

## Is “pop-up” messaging in online slot machine gambling effective as a responsible gambling strategy?

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### Abstract

Certain gambling operators now provide social responsibility tools to help players gamble more responsibly. One such innovation is the use of pop-up messages that aim to give feedback to the players about the time and money they have thus far spent gambling. Most studies of this innovation have been conducted in laboratory settings, and although controlled studies are indeed more reliable than real-world studies, the non-ecological validity of laboratory studies is still an issue. This study investigated the effects of a 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. The study comprised approximately 200,000 gamblers. The results indicated that, following the viewing of a pop-up message after 1000 consecutive gambles on an online slot machine game, nine times more gamblers ceased their gambling session than did those gamblers who had not viewed the message. The data suggest that pop-up messages can influence a small number of gamblers to cease their playing session, and that pop-ups appear to be another potentially helpful social responsibility tool in reducing excessive play within session.

### Résumé

Certains opérateurs de jeu proposent aujourd’hui des ressources visant à inciter les usagers à jouer de façon plus responsable. Parmi les innovations, on compte les messages flash destinés à indiquer le temps passé à jouer ou l’argent qu’on a dépensé. La plupart des recherches sur le sujet ont été réalisées en laboratoire; même si elles sont plus fiables que les études menées sur le terrain, leur validité écologique reste à déterminer. Nous avons étudié l’effet d’un message flash sur une machine à sous dans un environnement de jeu réel. Nous avons comparé les données sur le comportement recueillies avant et après l’apparition du message à l’écran, auprès de deux échantillons représentatifs aléatoires totalisant 400 000 séances de jeu (environ

200 000 joueurs). Les joueurs qui ont vu un message apparaître au bout de 1000 jeux consécutifs sur une machine à sous en ligne ont été neuf fois plus nombreux à interrompre leur séance de jeu par rapport à ceux qui n'en ont pas reçu. D'après ces résultats, les messages flash inciteraient un petit nombre de joueurs à mettre fin à leur séance de jeu. Ils pourraient ainsi constituer un autre moyen de responsabilisation utile pour réduire le jeu excessif à l'intérieur d'une même séance.

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## Introduction

Innovative interactive gambling technologies now provide socially responsible opportunities to support players and to help them control the amount and time and money they spend gambling (Auer & Griffiths, 2013; Griffiths, 2012; Griffiths, Wood, & Parke, 2009). One such innovation is the use of pop-up messages that aim to give feedback to the players about the time and money that they have thus far spent gambling. Doing so allows players to reflect on their immediate gambling and decide if they need a break from their play. However, the question remains as to whether pop-up messages do in fact bring about a substantial effect on gambling behaviour and whether they indeed help players control their gambling.

Slot machine games are associated with problem gambling and are considered potentially dangerous for vulnerable and susceptible players such as minors, problem gamblers, and the intoxicated. Slots players can experience erroneous perceptions of their immediate situation and become dissociated from their immediate actions (Griffiths, Wood, J. Parke, & A. Parke, 2006; Jacobs, 1988). This abandonment of self-control leading to a state of disassociation may lead in turn to those excessive playing sessions that have already been observed in both real-life settings (e.g., Griffiths, 1991) and ecologically valid experiments (e.g., Griffiths, 1994).

Among slot machine players, studies have reported that static informative messages were no more effective in influencing player cognitions than were static warning signs without further informative content (i.e., Monaghan, Blaszczynski, & Nower, 2009; Monaghan & Blaszczynski, 2010). These studies also reported that dynamic messages were recalled more often than were static messages, and that messages encouraging self-appraisal resulted in significantly greater effect on self-reported thoughts and behaviours during gambling. Thus, message content and how that content is displayed both appear to play critical roles in subsequent player behaviour.

