

## **Personalised feedback in the promotion of responsible gambling: A brief overview**

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### **Abstract**

Research into gambling has shown that irrational gambling-related cognitions linked to randomness and probabilities contribute to the initiation and maintenance of problematic gambling. A small body of empirical research has shown that educational programs about erroneous beliefs in gambling can successfully help change such cognitions. Studies have also shown that the way information is presented to players is significant. This paper briefly reviews the literature on personalised behavioural feedback on gambling behaviour and evaluates the extent to which players gamble more responsibly as a result. This type of feedback has also been studied in many other areas outside of the gambling area (e.g., cigarette smoking). Research into personalised feedback from these related areas suggest that behavioural feedback could also work in promoting responsible gambling. These personalization approaches aim to change a person's behaviour via behavioural feedback. Such approaches are based on both the 'stages of change' model and motivational interviewing. It is concluded that in order to change people's gambling behaviour using behavioural tracking data, personalised player feedback should be presented in a tailored, non-judgmental, and motivational way to increase the likelihood that players will gamble more responsibly.

**Keywords** Responsible gambling, Personalized feedback, Behavioral tracking, Corporate social responsibility, Problem gambling

### **Introduction**

The last decade has seen a significant expansion in remote gambling via the Internet, mobile phones, and interactive television (Griffiths, Wardle, et al, 2009; Kuss & Griffiths, 2012; Wardle, Moody, et al, 2011). Gambling remotely has raised concerns that vulnerable and susceptible individuals (e.g., adolescents, at-risk gamblers, the intoxicated) may be at increased risk of developing problems because of the differences in structural and situational characteristics between online and offline gambling environments (McCormack & Griffiths, 2013) such as increased accessibility, anonymity, affordability, convenience, etc. (Griffiths, 2003). One of the early concerns raised in relation to remote gambling was that gambling operators had complete access to a player's gambling behaviour and that there was the potential to exploit the heaviest spending players (some of

whom were likely to be problem gamblers) (Griffiths & Parke, 2002). More recently, many researchers in the gambling studies field have argued that such behavioural tracking data can be used to help (rather than exploit) players (Auer & Griffiths, 2013; Griffiths, Wood & Parke, 2009).

Alongside these technological developments, research into the cognitive psychology of gambling has shown that irrational gambling-related cognitions and misunderstandings linked to randomness and probabilities represent some of the key components contributing to the initiation and maintenance of problematic gambling in general, and electronic gaming machines in particular (e.g., Blaszczynski & Nower, 2002; Coulombe, Ladouceur, Deshairnais, & Jobin, 1992; Gaboury & Ladouceur, 1989; Griffiths, 1994; Haroon, Baboushkin, Derevensky & Gupta, 2001; McCusker & Gettings, 1997; Parke, Griffiths & Parke, 2007; Sharpe, 2002; Walker, 1992). More importantly it has been shown that problematic gambling behaviour can be decreased in response to cognitive-behavioural therapy (Echeburua, Baez, & Fernades-Montalvo, 1996; Ladouceur et al., 2001; 2003) and other cognitive interventions (Toneatto & Sobell, 1990). As a consequence, some organizations<sup>1,2</sup> and gaming operators are beginning to offer players information about common gambling myths and erroneous beliefs. Furthermore players can now access general advice on healthy and responsible gambling<sup>3</sup>. However, research findings on the effectiveness of player information in correcting or changing irrational beliefs have been mixed. Some of these results suggest that informing players about the independence of chance events and about illusion of control features can help players gamble more responsibly (e.g., Dixon, 2000; Ladouceur & Sevigny, 2003) while other studies have failed to find significant effects (e.g., Hing 2003; Focal Research, 2004; Williams & Connolly, 2006).

