

# **Gamblers' perceptions of the potential of real-time persuasive technology for managing responsible gambling: a qualitative study**

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## **Abstract**

Background: Online gambling is on the rise, leading to increased levels of problem gambling, which can cause considerable levels of harm to not only individuals but also their families. Interventions that facilitate responsible gambling are therefore urgently needed. Real-time persuasive technology provides an unprecedented opportunity to manage responsible gambling.

Aims: This study aimed to explore gamblers' perceptions of the potential of real-time persuasive technology for managing online gambling.

Method: Qualitative semi-structured interviews were conducted with 16 gamblers (80% men), including a range of ex-problem and social gamblers, about their perceptions of the potential of real-time persuasive technology for managing online gambling.

Results: Thematic analysis showed participants were positive about the potential of real-time persuasive technology as a tool for providing information (educational, personal and comparative), limiting gambling (time spent, money spent, number of bets placed and access to gambling operators), providing support to gamblers (advice, feedback and context sensing), and to enable gamblers to receive support from nominated others. However, limitations of the technology were also noted, and two participants felt real-time persuasive technology would not facilitate responsible online gambling.

Conclusions: Real-time persuasive technology was viewed positively as a method of managing responsible online gambling. In order to ensure maximum reach and acceptability, it should contain a wide range of tools. Tailoring of content would enhance the acceptability of such technology.

## **Introduction**

The Diagnostic and Statistical Manual of mental disorders (DSM-5) defined gambling disorder as 'Persistent and recurrent problematic gambling leading to clinically significant impairment or distress' (American Psychiatric Association, 2013). Over 400,000 people in the UK identify as problem gamblers (Connolly et al., 2015) and this number is likely to increase given the rapid expansion of online gambling and high levels of online betting and advertising of betting around major sporting events. Online gambling can cause considerable levels of harm to not only individuals but also their families (Goodwin, Browne, Rckloff, & Rose, 2017; Langham et al., 2015), and problem gambling costs the UK up to £1.2 billion annually (Thorley, Stirling, & Huynh, 2016). However, there is no clear healthcare pathway for treating problem gamblers, meaning individuals who do not have concurrent addictions or other health problems are unlikely to receive treatment.

Internet gambling sites provide limited gatekeeping to protect gamblers who may be vulnerable (McBride & Derevensky, 2009). For example, in the United Kingdom it is possible to gamble with a credit card. Ubiquitous accessibility exacerbates the scale and complexity of the problem. Online gambling enables rapid continuous play, which is particularly likely to cause harm as Internet gamblers are likely to chase losses, indicating preoccupation with gambling and irrational beliefs about likelihood of winning (Gainsbury, Suhonen,, & Saastamoinen, 2014). Interventions designed to facilitate responsible gambling are therefore urgently needed.

Given that gamblers often hide the true extent of their behaviour from others, interventions that maintain privacy are likely to be particularly well received. To date, interventions targeted at gambling (Bucker et al., 2018; Zhang, Yi, & Cheok, 2016) have required self-report of gambling behaviour, which individuals may underestimate due to social desirability biases, lack of awareness and cognitive distortions. Real-time persuasive technology offers an unprecedented opportunity to manage responsible gambling through its potential to provide

feedback about actual online betting in real time. However, given the range of potential tools offered by such technology, and concerns by gambling operators that gamblers would not wish to have access to their data, it was considered essential to explore gamblers' views. As many gambling addicts started as social gamblers, interviews were conducted with individuals with a range of experience with gambling, from occasional gamblers to gambling addicts in recovery.

This study, then, aimed to explore gamblers' perceptions of the potential of real-time persuasive technology for managing responsible gambling.

## **Method**

### *Design*

Qualitative semi-structured interviews were used to explore experiences of gambling and reactions to aspects of software with the potential to be used in an online platform designed to enable more conscious and informed online gambling. Ideas of what the platform could include were collated from a multidisciplinary team consisting of software engineers, data scientists, health and social psychologists, individuals who work in the gambling industry and individuals working with gambling addicts.