Gallagher, Nicki, Otteson, and Elliott (2011) reported that faulty gambling beliefs decreased, in both problem and non-problem video lottery terminal (VLT) gambling gamblers, as a result of exposure to a warning banner. This banner informed players

of the randomness of outcomes of VLT games. Wohl, Christie, Matheson, and Anisman (2010) showed that animated educational information on slot machines can be an effective way to increase user adherence to maintain predetermined monetary spending limits. Stewart and Wohl (2013) demonstrated 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 (in press) simultaneously investigated two responsible gambling tools that targeted adherence to monetary limits among 72 electronic gaming machine (EGM) gamblers. Those tools comprised an animation-based educational video (used previously by Wohl et al., 2010) and a pop-up message. To investigate the effect of the pop-up window, gamblers were required to set a monetary limit on their gambling; half the participants were informed via a pop-up message when they had reached their limit. The goal of the study was to investigate both the single and additive effects in addition to possible linear or non-linear interactions. Consistent with previous findings, both responsible gaming tools achieved the single effects they were intended to do. More specifically, the findings showed that a pop-up limit reminder helped gamblers stay within their pre-determined monetary limits. However, there was no additive effect, meaning that the adherence to the preset limit did not improve for players who received the pop-up window in addition to the animation-based educational information.

To date, most studies on pop-up messaging have mainly been conducted in laboratory settings, although some research has in fact been conducted in venues (Monaghan, 2008). The present study investigated the effects of a pop-up message among online slot machine players in a real online gambling site. A few studies have obtained data from real-world operators. For instance, Broda et al. (2008) examined the effects of player deposit limits on Internet sports betting from customers of *bwin Interactive Entertainment*. Overall, the study found that fewer 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 have been the main reason for this finding as Broda et al. (2008) noted that the majority of online gamblers never reached the maximum deposit limit. Though not focusing on interactive messaging, Haefeli, Lischer, and Schwarz (2011) also used data from real-world operators. Their focus was on early warning signs for problem gambling and found out that, to some extent, self-exclusion can be predicted by using information about communication between the player and operator. Given the relatively small empirical base on the effectiveness of pop-up messages from real-world data, this study therefore investigated the effects of a slot machine pop-up message in a real gambling environment.

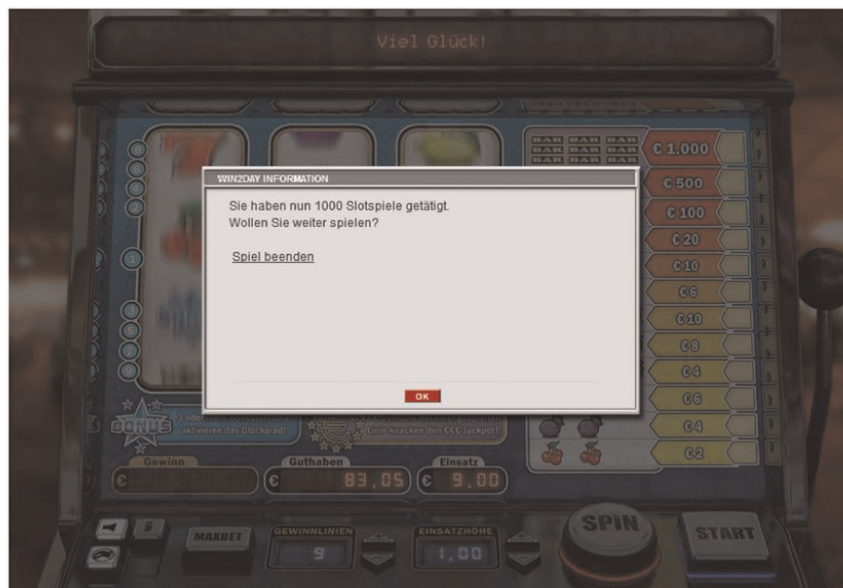
## Method

The authors were given access to a large anonymized dataset by a commercial gambling operator (i.e., *win2day*). *win2day* offers Austrian citizens a wide range of games, among them lottery, casino games, and poker, via the online casino and

lottery portal of *Österreichische Lotterien GmbH* and *Casinos Austria AG*. During the registration process, it is a mandatory requirement that all players set time and cash-in limits. Furthermore, the weekly cash-in limit cannot exceed 800 Euros at any time during and after registration. Following registration, players can voluntarily lower their time and money limits at any time.