A small body of empirical research has shown that educational programs about erroneous beliefs can successfully help change the targeted cognitions (e.g., Wohl et al., 2010; Wulfert et al., 2006). For instance, Wohl et al. (2010) developed an animation-based educational video regarding the function of slot machines<sup>2</sup>. Their results demonstrated that the animation was effective in promoting responsible play as demonstrated by those viewing the video staying within their pre-set limits. The study also showed that animated educational information on slot machines can be an effective way to increase user adherence to preset limits

Studies have also shown that the way information is presented is significant. Several studies have investigated the effects of interactive pop-up messages during gambling sessions. Static messages do not appear to be as effective, whereas interactive pop-up messages and animated information can change both irrational belief patterns and behaviour (e.g., Cloutier, Ladouceur, & Sevigny, 2006; Ladouceur & Sevigny, 2003; Schellink & Schrans, 2002; Monaghan & Blaszczynski, 2007 & 2010; Monaghan, Blaszczynski & Nower, 2009). Stewart and Wohl (2013) reported that participants who received a monetary limit pop-up reminder were significantly more likely to adhere to monetary limits than participants who did not. Wohl, Gainsbury, Stewart and Sztainert (2013) examined two responsible gambling tools that targeted adherence to monetary limits among 72 electronic gaming machine (EGM) players. These tools comprised an animation-based educational video (used previously by Wohl et al., 2010) and a pop-up message. Consistent with previous findings, both responsible gaming tools achieved the effects they were intended to do. More

specifically, the findings showed that a pop-up limit reminders helped players stay within their pre-determined monetary limits. Another recent study by Munoz, Chebat and Borges (2013) demonstrated that graphic warning signs were more effective than text-only warnings.

Delfabbro (2004) claims that people's behaviour can be a direct result of how people think cognitively. Therefore, correcting people's thinking and misbeliefs may lead to a desired behavioural change. Delfabbro also suggests that changing the way an individual thinks should be done in a preventive manner before such gambling misbeliefs can emerge. Strategies that support players in better controlling their own behaviour are typically viewed as pre-commitment strategies. Pre-commitment options include such actions as voluntarily limiting gambling time and/or money spent. A review by Ladouceur et al. (2012) found that studies using self-report data suggest that the majority of players are positively predisposed toward the concept of pre-commitment but that non-problem players and low-risk players regarded such initiatives as personally unnecessary. Overall, the studies reported variable findings relating to adherence to time and money limits. Additionally, few players appeared to use the available responsible gambling tools to set time limits. Since that review was published, Auer and Griffiths (2013) have used behavioural tracking data to examine the effectiveness of voluntary limit setting by tracking player behaviour after time and/or money limits were chosen. The results of their study demonstrated that voluntary limit setting had a specific and significant effect on the players that needed it most (i.e., the most 'gaming intense' players).

Auer, Malischnig and Griffiths (in press) also investigated the effects of an online slot machine pop-up message in a real gambling environment by comparing the behavioural tracking data of two representative random samples of 400,000 gambling sessions before and after the pop-up message was introduced (comprising around 200,000 players in total). The pop-up message simply informed players that they had played 1,000 consecutive games and asked whether they would like to continue playing. The results indicated that nine times more players ( $n = 45$ ) ceased their gambling session following the viewing of a pop-up message after 1,000 consecutive gambles on an online slot machine game compared to those who had not viewed a pop-up message ( $n = 5$ ). This study suggests that pop-up messages can influence a small number of players to cease their playing session and that pop-ups appear to be another potentially helpful social responsibility tool in reducing excessive play within session.

### **Personalised behavioural feedback in non-gambling contexts**

Personalised behavioural feedback (i.e., feedback based on an individual's own actual behaviour rather than the same generic feedback given to all individuals) has been studied in many other areas outside of the gambling area (e.g., cigarette smoking). For instance, Stotts et al. (2009) found that motivational interviewing along with ultrasound feedback was effective in helping pregnant light smokers stop their cigarette smoking. Obermayer et al. (2004) targeted college students using integrated Internet and mobile phone technologies to deliver a smoking-cessation intervention. Their findings provided support for using wireless text messages to deliver potentially effective smoking-cessation behavioural interventions to this particular group of people.

