE]*. Please rate how important each of the following features are to you.

1 Graphics and animation
2 Multiple displays
3 Use of in-game sound effects
4 Having a live dealer (croupier)
5 Having an automated dealer (croupier)
6 Real-time player feedback (e.g., wins and losses, credits, lucky numbers)
7 Game statistics, such as win/loss record, hot and cold numbers, or betting odds
8 Having control over the game mechanism (e.g., choosing when the game starts, or rolling the dice)
9 Having multiple betting options (e.g., strategic betting)
10 Having decisions to make during the game
11 Having help options or game instructions
12 Being able to make additional side bets and having these tracked by the computer
13 Additional mini-games
14 Having the computer calculate winnings and losses
15 Having faster games
16 Having winnings paid out instantly
17 Privacy
18 Being able to personalise the gaming environment
19 Having progressive jackpots available
20 Less down-time between games
21 Being able to play multiple games simultaneously
22 Being able to choose between different games from a single location
23 Socialising when you play

1 Not at all important
2 A little important

3 Moderately important

4 Very important

Post-Skip: Skip from Q11 to Q16 ALWAYS SKIP

Skip to Section 2 - Sports Wagering (Q16)

Q12: What is the main reason that you haven't played automated table games? Select one option only.

1 Automated table games are not available to me

2 I prefer traditional table games

3 I prefer other forms of gambling

4 Other (please specify)

Q13: On average, how much money do you spend on traditional table games when you play?

1 I don't play traditional table games

2 Less than $5

3 $5 - $10

4 $10 - $20

5 $20 - $50

6 $50 - $100

7 More than $100

Q14: On average, how much time do you spend on traditional table games when you play?

1 I don't play traditional table games

2 Less than 5 minutes

3 5 – 15 minutes

4 15 – 30 minutes

5 30 minutes – an hour

6 More than an hour

Q15: Please indicate how important each of the following features are to you in a gambling product.

1 Use of in-game sound effects

2 Having a live dealer (croupier)

3 Having an automated dealer (croupier)

4 Real-time player feedback (e.g., wins and losses, credits, lucky numbers)

5 Game statistics, such as win/loss record, hot and cold numbers, or betting odds
6 Having control over the game mechanism (e.g., choosing when the game starts, or rolling the dice)
7 Having multiple betting options (e.g., strategic betting)
8 Having decisions to make during the game
9 Having help options or game instructions
10 Being able to make additional side bets and having these tracked by the computer
11 Additional mini-games
12 Having the computer calculate winnings and losses
13 Having faster games
14 Having winnings paid out instantly
15 Privacy
16 Being able to personalise the gaming environment
17 Having progressive jackpots available
18 Less down-time between games
19 Being able to play multiple games simultaneously
20 Being able to choose between different games from a single location
21 Socialising when you play

1 Not at all important
2 A little important
3 Moderately important
4 Very important

Section 2 - Sports Wagering

Q16: In the last 12 months, have you bet on sporting events or horse or dog racing? Please do not include the Melbourne Cup.

1 Yes
2 No

Post-Skip: Skip from Q16 to Q24 If Q16=2
If no sports betting skip to Q24

Q17: How often do you bet on racing or sports events?

1 Every day
2 A few times a week
3 Once a week

4 A few times a month
5 Once a month
6 A few times a year
7 Less than once a year

Q18: Which events do you prefer to wager on? Select all that apply.

1 Horses
2 Greyhounds
3 Football
4 Rugby
5 Cricket
6 Other (please specify)

Q19: What is your preferred method for placing bets? Select one option only.

1 At the event via TAB
2 Through a bookmaking agency
3 TAB outlet
4 Hotel, club or pub
5 Via telephone
6 Internet website
7 Smart phone or tablet betting app
8 Other (please specify) [Respondent Specify]

Q20: Please indicate which of the following gaming products you have purchased. Select all that apply.

