Effect of pop-up messages as a Responsible Gambling Strategy in Online Gambling

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Submitted: 27 November 2022

Abstract

This paper aims to experiment with different types of pop-up messages in an online gambling game and see their effectiveness as a responsible gambling strategy. The experiment uses three types of pop-ups and analyses the effectiveness based on the players' gambling pattern and their feedback.

Keywords: Responsible Gambling, Pop-up, Nudge Effect

1 Introduction

Gambling continues to be a high revenue industry worldwide [1]. However, this also results in an increasing concern about problem gambling. To mitigate this, multiple institutions are pushing towards the adoption of responsible gambling strategies.One such method is to use a nudge-effect through pop-ups[2]. The user's gameplay is interrupted with a pop-up which gives the opportunity to the user to reconsider whether to continue or quit the game.

This paper aims to experiment with different types of pop-up messages in an online gambling game to see the impact, if any, in reducing their gambling tendencies and nudge them to quit the game early.

1.1 Problem Gambling and Responsible Gambling

Problem gambling is defined as gambling that is disruptive or damaging to you or your family, or interferes with your daily life. Increasing popularity of online gambling has contributed to a shift in perspective towards the need for responsible gambling (RG) policies [3]. RG tools have been acknowledged as having the potential to prevent casual gamblers from becoming problem gamblers. This paper looks at warning messages as a possible method.

1.2 Nudge Effect

As Sunstein and Thaler define it, "Nudge effect is the introduction of subtle changes in the choice architecture of a person which can alter their behavior in a predictable way" [4]. Daniel Kahneman proposed the Dual process theory, according to which, humans have two modes of thinking - System 1 (automatic) and System 2 (reflective). In the automatic mode, our decisions are usually instinctive, emotional and unconscious. Reflective decisions on the other hand are more conscious and slow [5]. It has been found that 95% of our day-to-day decisions are taken in the automatic mode. Similarly, when it comes to gambling, the decision making often progresses in system 1 [6].

A nudge often has the effect of pushing the person into a system 2 of decision making, where they reflect more. This is the aim of our experiment too. In our experiment, we introduce pop-ups in the gambling game. These are meant to act as nudges. In the progress of a game, a pop-up will appear which will interrupt the game play. The pop-up would display some message and coupled with a time delay, it will capture the attention of the player for a short period of time. This crucial time is meant for the player to reflect and decide whether they want to continue.

2 Literature Review

Different Responsible Gambling methods have been tried out through various experiments, many of their effects have remained unproven. A national audit of RG strategies in Australia proved to be largely ineffective [7]. Warning messages were considered a viable option. A study which extrapolates from warning signs used in other public health areas like smoking and alcohol consumption concludes that health warning labels may increase consumer awareness, but not changes in perceived risks of hazards involved or consumer behaviour [8]. Moreover, static messages like warnings have been proven to be less effective as compared to more dynamic ones like pop-ups [9].

Pop-up messages have been more promising as a Responsible Gambling strategy. The essentially create a break in play which nudges the player to think and actively decide to continue or discontinue gambling.

In a laboratory study, Ladouceur and Sévigny showed that participants played significantly lesser games when exposed to a break in play due to a pop-up message or a blank control message [10].

An experiment by Schelling and Schrans modified the Electronic Gambling Machines and introduced various RG strategies into them, including pop-ups. They found that, "exposure to a 60-min pop-up message was associated with a small reduction in session length and a decrease in expenditure among high-risk players" [11].

We took inspiration from an experiment performed by Ladoucer and Sevigny. Their experiment had three groups of players. One group was presented with generic and self-appraisal messages reminding participants that the outcome of the game is determined by chance. Another was presented with a blank screen. They programmed the messages to be displayed every 15 trials. It froze the screen for 7 seconds, causing a considerable break in the play. While the third group had no break in the game play. The experiment showed that players exposed to any one of the two kinds of delay mechanisms tended to play significantly fewer games. However, there was not much difference between the two message types [10]. This shows that pop-ups could be a viable option for RG.

The players attitude towards the pop-ups were captured in another experiment by Floyd et.al shows that the participants paid attention to 81% of the pop-ups. The made lesser irrational decision and generally ended up with more money remaining [12].

These experiments used informative pop-up messages. These are based on the fact that problem gambling is due to irrational thoughts and beliefs. However, research suggests that effectively communicated knowledge does not modify irrational beliefs or erroneous estimations of the chances of winning [13].

Self-appraisal messages have been shown to be effective in changing risky behaviours in several health domains. They are shown to be associated with higher neurological activation when compared to generic messages [14]. Self-appraisal messages also encouraged participants to have more realistic thoughts regarding gambling and the chances of winning [15].