In 2011 *win2day* decided to enhance further their responsible gambling features and introduced pop-up messages (see Figure 1) that are triggered if customers play 1,000 consecutive games on slot machines during a single online gambling session. A gambling session at *win2day* is initiated when a player logs into their individual account and terminated if the player logs out or closes their web-browser. The pop-up informs players that they have just played 1,000 slot games within a single gambling session. The exact words on the pop-up are “You have now played 1,000 slot games. Do you want to continue? (YES/NO)”. The chosen threshold was the operator’s decision and the authors did not have any influence on the operator’s pre-set limit. The operator’s reason for choosing a threshold of 1,000 slot games was based on the findings of previous studies (i.e., Ladouceur & Sévigny 2009; Schrans, Grace, & Schellink, 2004). Ladouceur and Sévigny (2009) reported that the most effective social responsibility feature was a 60-minute pop-up reminder, which resulted in a decrease in the length of time spent gambling among players. Schrans, Grace, and Schellink (2004) investigated the benefits of a 30-minute pop-up compared to a 60-minute pop-up on VLTs. Schrans et al. found that earlier exposure to pop-up messages during gambling did not influence either the likelihood of reading the message or the choice to stop playing instead of selecting “yes” to

Figure 1. View of the “pop-up” message that appears after the playing of 1,000 consecutive games on slot machines



continue. A study by Schellink and Schrans (2002; cited in Monaghan, 2008), carried out for the *Atlantic Lottery Corporation* in Canada, demonstrated that the 60-minute pop-up message was associated among high risk players with a small reduction in session length and a decrease in expenditure.

Technically, it was easier for *win2day* to track the number of games played rather than the playing time. Given that a typical slot game lasts 3 to 4 seconds, a 1,000 slot games roughly corresponds to a playing time between 50 and 66 minutes. For that reason, *win2day* chose to display a pop-up message after the playing of 1,000 slot games. Following the message, the player can then decide whether to stop or to continue the session. The pop-up that appears in the centre of the screen (see Figure 1) reminds the player that 1,000 games have been played, and gives the player the option to continue or to stop gambling. The pop-up remains on the screen until the player has pressed “yes” or “no” as to whether he or she wants to continue gambling. If the player presses “yes,” the pop-up message immediately disappears. If the player presses “no,” the game window immediately closes. The size of the pop-up is approximately one-eighth that of the full screen.

To analyze the effect of the recently introduced pop-up message, the authors accessed two representative random samples of 400,000 sessions, one sample each for before and after the pop-up message was introduced. The total dataset consisted of 800,000 game sessions comprising between them approximately 200,000 gamblers. To investigate the effect of the pop-up message on slot machine playing behaviour within single playing sessions, a random sample of 400,000 playing sessions that took place before the introduction of the mandatory pop-up message was compared to 400,000 random sessions after the introduction of the message. It was hypothesized that the introduction of the pop-up message would lead to an increase in gamblers terminating their gambling session after 1000 consecutive plays.

## Results

Results showed that approximately 1% of playing sessions before and after the introduction of the slot pop-up message exceeded 1,000 consecutive slot games within a single gambling session. Results also indicated that players who exceeded 1,000 consecutive plays did so twice (on mean average) during the analyzed time period. Therefore, such behaviour was relatively rare among the players of the *win2day* platform. Without information about the actual intensity of play among this group of gamblers, it can be reliably assumed that a threshold of 1,000 slot games identifies only the most highly involved gamblers.