### *Participants*

Participants aged 18 or over who gamble at least occasionally were recruited to take part in a study on perceptions of software designed to manage responsible gambling.

Initially, gambling addicts were recruited via 1) an open call on social media, which was shared by organisations working in the area of gambling awareness and responsible gambling, and 2) snowball sampling through the gamblers and individuals working in the field of addiction. As there has been limited research in this area, recruitment was later broadened to include a range of levels of gambling, in order to understand the limits of acceptability of online real-time persuasive technology. Further participants were recruited via advertising via

betting shops, and snowball sampling through gamblers, in order to target female gamblers as none had come forward.

### *Procedure*

Semi-structured interviews lasting 30 minutes - 2 hours were conducted face-to-face in the university (n=7), by video conferencing (n=2), or by telephone (n=7), by the lead author (EAC). EAC was an experienced qualitative interviewer (female) who had no previous knowledge or experience of gambling, online or otherwise. This meant she came to the interviews with a 'blank slate.' Approval was granted by Bournemouth University Faculty of Science and Technology ethics committee. Participants received a £10 gift voucher for participation.

After participants had provided written informed consent, demographic information was provided. First, participants were shown a mobile platform for managing responsible online gambling, designed by our research group. Interviews then comprised two components. The first part of the interview was on participants' experiences of gambling, and covered where and when they gamble, what causes them to stop and start, the extent to which their family and friends know about their gambling, and how they feel about it. The second part covered their perceptions of potential aspects of real-time persuasive technology. It covered goal setting in relation to gambling, and how they would feel about: receiving comparative information in relation to their gambling activity, receiving messages while gambling; perceptions of educational materials, having access to their data, context sensing, reporting personal information, reporting emotions in relation to gambling activity and filling in questionnaires about gambling activity.

All interviews were audio recorded and transcribed verbatim. After the interview participants were thanked for their time and debriefed.

### *Data Analysis*

The results were analysed using thematic analysis (Braun & Clarke, 2006). First, the interviews were read carefully, and reflexive notes made. They were then

reread and coded on a line-by-line basis. The codes were then combined into themes, and refined in order to produce a coding manual. A proportion of interviews were second coded to ensure good inter-rater reliability. Themes were checked for differences as a function of type of gambler (self-identified addict or social gambler). Analysis was carried out by the first author (EAC).

## **Results**

Participants consisted of 7 ex-problem gamblers, 7 non-problem gamblers and 2 ex-problem gamblers/ gamers. Their ages ranged from 27 to 56 (mean 43.8). Most were male (n=13, 81.3%), and white ethnicity (n=11, 68.8%). Two participants identified as mixed race, and three were of non-white ethnicity. Educational level ranged from GCSEs (UK examination for 16-year olds) to degree (5 (31.3%) had a degree). Eight participants (50%) were employed, one (6.2%) was a student, and seven (43.8%) were unemployed at the time of interview. Three (18.8%) were currently working or had worked in bookmakers (2 ex-problem gamblers, 1 social gambler).

### *Themes*

Participants saw real-time persuasive technology as a tool for providing information (educational, personal and comparative), a tool for limiting gambling (money limits, time limits, limiting time between bets and limiting access to gambling operators), a tool for providing support to individuals (via providing advice, context sensing and providing feedback) and as a tool for receiving support from nominated others (see Figure 1). Perceived positives and negatives of the proposed technology are discussed throughout. Two participants felt that online persuasive technology would not be helpful at all in managing online gambling.

### ***Tool for providing information***

#### *Providing educational information*

Participants reported taking time to realise they had a problem, and felt education could have helped them realise this sooner. They felt information

regarding the consequences of gambling would encourage people think, and plant the seeds of awareness. They felt this information could be presented either as educational information or as real-life stories, which they felt would add a personal touch:

*“... raw, quite raw ones [personal stories]. Like this guy lost everything... I think it adds to the realization that I'm not alone. I'm not alone in this addiction.”* [P4, gambling/gaming addict]

Participants felt this information could be provided in novel ways, so that gamblers would be more likely to pay attention: *“Something audible perhaps, that's something quite new.”* [P3, gambling addict]

#### *Providing personal information*

Participants felt it would be helpful to receive information about their online betting activity, provided visually, which could include number of hours played, lists of deposits, amounts won and lost over time, and regular notifications about how much they had deposited and lost. They felt this information would encourage reflection on gambling behaviours, and help plant seeds of awareness.