1 Fractional bets (the purchase of a portion of a bet or a bet a number of times)
2 Exotic betting (e.g., betting on a trifecta, or race order other than first place)
3 Novel Wagering (betting on non-sporting events)
4 Betting exchange (acting as a bookmaker)
5 None of these

Q21: Do you ever place bets using an Internet website or smart phone (or tablet) application?

1 Yes
2 No

Post-Skip: Skip from Q21 to Q25 If Q21=2

If never bet using web or apps skip to Q25

Q22: How important are each of the following in your decision to use online wagering products?

1 Convenience
2 Privacy
3 Ability to experiment with betting products
4 Security
5 Other (please specify)

1 Not at all important
2 A little important
3 Moderately important
4 Very important

Q23: Please indicate how important each of the following features are to your online gambling experience.

1 Graphical representations of odds
2 Dynamic and colourful displays
3 Animated simulations of races or sporting events
4 Win/loss animations
5 Being able to personalise your account (e.g., with personal avatars or personalised screen arrangement)
6 Personal play statistics (e.g., your own win/loss records)
7 General play statistics (e.g., team win/loss records, winning streaks, racing conditions)
8 Multiple betting styles (e.g., exotic or novel betting)
9 Instant calculation of complex betting costs
10 Ability to bet wherever and whenever you like
11 Being able to bet on multiple events in the same place

1 Not at all important
2 A little important
3 Moderately important
4 Very important

Q24: What is the main reason that you have not bet on sporting events or racing in the last 12 months? Select one option only.

1 Prefer other forms of gambling
2 I don’t understand sports wagering

3 I don't like going to a TAB or club to place a bet

4 Other (please specify) [Respondent Specify]

Q25: New technologies are allowing players to bet on sports and racing events online, offering easier access, more options and simpler betting processes in digitalised formats. How likely would the following features be to influence you to wager on sporting events or racing using online products?

1 Graphical representations of odds

2 Dynamic and colourful displays

3 Animated simulations of races or sporting events

4 Win/loss animations

5 Being able to personalise your account (e.g., with personal avatars or personalised screen arrangement)

6 Personal play statistics (e.g., your own win/loss records)

7 General play statistics (e.g., team win/loss records, winning streaks, racing conditions)

8 Multiple betting styles (e.g., exotic or novel betting)

9 Instant calculation of complex betting costs

10 Ability to bet wherever and whenever you like

11 Being able to bet on multiple events in the same place

12 Convenience

13 Privacy

14 Ability to experiment with betting products

15 Security

16 Fractional bets (the purchase of a portion of a bet or a bet a number of times)

17 Exotic betting (e.g., betting on a trifecta, or race order other than first place)

18 Novel Wagering (betting on non-sporting events)

19 Betting exchange (acting as a bookmaker)

1 Very unlikely

2 Somewhat unlikely

3 Somewhat likely

4 Very likely

Section 3 - Gambling Behaviour

Q26: The next 9 items ask you to reflect on your gambling over the last 12 months.

In the last 12 months (select best answer).

1 Have you bet more than you could really afford to lose?

2 Still thinking about the last 12 month, have you needed to gamble with larger amounts of money to get the same feeling of excitement?

3 When you gambled, did you go back another day to try to win back the money you lost?

4 Have you borrowed money or sold anything to get money to gamble?

5 Have you felt that you might have a problem with gambling?

6 Has gambling caused you any health problems, including stress or anxiety?

7 Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?

8 Has your gambling caused any financial problems for you or your household?

9 Have you felt guilty about the way you gamble or what happens when you gamble?

1 Never

2 Sometimes

3 Most of the time

4 Almost always

Section 4 - Demographics

We will end the survey with a few general questions about you.

Q27: What is your gender?

1 Male

2 Female

Q28: What is your current age?

Q29: What is your present marital status?

1 Single (never married)

2 Widowed

3 Divorced/Separated

4 Married

5 De facto

6 Other (please specify)

Q30: In which country were you born?