Cho et al. (2009) studied the effects of personalised behavioural feedback in the management of Type 2 diabetes. Here, diabetes Type 2 patients used mobile phones that automatically measured glucose levels and transferred this information to the Internet. The authors found that web-based charts displaying individual data and personalised feedback in the form of text messages were effective in decreasing the glucose level in diabetes sufferers. A similar study by Farmer et al. (2005) described a real time system for Type 1 diabetes patients. Their telemedicine system collected real-time information about glucose level as well as information regarding insulin dose, eating patterns, and physical exercise. The system gave verbal and illustrated feedback so that patients could better keep track and control their glucose level. The feedback led to regular maintenance of blood glucose level and an increased number of patients met their predetermined targets.

Another area where behavioural feedback has been investigated is in the area of sports and fitness. Buttussi et al. (2006) investigated the use of mobile phone guides in fitness activities using a Mobile Personal Trainer (MOPET) application. The mobile app gave verbal navigation assistance and also used a 3D-animated motivator. Evaluation of the results supported the use of mobile apps and embodied virtual trainers in outdoor fitness applications. Colkesen et al. (2013) studied primary prevention of cardiovascular disease (CVD) by means of web-based Health Risk Assessment (HRA) with tailored feedback for individual health promotion. Subjects were employees who participated in a web-based HRA including tailored feedback by their employer. Primary outcomes were the changes relative to baseline in proportions meeting recommendations for physical activity, fruit and vegetable intake, smoking and alcohol consumption. Web-based HRA programs with tailored feedback could help employers to enhance employee physical activity.

A study by Chambliss' et al. (2011) focused on developing and evaluating a 12-week weight management intervention involving computerised self-monitoring and technology-assisted feedback with and without an enhanced behavioural component. They found that using computerised self-monitoring, technology-assisted feedback, and monthly measurement visits produced significant weight loss after 12 weeks. These examples from related areas suggest that behavioural feedback could also work in promoting responsible gambling given that it worked in areas such as smoking cessation, health care or energy consumption. Such approaches could help players to change their gambling habits, play more responsibly, and facilitate harm minimization.

### **Future directions of personalised feedback in promoting responsible gambling**

Over the last few years a number of gaming companies and technology software companies have begun to develop behavioural tracking tools for responsible gambling purposes (e.g., *PlayScan*, *mentor*, *Bet Buddy*, etc.). We are currently conducting a study that aims to investigate the effects of behavioural feedback presented in an online gambling context using one of these tools (i.e., *mentor*). Consistent with findings from other non-gambling areas, the behavioural feedback given to players is presented within the framework of motivational interviewing. We believe that players receiving tailored feedback about their online gambling behaviour are more likely to change their

behaviour (as measured by the amount of time and money spent) compared to those who do not receive tailored feedback.

We have just carried out an – as yet – unpublished study examining the effect of personalised feedback on player behaviour. This study investigated the behavioural change in 279 online gamblers that received personalised feedback after they had signed up to a voluntary service (i.e., *mentor*) at a European online gaming website. Those signing up to use the personalised feedback system were compared with 65,423 matched controls. The preliminary results of our study show that personalised behavioural feedback within a motivational framework appears to be an effective way of changing gambling behaviour in a positive way (i.e., players significantly reduced the amount of time and/or money they spent gambling after receiving personalised feedback). For instance, if a player significantly increases the amount of money they have deposited over a half-year time period, they received the following message: *“Over the last 6 months the amount of money deposited into your account has increased. Are you spending more money than you intended? You can check the amount you have spent gambling on your account page and use our helpful tools to set a daily/weekly/monthly limit.”*

The example presented above clearly shows that the messages are non-confrontational, personal, and motivational. Additionally, the often emphasised interactive aspect (Wohl et al., 2013) was taken into account through the use of a pop-up window that was built into the operator’s gambling site. Figure 1 shows how players experience the informational content in the *mentor* system. In order to receive the information, players click on a button at the gaming operator’s website and receive the pop-up window shown in Figure 1. Behavioural information is retrieved through the ‘message’ icon and each message can be read in detail after clicking on it.