*“Having a visual look of what I spent, it makes it real then, wow I didn't realise I spent £500 a day for the past 2 weeks on [gambling operator's] website.”* [P3, male, ex-problem gambler]

Given that many gamblers reported using a range of websites, they felt it would be helpful to provide data across operators. However, the reasons for this differed depending on the extent to which they gambled. Ex-problem gamblers felt it would be helpful to have details of all their spending in one place, in order to increase their awareness of the issue. However, social gamblers felt it would be helpful to know which operator was providing the best odds.

*“that [providing data across operators] would be useful because it would tell me which operator is paying out the best odds and the best money”*

**[P10, male, social gambler]**

#### *Providing comparative information*

However, providing comparative information (about how their gambling behaviour compares to others) met with mixed views. While some participants felt it would make them think about their gambling activity, many felt they would not be able to relate to others:

*[If I'd been told well 95% of people living in [town] gamble less than you do] “I'd be like, “Wow” wouldn't it. Think, “Wow, I'm in the top 5% here in a population of quarter of a million.” [That would be scary. That would scare me a bit. That's the initial feeling I'm getting if I was still gambling. “*

**[P1, male, ex-problem gambler].**

*“I wouldn't really care if other people were gambling actually. Some people may think, “Oh, wow,” but I'm one of those that I don't care. ... maybe they haven't got enough time, maybe they've got plenty of money, maybe they're a happy lot. I would just think all these things and I wouldn't really want to see what other people were doing, no.”* **[P13, female, ex-problem gambler]**

#### ***Tool for limiting gambling***

Participants felt real-time technology could be used as a tool to limit gambling. Mobile application platforms could provide the opportunity to set **time limits, limit the time between bets, and set money limits**, based on actual gambling data.

#### *Setting time limits*

Many ex-problem gamblers reported gambling for up to 8 hours at a time, and not wanting to stop until they had won. They felt time limits would enable them to stay in control, based on what they consider a reasonable amount of time to

gamble. Participants felt they would be unable to do this themselves, as they said that once they had started gambling, they were unable to stop until they had lost all their money. They felt that the longer they gambled, the less rational their choices became.

*“Get up at about eleven, twelve o'clock and just gamble all day until I go to work again ... I was just gambling until three, four in the morning then having a couple of hours of sleep” [P1, male, ex-problem gambler]*

*“The longer I am gambling, the less likely I am to make rational choices around my gambling and the more likely I am to gamble problematically and place stupid bet stakes, lose control basically [P3, male, ex-problem gambler]*

On the other hand, time was not an issue for social gamblers, for whom gambling was a genuine social pastime. When betting on sports online, they mentioned spending some time researching the form of the sports team or horse on which they planned to bet.

*“I have a look at the race that's on. I just look at the horses, and what their odds are, and the names as well. Or, if there's anything that is striking about anything they've done before or whatever. I have a little read of the information...I'd say I spend more time looking at the slip, as opposed to putting a lot of money on a lot of the races.” [P15, female, social gambler]*

#### *Limiting numbers of bets placed*

Some participants felt that it would be helpful to increase the time between bets. In online roulette, it is currently possible to place a bet every 20 seconds, or even every 5 seconds in high-stakes gambling. Participants felt this did not give them a chance to catch their breath in between bets.

*“you must .. take into consideration the time [between bets] and stop it being 20 seconds and make it at least a minute if not 90 seconds. Because it gives people the chance to just take a breath.” [P2, ex-problem gambler]*

#### *Setting money limits*

All participants felt it would be helpful to have the opportunity to set limits through the platform. They said online gambling does not seem like dealing in real money, as there are no physical notes, just numbers. They felt setting spending limits would reduce damage, as they felt that when they were gambling, they became less rational as time went on. They felt that setting money limits would prevent them from reaching a critical stage.