1 Australia
2 Other (please specify)

Q31: Which cultural background do you most identify with?

1 American
2 Australian
3 Chinese
4 Dutch
5 English
6 Filipino
7 German
8 Greek
9 Indian
10 Irish
11 Italian
12 Japanese
13 Malaysian
14 New Zealand
15 Scottish
16 South African
17 Swedish
18 Swiss
19 Vietnamese
20 Other (please specify)

Q32: Do you identify yourself as Aboriginal and/or Torres Strait Islander?

1 Yes
2 No

Q33: What is the highest level of education you have completed?

1 No schooling
2 Year 8/equivalent or below
3 Year 9/equivalent
4 Year 10/equivalent

5 Year 11/equivalent
6 Year 12/equivalent
7 Technical studies, Trade Certificate, etc
8 Tertiary studies, Diploma, Advanced Diploma
9 Tertiary studies, Bachelor degree
10 Tertiary studies, Graduate Diploma, Diploma
11 Tertiary studies, Postgraduate including Masters, PhD

Q34: What is your current MAIN employment status?

1 Employed full-time
2 Employed part-time
3 Employed casual
4 Self-employed (full-time equivalent)
5 Self-employed (part-time equivalent)
6 Self-employed (casual equivalent)
7 Unemployed
8 Home duties
9 Student
10 Retired
11 Pensioner

Q35: What is your approximate personal income level? Not including the income of a spouse, partner or family member (include income from all sources before taxes and any spending).

1 Negative/Nil income
2 $1-$199 weekly ($1-$10,399 per year)
3 $200-$299 weekly ($10,400-$15,599 per year)
4 $300-$399 weekly ($15,600-$20,799 per year)
5 $400-$599 weekly ($20,800-$31,199 per year)
6 $600-$799 weekly ($31,200-$41,599 per year)
7 $800-$999 weekly ($41,600-$51,999 per year)
8 $1,000-$1,249 weekly ($52,000-$64,999 per year)
9 $1,250-$1,499 weekly ($65,000-$77,999 per year)
10 $1,500-$1,999 weekly ($78,000-$103,999 per year)
11 $2,000-$2,499 weekly ($104,000-$129,999 per year)
12 $2,500-$2,999 weekly ($130,000-$155,999 per year)
13 $3,000-$3,499 weekly ($156,000-$181,999 per year)
14 $3,500-$3,999 weekly ($182,000-$207,999 per year)
15 $4,000-$4,999 weekly ($208,000-$259,999 per year)

16 $5,000 or more weekly ($260,000 or more per year)

Q36: What is the total income level of ALL people living in your household? Including any other household member (include income from all sources before taxes and any spending).

1 Negative/Nil income
2 $1-$199 weekly ($1-$10,399 per year)
3 $200-$299 weekly ($10,400-$15,599 per year)
4 $300-$399 weekly ($15,600-$20,799 per year)
5 $400-$599 weekly ($20,800-$31,199 per year)
6 $600-$799 weekly ($31,200-$41,599 per year)
7 $800-$999 weekly ($41,600-$51,999 per year)
8 $1,000-$1,249 weekly ($52,000-$64,999 per year)
9 $1,250-$1,499 weekly ($65,000-$77,999 per year)
10 $1,500-$1,999 weekly ($78,000-$103,999 per year)
11 $2,000-$2,499 weekly ($104,000-$129,999 per year)
12 $2,500-$2,999 weekly ($130,000-$155,999 per year)
13 $3,000-$3,499 weekly ($156,000-$181,999 per year)
14 $3,500-$3,999 weekly ($182,000-$207,999 per year)
15 $4,000-$4,999 weekly ($208,000-$259,999 per year)
16 $5,000 or more weekly ($260,000 or more per year)

Q37: Do you currently live in an urban area (major city), a regional town/city or a rural area?

1 Urban
2 Regional town or city
3 Rural

Q38: What is your current residential postcode?

That brings us to the end of the survey. If you would like to add any comments please do so below.