The personalization approaches outlined above (both inside and outside of the gambling studies field) aim to change a person’s behaviour via behavioural feedback. Such approaches are based on both the ‘Stages of Change’ model (Prochaska & DiClemente, 1983; Prochaska & Prochaska, 1991) and motivational interviewing (Miller & Rollnick, 1991). He et al. (2010) specifically emphasised the importance of tailored information. In their study they synthesised a wide range of motivational psychology literature to develop a motivational framework based on the Transtheoretical (i.e., Stages of Behaviour Change) Model, which states that individuals attempting to change their behaviour in some way go through a series of stages (i.e., pre-contemplation, contemplation, preparation, action, maintenance, and relapse). For each stage, they stated the motivational goal(s), and recommendation(s) as to how technologies can motivate sustainable energy usage behaviours by people.

Obviously, the *mentor* personalised feedback system has no way of knowing what stage a person may be in but almost all the system’s messages comprise two statements that attempt to map on to particular stages. The first part of the personalised statement provides a factual summary relating to a specific increase in gambling behaviour (e.g., more money spent gambling). This is designed for those in a pre-contemplative stage to move towards contemplation (of considering changing their behaviour in some way). The second part of the message provides access to tools that facilitate preparation and action (and ultimately maintenance) of changing behaviour. Additionally, the automated system gently reminds players after a period of time if their gambling



behaviour did not change as a consequence of a previously sent message. This closed-loop process that iterates between player tracking, player messaging, player monitoring, and enabling behavioural change is an attempt to map the theoretical concept of the stages of change model as closely as possible.

## Conclusions

Online gambling operators have the technical capabilities to introduce behavioural feedback systems that can enable responsible gambling. The preliminary results presented in this paper appear to show that the desired effect of helping players sensibly limit the amount of time and money spent gambling can be achieved. Future research should investigate personalised behavioural feedback in more detail in order to better determine which player attributes correlate with positive behavioural changes and whether there are interactions with other variables, such as types of games played or the intensity of gambling. Furthermore, research should focus on investigating message content and at which point in time players should receive messages to optimise behavioural change. Ultimately, in order to change people's gambling behaviour using behavioural tracking data (and based on the empirical literature to date), we would argue that player feedback should be presented in a tailored, non-judgmental, and motivational way, to increase the likelihood that players will gamble more responsibly.