Of the 400,000 sessions that were sampled before the slot pop-up message was introduced, it was found that 4,220 sessions contained at least 1,000 consecutive plays of the online slot machine. Only five sessions terminated at 1,000 slot games. Of the 400,000 sessions that were sampled following the introduction of the slot pop-up message, 4,205 sessions contained at least 1,000 consecutive plays of the online



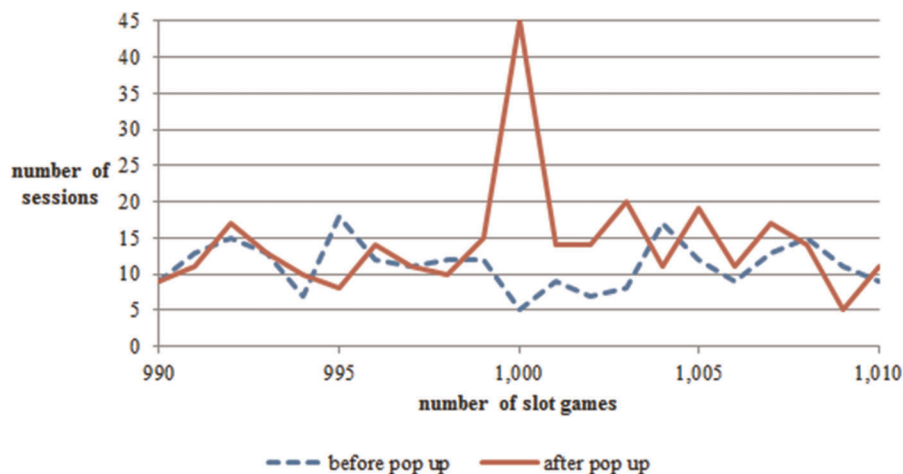
slot machine. Of these, 45 sessions terminated at 1,000 slot games. The sample was too large to conduct inferential statistics. Figure 2 shows the number of sessions ended by players between 990 and 1,010 consecutive slot machine games before and after the introduction of a pop-up warning message. This result clearly shows no differences except at the 1000<sup>th</sup> consecutive game when the pop-message was shown.

### Discussion

To date, relatively few studies have collected empirical data relating to the effectiveness of social responsibility tools. This study adds to the sparse empirical base both generally and, in relation to pop-up messaging, more specifically. Previous research has often comprised laboratory studies to investigate the effects of pop-up messages on behavioural and cognitive processes such as belief patterns or dissociative states. Although such work is valid and important, laboratory study samples are typically much smaller than other methods (e.g., surveys and behavioural tracking studies), and behavioural results in laboratory situations can be distorted by the non-ecological validity of artificial settings. Gainsbury and Blaszczynski (2011) concluded that both laboratory and field studies provide valuable contributions to the field, but also observe that caution should be taken in interpreting results. Where possible, they asserted that both methods should be used to verify conclusions. This real-world study, which utilized a real-world sample of 800,000 game sessions, provided much more ecologically-reliable behavioural information on the effectiveness of pop-up messaging while gambling, and is not subject to the recall bias effects of self-report methods.

It cannot be definitively concluded from this study that it was the pop-up message only that had an impact on gamblers stopping after 1000 consecutive plays of the slots game because we can only infer the number of gamblers who saw this message,

*Figure 2.* Number of sessions ended between 990 and 1,010 slot games before and after the introduction of a pop-up warning message



and did not stop. However, the results obtained appear to show that the introduction of a mandatory pop-up message had an effect in stopping gambling behaviour among a small number of gamblers. More specifically, the results indicated that nine times more gamblers ceased their gambling session, following the viewing of a pop-up message after 1000 consecutive gambles on an online slot machine game, compared to those gamblers who had not viewed a pop-up message. Although the difference was relatively small, it is argued that it was most likely caused by, and was the direct result of, the displaying of a pop-up message after 1000 consecutive plays. The reason for this confidence was that the only peak of that magnitude occurred after the playing of 1,000 consecutive game following the introduction of the pop-up.

There are, of course, major limitations to the data collected. The researchers did not have access to any information about the samples (e.g., age, sex, income, ethnicity, levels of pathology) so it is not known if the two groups differed on any important variables. Another limitation to the study was that it was cross-sectional in design. As such, gamblers were not the same pre- and post- the intervention of the pop-up, and this fact may be a significant limitation for interpretation of the results. Notwithstanding these limitations, the data suggest that pop-up messages can influence a small number of gamblers to cease their playing session, and that pop-ups appear to be another potentially helpful social-responsibility tool in reducing excessive play within session.

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