*“it makes it numb because it's not real, it's sort of virtual money” [P2, male, ex-problem gambler]*

*“it's so dangerous to be allowed to gamble to the extent that I was allowed to. I had a 20,000 spin one night” [P2, male, ex-problem gambler]*

*“especially if you had had a win, it's quite easy just to think, “If I'd put on more money, I would have got more money back, so let's have a look at something else maybe” [P15, female, social gambler]*

#### *Limiting access to gambling operators*

Participants felt a ban on access to gambling operators at certain hours would be helpful, in order to limit both the time and money damage caused by online gambling. They felt this would need to be nationwide, as they said that if they were locked out of one website they would be likely to try another.

*“If you have a problem, unfortunately, I always rule my waters, so to speak. I'll always find a place to gamble. One avenue is shut, I try and find somewhere else”. [P1, male, ex-problem gambler]*

### ***Tool for providing support to individuals***

Participants felt real-time persuasive technology could be used as a tool to provide support to individuals, although there were varying views about the levels of support required

#### *Providing advice*

Participants were generally positive about an online platform providing advice, such as a guide to calculating disposable income. While there were some concerns about providing actual income details, they saw ticking a box based on a wage bracket as acceptable

*“Maybe if you tick what you do for a living and ... the bracket of your yearly income” [P13, female, ex-problem gambler]*

Participants also felt it would be helpful to have the opportunity to fill in validated questionnaires that might classify them as problem gamblers.

*“I think that sounds good...because they [questionnaires] are used in treatment to assess your gambling.” [P3, male, ex-problem gambler]*

However, while some participants said they would like to receive advice from the platform of alternative things to do, as they felt that gambling had taken over their free time, others felt that was too intrusive, preferring to have the autonomy to make their own decisions.

**Interviewer:** *“Would it help if the app was suggesting alternative things for you to do?”*

**Participant:** *“yeah something different is a good idea, 100%” [P9, male, social gambler]*

*“I prefer to decide whatever I want rather than ... any technological device to tell me what to do.” [P12, male, social gambler]*

### *Context sensing*

Online persuasive technology is beginning to develop the ability to sense context, and thus predict when individuals are likely to gamble. This might include a mobile application informing individuals that they were close to a betting shop, or that they were likely to gamble based on reported mood or patterns of behaviour.

Almost all participants saw informing the application about their emotional state or mood as a way to receive communications from a mobile application when they were more likely to gamble. They reported being more likely to gamble when they were experiencing low mood, so felt reporting emotions would help online platforms to support them.

*“maybe if there was like a choice of words or a scale on 1 to 10, “Were you feeling very happy or were you feeling angry?” 1 is very happy and 10 is really unhappy. It might be easier for people to gauge it that way.” [P15, female, social gambler]*

However, while some participants were in favour of receiving such information from mobile phone application, others felt that it would be too intrusive, reporting concerns about privacy and security.

*“I can only see it [app sensing gambler’s location] as a positive especially if somebody’s got a problem” [P1, male, ex-problem gambler]*

*“No, I wouldn’t like that [app telling me ‘you’re going into a betting shop’]. I would just like that thinking big brother springs to mind. I could see again why this would appeal to younger students, millennials and that sort of thing because the way they depend on and rely on devices” [P7, male, social gambler]*

### *Providing feedback*

Many participants felt it would be helpful to have the opportunity to receive feedback from an online platform. On one hand, this feedback could be positive, based on goal achievement, to provide motivation and encouragement. Such feedback was seen as positive across all participants.

*“Especially Gamblers Anonymous, we live by our anniversaries. We count the days, date and time. Something visual to say, “I’ve not gambled today.” Maybe how much your limit was gambling each day. Say, it’s £50 each day and you say you’ve not gambled for 10 days. Let’s see how much money you’ve saved.” [P1, male, ex-problem gambler]*

On the other hand, individuals could receive feedback to warn them they were reaching the end of their limits, or if they were not following a regular pattern of betting or placing an unusually high bet. Participants felt this would facilitate conscious and informed gambling.

