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Abstract

Social responsibility in gambling has become a major issue for the gaming industry. This has been coupled with the rise of behavioural tracking technologies that allow companies to track every behavioural decision and action made by gamblers on online gambling sites, slot machines, and/or any type of gambling that utilizes player cards. This chapter has a number of distinct but related aims including: (a) a brief overview of behavioural tracking technologies accompanied by a critique of both advantages and disadvantages of such technologies for both the gaming industry and researchers; and (b) results from a series of studies completed using behavioural tracking data to evaluate the efficacy of online responsible gambling tools (particularly in relation to data concerning the use of social responsibility tools such as limit setting, pop-up messaging, and personalized feedback to gamblers).

Introduction

Online gambling is a psychological and sociological phenomenon that is becoming a focus of interest for an increasing number of researchers in the social sciences. As the Internet offers a new venue for gambling, the risks for engaging in pathological behaviours are potentially increased (Griffiths, 2003). This has resulted in a large increase of empirical research into online gambling (Gainsbury, 2015; Kuss & Griffiths, 2012). At present, there

are numerous different methodologies in which data about online gambling can be collected (e.g., online surveys, online experiments, online interviews and focus groups, online ethnographic methods) (Griffiths, 2010). However, this chapter briefly examines one of the newer methodologies that have been utilised in the last few years by those in the gambling studies field (i.e., behavioural tracking), and briefly reviews the advantages, disadvantages, and uses, as well as examining how such data has been used to evaluate the effectiveness of various online pathological gambling protection tools such as limit setting, pop-up messaging, and personalised feedback.

The Use of Online Methodologies to Study Gambling

Over the past decade, researchers in the gambling studies field have started to use online methods to gather their data, rather than traditional offline research approaches (Wood & Griffiths, 2007; Griffiths, 2010). Psychological research that can be done online includes experimental, self-report, and/or observational research. A methodological review paper by Griffiths (2010) examined seven different online data collection methods used for collecting gambling and gaming data including (i) online questionnaires, (ii) online forums, (iii) online participant observation, (iv) online secondary data, (v) online interviews, (vi) online exemplar websites, and (vii) online evaluations (including online 'mystery shopping'). He also argued in the same paper that the internet can be a very useful medium for eliciting rich and detailed data in sensitive areas such as problem gambling because the online medium is non-face-to-face, non-threatening, non-alienating, and non-stigmatizing, and that individuals were more likely to give honest and truthful answers compared to face-to-face data collection methods.

There are a number of reasons why the online medium is a good place to conduct research with online gamblers. This is because the internet: (i) is usually accessible to these gamblers, and they are usually proficient in using it (Wood & Griffiths, 2007); (ii) allows for studies to be administered to potentially large scale samples quickly and efficiently (Buchanan, 2000, 2007; Wood, Griffiths & Eatough, 2004); (iii) can facilitate automated data inputting allowing large scale samples to be administered at a fraction of the cost and time of 'pen and paper' equivalents (Buchanan, 2007); (iv) has a disinhibiting effect on users and reduces social desirability, leading to increased levels of honesty (and therefore higher validity in the case of self-report) (Joinson, Paine, Buchanan & Reips, 2008); (v) has a potentially global pool of participants, therefore researchers are able to study extreme and uncommon behaviours as well as make cross-cultural comparisons (Buchanan, 2000);

(vi) provides access to 'socially unskilled' individuals who may not have taken part in the research if it was offline (Wood, et al, 2004; Wood & Griffiths, 2007); (vii) can aid participant recruitment through advertising on various bulletin boards and websites (Wysocki, 1998); and (viii) can aid researchers because they do not have to be in the same geographical location as either the participants or fellow research colleagues (e.g., Whitty, 2004a; Wood, et al, 2004). It should also be added that in contemporary society very few people live their lives completely offline.