This paper by McGivern et.al [16] performs a comparative study on the effectiveness of different types of pop-ups in an online roulette game. It introduces another type of pop-ups, which are 'expenditure-based'. The experiment compares self-appraisal, control pop-ups and expenditure-specific pop-ups and proves that the expenditure-specific pop-ups are more effective as a RG strategy.

Our experiment aims to replicate the experiment performed by McGivern et.al in a different environment setup. We will be using a card-based Gambling game amongst University students. We will categorise our participants into 4 groups, based on the types of pop-ups.

3 Methodology

3.1 The Gambling Game

'Kaay Raja Kaay, enugu puli aata' is a popular traditional card-based gambling game in India. For the purpose of this experiment, this traditional game was implemented in an online mode with modifications. MERN stack (Mongo DB, Express-JS, React-JS and Node-JS) was used as the tech-stack to develop the game. The code for the game is available in github `https://github.com/Radheshyam23/GambleForACause.git`.

The player was provided with a digital wallet which was updated live and the value was displayed. The players started with Rs. 50. The standard deck of 52 Cards were divided into 3 sets - 'A to 6', '7s' and '8 to King'. The players were allowed to place a gamble on one or more of these sets in denominations of Rs. 5 or Rs. 10. The system randomly picked a card from the standard deck of cards. If the player placed a bet on a set which consisted the card randomly drawn by the system, they would win an amount. This amount was double the amount they wagered for set 1 and set 3, and triple the amount they wagered for set 2. All the money they wagered was subtracted from their wallet.

When a player reached a 0 balance in their wallet, they were given an option to recharge by paying more money. The other option being to quit the game.

Throughout the game, a Quit button was accessible to the players, allowing them to quit whenever they desired.

A snapshot of the main gambling page can be seen in Figure 1

To make the gambling experience more realistic, we asked the players to pay an amount of Rs. 50 to start the game. This would be reflected in their wallet. We however, told all interested players that this was a 'Gamble for a Cause' game, and hence, was not a profit making effort. Thus, all the proceedings would be given to charity. The winning amount of the players would be given to charity in their name. This is in line with the ethics policy to conduct the experiment.

3.2 The Pop-ups

Three types of pop-ups were identified to be used in the game, Control messages, Generic messages and Expenditure-specific messages. A time-out of 5 seconds was implemented for every pop-up to make sure that the players had no choice but to engage with the pop-up. The messages are of 3 types:

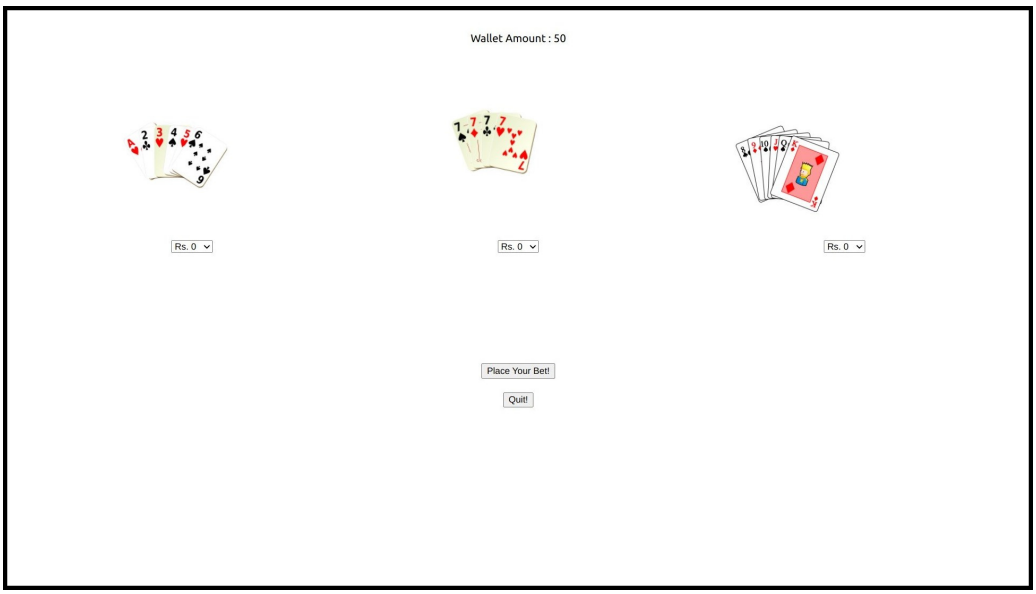

Figure 1: The main gambling page of our game. It displays 3 sets of cards and a dropdown option below the sets which allows the player to choose the bet to be placed. The Wallet amount is shown on the top of the page. The player can place a bet or quit at any point of time by clicking the respective buttons.