*“... [messages] would really have been helpful at the time because anything that gives you a reason to switch your whole attention from what you’re doing. I could literally have been playing roulette and there could be a fire and I would have said, “Don’t worry, I’m not using the fire, I’m watching this screen.” [P2, male, ex-problem gambler]*

In terms of switching attention, telephone calls were seen as more helpful than text messages or pop-ups. Participants particularly felt they would appreciate personal telephone calls, as that would give them the impression that someone cared about them.

*“ ... maybe just suggestions rather than telling me like where it ... says to everyone a personal thing like, “You’ve been playing for quite a while, make sure you don’t get headaches or that you don’t get sore eyes. Why not take a break?” Just in a way to make it that you’re doing it for the interest of my*

*health rather than because I'm gambling too much.*" [P13, female, ex-problem gambler]

However, such feedback was seen as annoying by some participants, who felt that they would just ignore pop-ups or switch them off.

*"... similar to the pop-up messages that appear on fixed betting terminals... for me, with my experience with FOBTs and this might apply to all pop-ups really, they're a xxx nuisance. What I would do ... would be just switch them off.... I'm speaking from someone who ... when he's gambling just wants to gamble, doesn't want to be interfered with."* [P3, male, ex-problem gambler]

### ***Tool for receiving support***

Online persuasive technology could be used as a tool for gamblers to receive support from nominated others. There could be opportunities for an online platform to contact family members when they logged onto a website or had been on a website for a certain period of time. Some participants saw this positively, as a way to receive support.

*"... maybe you could do that [provide the option to contact a significant other] if there was a bit of problem gambling or something. Make that an option to them. "Would you like us to contact a partner if we feel that you are gambling a bit too much, if we are worried about you?"* [P13, female, ex-problem gambler]

However, as many participants reported hiding the extent of their gambling from their family members and significant others, such a facility would need to be optional. Many participants were directly opposed to it.

*"my brother knows [that I gamble] and yeah my dad knows to an extent. You know what I mean. My sister knows, my girlfriend knows, everyone knows, but nobody knows the extent"* [P9, male, social gambler]

### ***Not helpful at all***

Two ex-problem gamblers felt that online persuasive technology would not be helpful at all in promoting responsible online gambling. They reported neglecting their families, including children, and gambling until they had lost all their money and their relationships had broken down. They felt nothing would have convinced them to stop until they reached rock bottom, or lost all their money.

*“I did not have enough money for a long time to gamble properly. That's why I stopped it for a while.” [P11, male, ex-problem gambler]*

*“I have actually asked myself this question [is there anything that can be done to help people not get to this rock bottom point], what could have been done to prevent me not to be in- because in the beginning it goes very slow and steady and you don't realize it. That's why there's a denial phase at some point in gambling addiction, there's denial phase. Then suddenly it takes the impact of the snowball ... it becomes too big that it's out of control completely and you can't change it.” [P11, ex-problem gambler]*

*“... in life, like no one is gonna stop until they kinda like they go all of a sudden and they're not gonna stop when they're winning I can guarantee you that alright. They're not gonna go all of a sudden, hang on a minute, everyone needs to have some sort of consequence around it, urm before you do stop.” [P5, male, ex-problem gambler]*

### **Discussion**

Real-time persuasive technology was seen as helpful in managing online gambling as it could be used as a tool for providing information, limiting gambling, providing support to gamblers, and to enable gamblers to receive support from nominated others. However, two participants felt real-time persuasive technology would not be helpful at all in managing online gambling.

This study is the first paper on gamblers' views of persuasive technology, which could provide an unprecedented opportunity for managing problem gambling due to its wide reach, given the ubiquity of smartphones. Both ex-problem and social gamblers perceived persuasive technology positively, indicating that it has the potential to help a wide range of individuals. All participants felt they should have the right to see their personal data, which is currently not made widely accessible to gamblers, but used by gambling operators for marketing purposes. They felt accessing such data in visual format would be extremely informative, in line with research showing that visualizations, due to being aesthetically pleasing, enhance engagement with web-based interventions (O'Brien & Toms, 2008). Such evidence could be used by gambling operators as a rationale for making personal data more available to individuals, in order to improve their corporate social responsibility. Similarly, participants felt that viewing data across all operators would be helpful. This is in line with initiatives by a cooperative of gambling operators to pool data in order to identify problem gamblers, and suggests that further collaboration between gambling operators is key to managing responsible gambling.