Online Behavioural Tracking in Gambling

Over 15 years ago, Griffiths and Parke (2002) noted that one of the most potentially worrying concerns about online gambling was the way online gambling website operators could collect data about their players (i.e., those who gamble on their websites). Customer data is the lifeblood of any company and online gamblers provide tracking data that can be used to compile customer profiles. Such data can tell commercial enterprises (such as those in the gambling industry) exactly how customers are spending their time in any given financial transaction (i.e., in the case of online gambling, which games their customers are gambling on, for how long, how much money they are spending, what games are profitable). This information can help in the retention of customers, and can also link up with existing customer databases and operating loyalty schemes. Companies who have one central repository for all their customer data have an advantage. It can also be accessed by different parts of the business. Many consumers are unknowingly passing on information about themselves, and are being profiled according to how they transact with service providers. Linked loyalty schemes can then track the account from the opening established date.

The technology to sift and assess vast amounts of customer information has developed substantially over the last decade. Using the latest sophisticated software, gaming companies can tailor its service to the customer's known interests. When it comes to gambling, there is a very fine line between providing what the customer wants and exploitation. The gaming industry sells products in much the same way that any other business sells things. They are now in the business of brand marketing, direct marketing (via mail with personalized and customized offers), and loyalty schemes (that create the illusion of awareness, recognition, and loyalty).

On joining loyalty schemes, players supply lots of information including name, address, telephone number, date of birth, and gender. Those who operate online gambling

sites are no different. They know the gambler's favourite game and the amounts they have wagered. Basically, gambling operators can track the playing patterns of any gambler. They arguably know more about the gambler's playing behaviour than the gamblers, themselves. They are able to send the gambler offers and redemption vouchers, complimentary accounts, and other "incentives". These are done to enhance customer experience (Griffiths & Wood, 2008a). Benefits and rewards to the customer can include cash, food and beverages, entertainment and general retail. However, more unscrupulous operators have the means to entice known problem gamblers back onto their premises with tailored freebies (such as the inducement of "free" bets in the case of internet gambling). However, later papers by Griffiths and colleagues began to argue that behavioural tracking data could potentially be used to help identify problem gamblers rather than exploit them, and to use behavioural tracking data for research purposes (Griffiths & Wood, 2008b; Griffiths, Wood, Parke & Parke, 2007).

The Advantages and Disadvantages of Behavioural Tracking Methods in Gambling Research

There have been several different approaches to collecting data from and about gamblers. This has traditionally included self-report methods (e.g., surveys, focus groups, interviews), experiments (in the laboratory or in gambling venues), and participant and/or non-participant observation. More recently (i.e., since around 2005), a number of researchers in the gambling studies field have been given direct access to gambling data collected by gaming companies from their commercial online gambling sites. These types of data (i.e., behavioural tracking data) are providing insights into gamblers' behaviour that is helping to better understand how such people act and behave online and over long periods of time.

There has been a very recent debate in the gambling studies field as to whether online gambling is more dangerous and harmful than offline gambling. Much of the debate has relied on the data collected by either behavioural tracking or survey methodologies. Griffiths and colleagues (Auer & Griffiths, 2013; 2014a; Delfabbro, King & Griffiths, 2012; Griffiths, 2009; Griffiths & Auer, 2011; Griffiths & Whitty, 2010) have written a number of papers outlining the key differences between these two methods. These can be summarized as follows (the first four points suggest a data collection of behavioural tracking over self-report, whereas the remaining points favour the converse):

- Behavioural tracking data provides a totally objective record of an individual's gambling behaviour on a particular online gambling website (whereas gamblers in self-report studies may be prone to social desirability factors, unreliable memory).

- Behavioural tracking data overcomes the problem of finding suitable online gambling participants as it provides an immediate data set (if access is granted by the gaming company). Participants do not even have to travel to participate in the study.

- Behavioural tracking data provide a record of events and can be revisited after the event itself has finished (whereas in general self-report studies cannot).