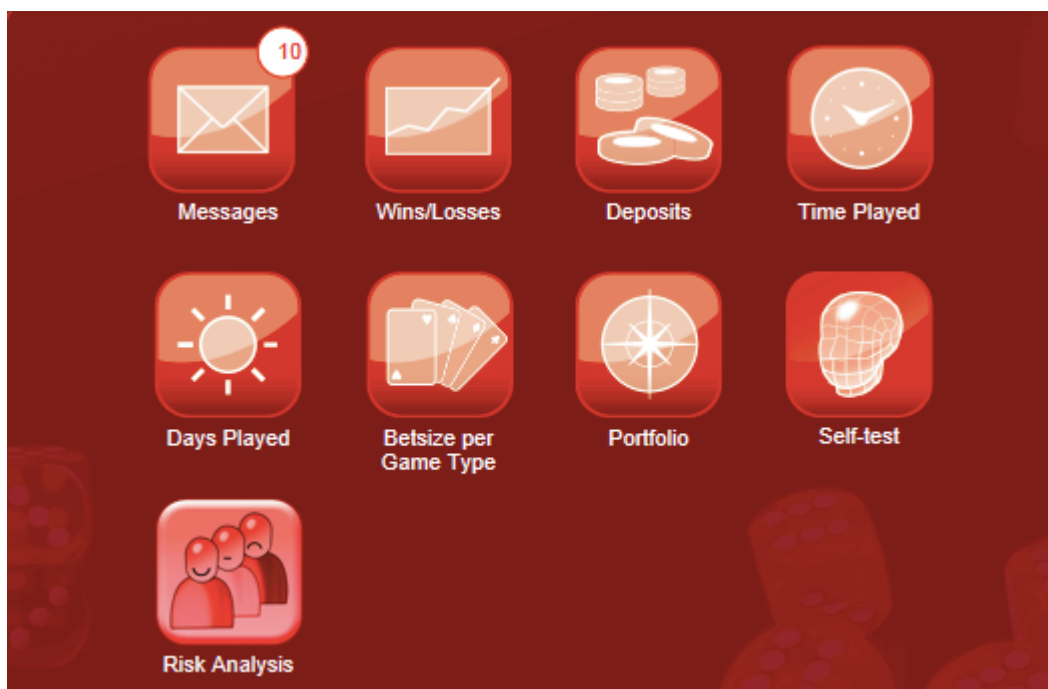


Figure 1: Player Front End from Player Perspective

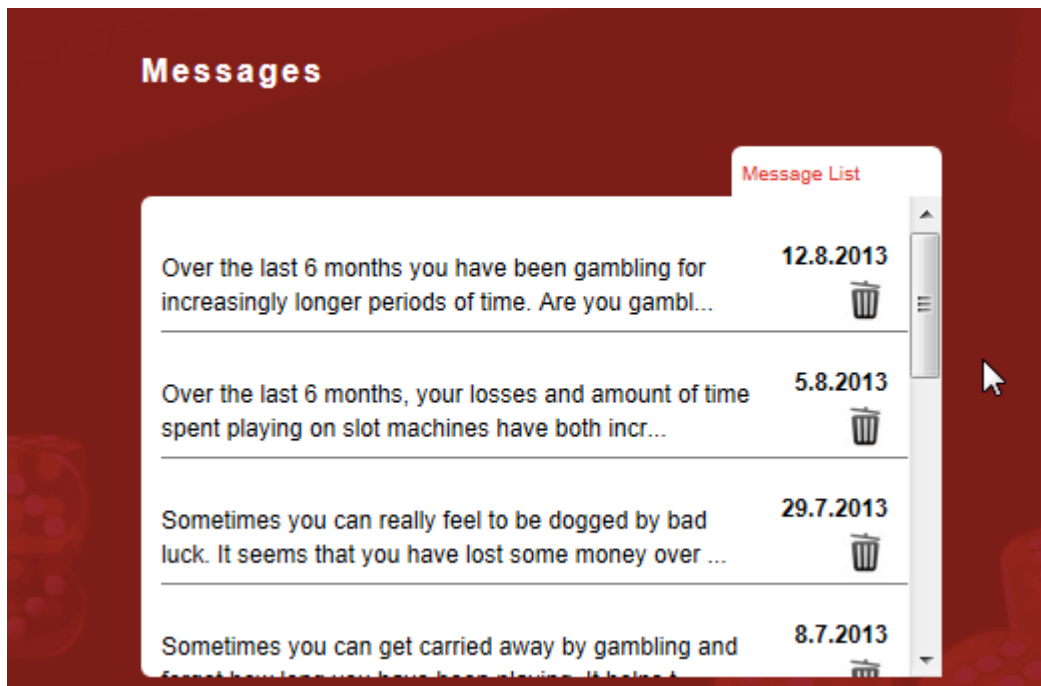


Figure 2: Example of Messaging System from Player Perspective

## Footnotes

<sup>1</sup> <http://www.responsiblegambling.org/en/help/myths.cfm>

<sup>2</sup> <http://www.youtube.com/watch?v=RRlqfAitaoQ>

<sup>3</sup> <http://www.problemgambling.ca/EN/Documents/WinningWaysToKeepGamblingSafe.pdf>

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