All participants were positive about the opportunity to set goals and receive feedback, in line with previous research that goal-setting is effective in changing behaviour (Abraham & Michie, 2008; Gollwitzer & Sheeran, 2006). However, there were some important differences between problem and social gamblers. Money limits were viewed positively by all participants, who mentioned that when gambling online, money does not seem real. This ties in with research finding that over 60% of online gamblers were problem gamblers, relative to under 20% of land gamblers (Wood & Williams, 2011), and research that identified online gambling is likely to lead to loss chasing (Gainsbury et al., 2014). Such limits could easily be implemented in practice. On the other hand, time limits were seen as helpful by problem gamblers, who reported spending whole days gambling, but not valued by social gamblers, for whom extra time spent on a website was valuable in enabling them to predict outcomes, and did not equate to extra bets. This highlights the importance of tailoring in real-time

persuasive technology (Morrison, Yardley, Powell, & Michie, 2012; Wildeboer, Kelders, & van Gemert-Pijnen, 2016).

In line with previous research on use of smartphone applications in supporting health behaviour change (Dennison, Morrison, Conway, & Yardley, 2013), context sensing was seen as intrusive by a number of older social gamblers. However, it was seen as acceptable by ex-problem gamblers, who felt that anything that had the potential to promote responsible gambling would be helpful. It was also seen as helpful by younger participants, reflecting the cultural shift to increased ownership of smartphones, and the ubiquitous use of smartphone applications.

Online persuasive technology was seen as unhelpful by two participants who had caused significant harm to both themselves and their families. Further research is needed to identify gamblers at a stage where they are still able to recognise that they need help, so they can receive the appropriate support in time.

#### *Limitations*

Over 80% of the participants were male, despite our efforts to recruit female gamblers. Stigma around gambling in women meant that very few female gamblers came forward. While this may accurately reflect the demographics of those who gamble in everyday life, it means that only limited conclusions can be drawn about female gamblers. Further research is needed to explore the experiences of female gamblers and their views regarding real-time persuasive technology for managing online gambling.

Many participants were recruited via snowball sampling. While this facilitated recruitment of a hard-to-reach population, it meant that several of the participants were likely to hold similar views.

Information about whether individuals were social or problem gamblers was self-reported. While it was clear the problem gamblers had experienced significant issues due to their gambling (many were prominent advocates on social media and in public), there was one social gambler who appeared to demonstrate problem gambling tendencies. Use of a questionnaire such as the

Problem Gambling Severity Index (Ferris & Wynne, 2001) to quantify levels of problem gambling would have ensured more accurate classification of participants.

Because the participants had not trialled use of real-time persuasive technology to manage responsible gambling, it is not clear how they would use it in practice. Further research looking at use of real-time persuasive technology in practice is required.

### **Conclusions**

Participants were positive about persuasive technology and the range of options it could offer to promote responsible gambling, including being used as a tool for providing information, limiting gambling, providing support to gamblers, and enabling gamblers to receive support from nominated others. The range of strategies available were particularly lauded by ex-problem gamblers, who had used a range of tools to recover from their addictions. Real-time persuasive technology offers a promising opportunity to reach a wide range of problem gamblers.

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**Figure 1: Perceptions of the potential of persuasive technology for managing responsible gambling**

**Tool for providing information**

- Providing educational information
- Providing personal information
- Providing comparative information

**Tool for limiting gambling**

- Setting time limits
- Limiting time between bets
- Setting money limits
- Limiting access to gambling operators

Not helpful at all

**Tool for providing support to gamblers**

- Providing advice
- Context sensing
- Providing feedback

Tool for receiving support