- Behavioural tracking data usually comprise very large sample sizes (e.g., studies by Auer and Griffiths [2013, 2014b, 2014c, 2015a, 2015b, 2016, 2017a, 2017b; Auer, Malischnig & Griffiths, 2014] have used databases with access to over 50,000-100,000 online gamblers) whereas self-report studies are based on much smaller sample sizes (e.g., the national *British Gambling Prevalence Surveys* typically comprise samples of around 8,000-9,000 people [e.g., Wardle, et al, 2011).

- Behavioural tracking data collects data from only one gambling site and tells us nothing about the person's Internet gambling in general as Internet gamblers typically gamble on more than one site (Wardle, et al, 2011).

- Behavioural tracking data always comes from unrepresentative samples (i.e., the players that use one particular internet gambling site) whereas the very best self-report studies (e.g., the *British Gambling Prevalence Surveys* in Great Britain) use random and nationally representative samples (e.g., Wardle, et al, 2011).

- Behavioural tracking data does not account for the fact that more than one person can use a particular account.

- Behavioural tracking data tell us nothing about *why* people gamble (whereas self-report data can provide greater insight into motivation to gamble).

- Behavioural tracking data cannot be used for comparing online and offline gambling or for making comparisons about whether online gambling is safer or more dangerous than offline gambling as data are only collected on one group of people (i.e., online gamblers).

- Self-report methods can be used to compare two (or more) groups of gamblers and is the only method we currently have to infer to what extent one medium of gambling may or may not be more or less safe.

- Some self-report studies have the potential to use nationally representative samples of gamblers whereas behavioural tracking studies rely on self-selected samples of gamblers who use one specific online gambling website.

- Behavioural tracking data tell us nothing about the relationships between gambling and other behaviours (e.g. the relationship between gambling and alcohol or the relationship between gambling and tobacco use).

- Behavioural tracking data cannot examine problem gambling using current diagnostic criteria (whereas self-report studies can). In fact, behavioural tracking data studies cannot tell us anything about problem gambling as this is not a variable that has been examined in any of the published studies to date (except by using proxy measures of problem gamblers, such as those people who exclude themselves from the site to prevent further gambling on it).

Research using actual gambling data began when one team of researchers affiliated with Harvard University were given access to a large behavioural tracking data set of over 47,000 online gamblers by the Austrian gaming company *bwin*. This has led to many papers examining the actual behaviour of online gamblers based on behavioural tracking data (e.g., Broda, LaPlante, Nelson, LaBrie, Bosworth & Shaffer, 2008; LaBrie, Kaplan, LaPlante, Nelson & Shaffer, 2008; LaBrie, LaPlante, Nelson, Schumann & Shaffer, 2007; LaPlante, Schumann, LaBrie & Shaffer, 2008; LaPlante, Kleschinsky, LaBrie, Nelson & Shaffer, 2009; Xuan & Shaffer, 2009). These data have been used to make claims along the lines that online gambling is no more problematic than offline gambling.

However, comparative statements relating to whether one medium of gambling is more problematic than another can only be made if actual gambling behaviour between modalities is studied across different forms of gambling (e.g., direct comparison of internet gambling with land-based casino gambling among the same individuals). None of the various publications by the Harvard-affiliated research team have empirically compared different forms of gambling. Nor have they examined 'problem gambling' as no problem gambling screens were given to any online gambler included in their studies. Therefore, conclusions about the harmfulness of online gambling in comparison to other forms of gambling cannot be drawn from these particular studies using these types of behavioural tracking data. Furthermore, none of the publications focusing on online gambling examine overall gambling behaviour. All the publications have tended to examine a single type of game (e.g., sports betting, casino games, poker).

Behavioural tracking has also been used in other innovative ways. For instance, Leino et al. (2015) used online behavioral tracking data from Norwegian video lottery terminal (VLT) players (N=31,109) who had gambled in January 2010. The results show that the number of bets made was positively associated with payback percentage, win frequency, being female and age, and negatively associated with size of wins and range of available betting options. In summary, the results show that the reward characteristics and betting options explained 27 % and 15 % of the variance in the number of bets made, respectively. The same team also used Norwegian gambler tracking data to compare the relationship between gambling behavior in alcohol-serving venues (ASVs) and non-alcohol serving venues (NASVs) over a one-month period (N=726). Findings showed that gamblers appeared to be more willing to take more risk and spend more money in ASVs compared to NASVs.