1. Control message was just a blank screen which showed a 'loading' message. This was meant to be a simple 'confrontational nudge' as Caraban et. al [4] would classify it. It is the simplest nudge. It is almost like the game has been paused. The player waits for 5 seconds for it to resume. This might give the player a chance to think out of the gambling game and choose more attentively when he is presented with the options of 'continue' or 'quit'.

2. Self-appraisal and Generic messages were alerts providing some informative message or a self-appraisal message about Gambling which was not directly related to the game. Questions like "Are you playing longer than you planned?" will make the player rethink, how much were they even planning to plan and if they should actually quit. We used a set of Generic messages which we found online. The list is: ["All gambling games are part chance.", "A winner knows when to stop gambling.", "When the fun stops, stop.", "Are you trying to recover the money you lost previously while playing?", "You are responsible for your gambling.", "Only spend what you can afford to lose.", "Are you playing longer than planned?", "Do you need a break? Gamble responsibly.", "When gambling", "Sometimes we lose not only money but also time.", "Do you need to think about taking a break?"]

An example of a Generic pop-up is shown in Figure 2

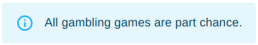

Figure 2: A pop-up displaying a generic message is displayed on the screen. The rest of the screen is blank and it stays this way for 5 seconds.

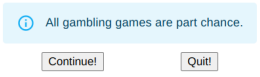

Figure 3: Continue and Quit buttons appear below the pop-up after 5 seconds.

Figure 4: Figure 2 shows a Generic pop-up as soon as it appears and Figure 3 after 5 seconds

3. Expenditure-specific messages were in the form of 'you have lost X amount. Do you want to quit?" or, "you have already won X amount, do you still want to continue?" We applied a gentle negative frame

to the expenditure specific pop-ups, irrsepective of whether they were currently in a net-profit or loss. In a profit situation, we advised that they probably have won enough and they might want to re-consider continuing. In the loss situation, we advised that they have already lost X amount and they might want to quit now.

A button to Continue or Quit appeared after 5 seconds of the alert screen. This can be seen in Figure 3

Since the gambling amount was small and the time which was taken for each round was less than a minute, the game got over pretty quick. Hence, after our pilot experiment testing, we decided to let the pop-ups interrupt the game after every 2 gamble rounds.

3.3 Participants

The 'Gamble for a Cause' game was made open to all students in our institute, IIIT Hyderabad. It was hosted in the common workspace of the students and hence, the players were a random sample of first, second and third year engineering students.

While some of the students agreed to gamble with real money, many were sceptical. Hence, we had a large number of students who played the game without involving real money.

During the pilot testing of our experiment setup, we tried multiplayer Gambling, on the grounds that it would make the game more competitive and hence immersive. However, we realised that since the students knew each other, they tended to take the game very casually. Hence, we decided to keep the game single-player. Often other students gathered around to watch and this was conducive for us to create a more stressed and exciting environment.

A participant got only one type of pop-ups. Participants were randomly allocated to one of the three pop-up types. Some of the participants were made to play without any pop-ups. This gave us the opportunity to test if pop-ups even made any difference.

While inviting the participants to play, they were only told that it was a gambling game. No mention was made about the pop-ups and the aim of our experiment.

3.4 Data Collection

Through the experiment, different kinds of data will be collected for analysis. The data and how it would be analysed is as follows:

- Number of iterations: For each game type, the total number of iterations for which the player played will be collected. This can be used to quantitatively observe if any significant pop-up type had more or less number of iterations.
- Quit at profit or loss? The value of the wallet at each iteration is stored in the database. This can be used to check if the player quit when at a winning or a losing streak. Looking at this from a larger scale, we can attempt to find a pattern.
- Player's opinion. An online feedback form was provided immediately after the end of the game. This was meant to get from the user, their opinion of the pop-ups (Note that this is the first time the players are informed that the pop-ups were a focus of the experiment). This can give us an idea of the layer's perception. A screenshot of the feedback form is shown in Figure 5