Studies by Auer and Griffiths (2014b; 2015c) used tracking data to develop a stable and reliable measure for 'gambling intensity' called 'theoretical loss' (a product of total bet size multiplied by house advantage). Even for single bets, the theoretical loss reflects the amount a player is willing to risk. Using behavioural tracking data of 100,000 players who played online casino, lottery and poker games, the study demonstrated that bet size does not equate to or explain theoretical loss as it does not take into account the house advantage. This lack of accuracy was shown to be even more pronounced for gamblers who play a variety of games.

Other studies have used tracking data to demonstrate that what money individuals say they have spent gambling is different from their actual gambling behaviour with all studies showing that the more someone gambles, the less reliable they are about estimating what they have financially spent gambling (Auer & Griffiths, 2017a; Braverman et al., 2014; Wohl, Davis & Hollingshead, 2017). For instance, Auer and Griffiths compared the self-reported gambling expenditure data of 1335 Norwegian gamblers with their actual gambling account data (supplied by the Government-owned gambling operator *Norsk Tipping*). The study found that the estimated loss self-reported by gamblers was correlated with the actual objective loss but that players with higher losses tended to have more difficulty estimating their gambling expenditure (i.e., players who spent more money gambling also appeared to have more trouble estimating their expenses accurately).

Braverman et al. (2013) used tracking data to develop behavioral markers that operators that predict the development of gambling-related problems (N=4,056 online gamblers who played with *bwin.party*). Using daily aggregated online betting transactions

over a one-month period, they identified two subgroup of high-risk online gamblers that were different from the rest of the sample. The first group engaged in three or more gambling activities and displayed high betting variability on casino-type games. The second group engaged in two different gambling activities and displayed high betting variability on live action sports events. Similar studies by the same research team have used tracking data to identify other behavioural markers of high-risk online gambling (Braverman & Shaffer, 2012; Gray et al., 2012), while others have used tracking data to demonstrate that online gamblers who self-exclude display different characteristics than those that do not (Dragicevic et al., 2015).

Auer and Griffiths (2017b) used tracking data to test classic psychological theory in the form of cognitive dissonance (Auer & Griffiths, 2017b). The argued that providing personalized feedback about the amount of money that gamblers had actually spent may – in some cases – result in cognitive dissonance due to the mismatch between what gamblers actually spent and what they thought they had spent. Using a participant sample (N=11,829) drawn from Norwegian gamblers that had played at the *Norsk Tipping* online gambling website, players were told that they could retrieve personalized information about the amount of money they had lost over the previous six-month period. Out of the 11,829 players, 4,045 players accessed this information and were asked whether they thought the amount they lost gambling was (i) more than expected, (ii) about as much as expected, or (iii) less than expected. Auer and Griffiths hypothesized that players who claimed that the amount of money lost gambling was more than they had expected were more likely to experience a state of cognitive dissonance and would attempt to reduce their gambling expenditure more than other players who claimed that the amount of money lost was as much as they expected. Overall, the results contradicted the hypothesis because players without any cognitive dissonance decreased their gambling expenditure more than players experiencing cognitive dissonance. However, a more detailed analysis of the tracking data supported the hypothesis because specific playing patterns of six different types of gambler using a learning tree algorithm explained the paradoxical overall result.

Behavioural Tracking Tools

Over the past few decades, innovative social responsibility tools that track player behaviour with the aim of preventing problem gambling have been developed including *PlayScan* – developed by the Swedish gaming company *Svenska Spel*, *Observer* – developed by Israeli gaming company *888.com* and *mentor* – developed by *neccton Ltd* (Griffiths, Wood,

Parke & Parke, 2007; Griffiths, Wood & Parke, 2009). These tracking tools are providing insights about problematic gambling behaviour that in turn may lead to new avenues for future research in the area. The companies who have developed these tools claim that they can detect problematic gambling behaviour through analysis of behavioural tracking data (Delfabbro et al., 2012; Griffiths, Wood & Parke, 2009). If problem gambling can be detected online via observational tracking data, it suggests that there are identifiable behaviours associated with online problem gambling. Given that almost all of the current validated problem gambling screens diagnose problem gambling based on many of the consequences of problem gambling (e.g., compromising job, education, hobbies and/or relationship because of gambling; committing criminal acts to fund gambling behaviour; lying to family and friends about the extent of gambling), behavioural tracking data appears to suggest that problem gambling can be identified without the need to assess the negative psychosocial consequences of problem gambling.

Behavioural tracking tools generally use a combination of behavioural science, psychology, mathematics, and artificial intelligence. Some tools (such as *PlayScan*) claim to detect players at risk of developing gambling problems, and offer the gamblers ways to help change their behaviour (e.g., tools that help gamblers set time and money limits on what they are prepared to lose over predetermined time periods) – although it should be noted that these claims have not been verified because the developers of these commercial products have not published their internal research in externally peer-reviewed journals. Unlike the conventional purpose of customer databases (i.e., to increase sales), the objective of these new tools is the opposite. They are designed to detect and help those who would benefit from playing less. Such tools have been compared to a safety belt (i.e., something you use without intending to actually make use of). The use of these systems is voluntary, but the gaming operator strongly recommends its customers to use it (Griffiths et al., 2009). These tools use many parameters of the player's behaviour from the preceding year that is then matched against a model based on behavioural characteristics for problem players. If it predicts players' behaviour as risky they get an advance warning together with advice on how they can change their patterns in order to avoid future unhealthy and/or risky gambling. Behavioural tracking data can also be used to evaluate whether the tools and advice given to gamblers can actually change (i.e., reduce) potentially problematic behaviour. These studies are briefly reviewed in the next section.

Evaluation of Responsible Gambling Tools Using Tracking Data

Responsible gambling tools (e.g., limit-setting tools, pop-up messages, personalized feedback, temporary self-exclusions) are a way of facilitating players to gamble in a more responsible manner (Harris & Griffiths, 2017). However, very few of these tools have been evaluated empirically in real gambling environments. Broda et al. (2008) examined the effects of player deposit limits on Internet sports betting by customers of *bwin Interactive Entertainment*. Their study examined 47,000 subscribers to *bwin* over a period of two years and compared the behaviour of players who tried to exceed their deposit limit with all other players. Deposit limit referred to the amount of money deposited into a player's spend account excluding any accumulated winnings. At the time of initial data collection in 2005, *bwin* set a mandatory deposit limit of no more than €1000 per day or €5000 per 30 days. Players could also set their own deposit limits (per 30 days) below the mandatory limits. Overall, the study found that less than 1% of the players (0.3%) attempted to exceed their deposit limit. However, Wood and Griffiths (2010) argued that the large mandatory limit may be the main reason for this finding as LaPlante et al. (2008) noted that the majority of online gamblers never reached the maximum deposit limit. In fact, 95% of the players never deposited more than €1050 per 30 days (i.e., one-fifth of the €5000 maximum). Furthermore, LaPlante and colleagues did not distinguish between those who attempted to exceed either their own personally set deposit limits or mandatory limits. Using the same dataset, Nelson et al. (2008) examined online gamblers that voluntarily set limits on the *bwin* gambling website over an 18-month period. A total of 567 online gamblers (out of more than 47,000) used the voluntary limit-setting feature and the findings demonstrated that limit-setting gamblers bet more heavily and played a wider variety of games prior to setting limits. After setting voluntary limits, these online gamblers reduced their gambling activity, but not the amount wagered per bet.