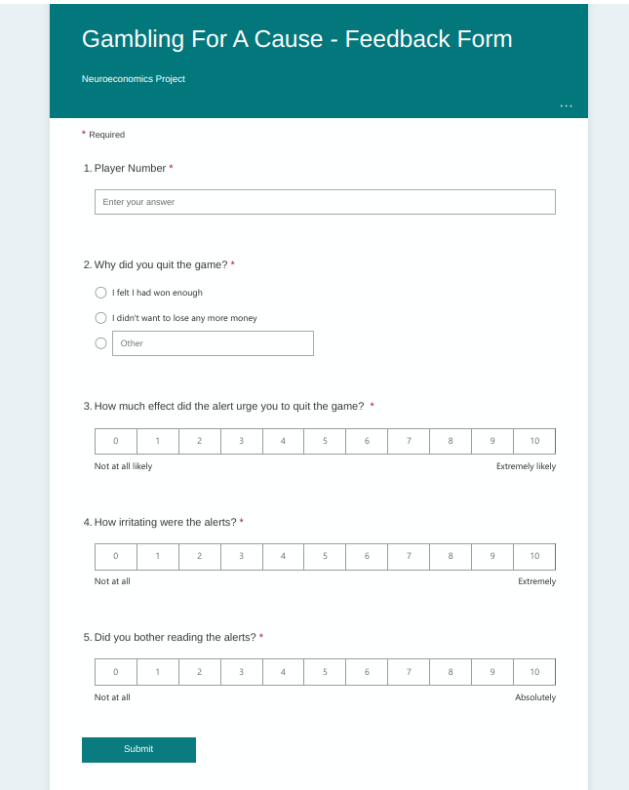

Figure 5: Post-Gambling Feedback form to gauge the user's perception on the effectiveness of the pop-ups.

4 Results

Number of Gambling Iterations

Data was collected on the number of gambling iterations each player played before quitting. Figure 6 shows the average (mean and median) number of iterations of players of a pop-up type has been plotted. Interestingly, the average is higher for the expenditure-based pop-up group, contrasting the study by McGivern et.al [16]

Player Feedback

How much effect did the alert urge you to quit the game?

A feedback question was provided in the feedback

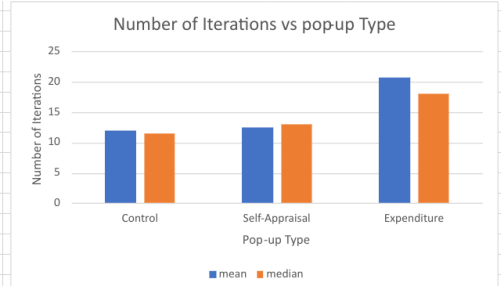

Figure 6: Number of Gambling Iterations vs Pop-up Type

form and answer was expected in a number from range 0 - 10. The Net Promoter Score [17] of the responses were calculated. The scores were -92 for Control pop-ups, -83 for Generic pop-ups and -69 for Expenditure-specific pop-ups. This shows that all the three pop-ups were considered as not very effective in nudging to quit.

NPS scores were collected for two more questions, "How irritating were the alerts?" and "Did you bother reading the alerts". The overall scores were '-65' (for irritating alerts) and '-58' (for reading alerts). This negative score shows that the alerts (pop-ups) were largely ineffective and the players tended to ignore them.

We tried finding a pattern between when the player quit the game and their streak. Most of the games ended either when the player reached a 0 balance in the wallet (not a single player recharged) or when they were having a streak of 3 or more losses. This seems to be largely independent of the pop-up type. This is also evident from their response to the question in the feedback form, "Why did you quit the game?". Almost 60% of the players reported "I didn't want to lose anymore money."

5 Discussion & Future work

This experiment aimed to compare the effectiveness of 3 different types of pop-ups and their efficiencies in nudging a gambler to quit the game. All the pop-ups were armed with a time-delay of 5 seconds, which was supposed to make sure that the players looked at the pop-up and tried to reflect. However, as is apparent from the results obtained, this wasn't adequate in catching their attention.

While performing the experiment, the organisers were present alongside the players and we got to look at their behaviour while they played. We observed that during the pop-up display, many of the players took some time to deliberate upon whether or not to continue (beyond the 5 seconds freeze time). Hence, we could see that the pop-ups did have some effect. However, this behaviour was found for all the types of pop-ups. As a future work, eye-tracking devices can be used in the experiment to solidify this observation and conclude if the player was indeed deliberating whether to continue or quit, during the pop-up display.

Another observation was that the players didn't think much when they were in a profit streak. From the data we have collected, we can see that many of the players reached a maximum height and then fell down continuously and ultimately cashed in at a lower amount. During a winning streak, they didn't wait at the pop-ups, which can be understood.

As suggested in the paper by Gainsbury [15], some more work and experimentation must be done in selecting optimum location and design of the pop-ups to capture more attention.

6 Conclusion

This paper compared control, generic and expenditure-based pop-ups as a strategy for responsible gambling. While the experiment results proved to be inconclusive about the best pop-up design, we could observe the inadequacies in the current design and observe the reaction of the players. This can serve as a good stepping-stone in future research about Responsible Gambling strategies.

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