A study by Auer and Griffiths (2013a) used behavioural tracking data to evaluate whether the setting of voluntary time and money limits helped players who gambled the most (i.e., the most gambling intense individuals using 'theoretical loss' [Auer et al., 2012; Auer & Griffiths, 2014a]). Data were collected from a representative random sample of 100,000 online players who gambled on the *win2day* gambling website during a three-month test period. This sample comprised 5,000 registered gamblers who chose to set themselves limits while playing on *win2day*. During the registration process, there was a mandatory requirement for all players to set time and cash-in limits. For instance, the player could limit the daily, weekly and/or monthly cash-in amount and the playing duration. The latter could be limited per playing session and/or per day. In the three-month test period,

all voluntary limit setting behaviour by online gamblers was tracked and recorded for subsequent data analysis. Changes in gambling behaviour were analysed overall and separately for casino, lottery and poker gambling.

The results of this study clearly showed that voluntary limit setting had a specific and statistically significant effect on high intensity gamblers (i.e., voluntary limit setting had the largest effect on the most gaming intense players). More specifically, the analysis showed that (in general) gaming intense players specifically changed their behaviour in a positive way after they limited themselves with respect to both time and money spent. Voluntary spending limits had the highest significant effect on subsequent monetary spending among casino and lottery gamblers. Monetary spending among poker players significantly decreased after setting a voluntary time limit. Studies such as this highlight the advantageous way in which behavioural tracking methodologies can be used to provide results and insights that would be highly difficult to show using other more traditional methodologies, and no control groups are needed in studies that compare groups that are differentiated by gambling intensity and/or gambling type.

Auer, Malischnig and Griffiths (2014) investigated the effect of a pop-up message that appeared after 1,000 consecutive online slot machine games had been played by individuals during a single gambling session (i.e., *"You have now played 1,000 slot games. Do you want to continue? [YES/NO]"*). The study analysed 800,000 gambling sessions (400,000 sessions before the pop-up had been introduced and 200,000 after the pop-up had been introduced comprising around 50,000 online gamblers). The study found that the pop-up message had a limited effect on a small percentage of players. More specifically, prior to the pop-up message being introduced, five gamblers ceased playing after 1,000 consecutive spins of the online slot machine within a single playing session (out of approximately 10,000 playing sessions). Following the introduction of the pop-up message, 45 gamblers ceased playing after 1,000 consecutive spins (i.e., a nine-fold increase in session cessations). In the latter case, the number of gamblers ceasing play was less than 1% of the gamblers who played 1,000 games consecutively.

In a follow-up study, Auer and Griffiths (2015a) argued that the original pop-up message was very basic and that re-designing the message using normative feedback and self-appraisal feedback may increase the efficacy of gamblers ceasing play. The new enhanced pop-up message read: "*We would like to inform you, that you have just played 1,000 slot games. Only a few people play more than 1,000 slot games. The chance of winning does not increase with*

the duration of the session. Taking a break often helps, and you can choose the duration of the break"[1]. The reasoning behind the messaging is as follows:

- *"We would like to inform you, that you have just played 1,000 slot games":* This part of the message objectively informs players about the behaviour they engaged in.
- *"Only a few people play more than 1,000 slot games":* This part of the message provides normative feedback that very few other gamblers play 1000 consecutive slots games.
- *"The chance of winning does not increase with the duration of the session":* This part of the message addresses a common misbelief among gamblers (i.e., the gamblers' fallacy).
- *"Taking a break often helps, and you can choose the duration of the break":* This part of the message provides advice (to aid self-efficacy) and leaves the decision up to the player and is in line with the techniques of motivational interviewing (Miller & Rollnick, 1991)

As in the previous study, the new enhanced pop-up message that appeared within a single session after a gambler had played 1,000 consecutive slot games. In the follow-up study, Auer and Griffiths (2015) examined 1.6 million playing sessions comprising two conditions (i.e., simple pop-up message [800,000 slot machine sessions] versus an enhanced pop-up message [800,000 slot machine sessions]) with approximately 70,000 online gamblers. The study found that the message with enhanced content more than doubled the number of players who ceased playing (1.39% who received the enhanced pop-up compared to 0.67% who received the simple pop-up). However, as in Auer et al.'s (2014) previous study, the enhanced pop-up only influenced a small number of gamblers to cease playing after a long continuous playing session.

Auer and Griffiths (2016) in a study of the efficacy of personalised feedback, examined whether the use of three types of information (i.e., personalized feedback, normative feedback, and/or a recommendation) could enable players to gamble more responsibly as assessed using three measures of gambling behaviour, i.e., theoretical loss, amount of money wagered, and gross gaming revenue (i.e., net win/loss). By manipulating the three forms of information, data from six different groups of players were analysed. The participant sample drawn from the population were those that had played at least one game for money on the *Norsk Tipping* online platform (*Instaspill*) during April 2015. A total

of 17,452 players were randomly selected from 69,631 players that fulfilled the selection criteria. Gambling activity among the control group (who received no personalized feedback, normative feedback or no recommendation) was also compared with the other five groups that received information of some kind (personalized feedback, normative feedback and/or a recommendation). Compared to the control group, all groups that received some kind of messaging significantly reduced their gambling behaviour as assessed by theoretical loss, amount of money wagered, and gross gaming revenue. The results supported the hypothesis that personalized behavioural feedback can enable behavioural change in gambling. However, normative feedback did not appear change behaviour significantly more than personalized feedback (although the effect sizes was not reported).

Forsström, Hesser and Carlbring (2016) carried out a study on the use of the behavioural tracking tool *PlayScan*. The data from a total of 9,528 players who voluntarily used the system were analysed. They found that the initial usage of the tool was high, but that repeated usage was low. Two groups of users – 'self-testers' (those who made use of the self-diagnostic problem gambling test) and 'multi-function users (those who used two or more of the responsible gambling tools in the *PlayScan* tool portfolio) – utilized the tool to a much greater extent than other groups. However, the study did not analyse changes in behaviour as a consequence of using the tool.

Wood and Wohl (2015) obtained data from 779 *Svenska Spel* online players who received behavioural feedback using *PlayScan*. Feedback to players took the form of a 'traffic-light' risk rating that was created via a proprietary algorithm (red=problematic gambling, yellow=at-risk gambling, and green=no gambling issues). In addition, expenditure data (i.e., amounts deposited and gambled) were collected at three time points:) the week of *PlayScan* enrolment, the week following *PlayScan* enrolment, and 24 weeks after *PlayScan* enrolment. The findings indicated that those players at-risk (yellow gamblers) who used *PlayScan* significantly reduced the amounts of money both deposited and gambled compared to those who did not use *PlayScan*. This effect was also found the week following *PlayScan* enrolment as well as the 24-week mark. Overall, the authors concluded that informing at-risk gamblers about their gambling behaviour appeared to have a desired impact on their subsequent monetary spending (although the effect sizes using eta partial squared were generally small).

Conclusions

This chapter highlighted that when it comes to studying online gambling behaviour, behavioural tracking methodologies offer a number of advantages for researchers. However, it should also be noted that there are a number of disadvantages of using tracking data only when compared to other more traditional research methods (i.e., surveys), and that no single methodology is better than another in the collection of data concerning online gamblers. However, when evaluating the results of studies that make statements about whether one medium of gambling is more problematic to gamblers than another, the inherent strengths and weaknesses of the methodology used must be taken into consideration. In relation to the efficacy of online responsible gambling tools, there are some types of study (e.g., the evaluation of whether social responsibility tools actually have an effect on subsequent player behaviour) where behavioural tracking methodologies appear to be the only reliable way of collecting data to show that specific interventions have a direct effect on player behaviour. Findings to date suggest that limit setting and personalised feedback appear to be responsible gambling tools with high efficacy but that further replication studies are needed. The studies evaluating pop-up messaging are far from conclusive and suggest that on their own, pop-up messages only help a very small percentage of within-session intense gamblers.

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