



The psychology of gambling

A personal overview

Mark Griffiths explains the background to his important study of gambling, and responds to questions he is often asked about it by those studying psychology at A-level.

This year saw the introduction of my 1994 study on the role of cognitive bias in slot machine gambling (Griffiths 1994) on to the OCR specification. Since then, I have had lots of correspondence from A-level psychology teachers (and a few students too), asking me a number of interesting questions about the study. This article presents a glorified 'FAQ' that puts my study into context and, hopefully, answers some of the most commonly asked questions.

Background inspiration

I began a PhD on the psychology of slot machines back in 1987 and I spent the first 3 or 4 months reading everything I could about how psychological research methods are used to study this relatively new area of research. As a PhD student, the paper that really inspired me was a pioneering study by Anderson and Brown (1984). Up until the mid-1980s, almost all of the experimental work on the psychology of gambling was done in laboratory settings and the question of ecological validity was something that I had great concerns about. I did

not want to study gamblers in a psychology laboratory, I wanted to examine them in actual gambling environments.

Anderson and Brown studied the role of arousal in gambling and used heart rate measures as an indicator of arousal. They found that the heart rates of regular gamblers increased significantly by around 23 beats per minute (compared to baseline resting levels) when they were gambling in a casino, but when they did the same activity in a laboratory setting, there was no significant increase in heart rate. To me, this explained perhaps why previous studies on arousal during laboratory gambling had failed to find significant heart rate increases above baseline levels.

Theoretical insights from previous research

Anderson and Brown (1984) claimed that Skinnerian reinforcement theory could not account for the phenomenology of addictive gambling (especially relapse after abstinence). As a result of their ecologically valid experimental study, Anderson and Brown

postulated a theoretical model centred upon individual differences in cortical and autonomic arousal, in combination with irregular reinforcement schedules. They argued for a neo-Pavlovian model in which arousal played a central role in the addiction process. According to Anderson and Brown, this model accounts for reinstatement after abstinence and allows for the maintenance of the behaviour by internal mood/state/arousal cues in addition to external situation cues.

I found this theoretical perspective too restrictive and believed that gambling addiction was a more complex process — the consequence of a combination of a person's biological/genetic predisposition, their psychological make-up (personality, attitudes, beliefs and expectations), and the environment in which they were brought up. This is what most people would now recognise as a bio-psychosocial perspective that runs through much of my subsequent writing and research. Added to this, I passionately believed there were other important factors at play, including the situational factors of where the activity took place — such as the design of the gambling environment — and the structural features of the activity itself — such as the speed of play — and ambient factors like lights, colour, noise and music.



The heart rates of regular gamblers increase significantly when they gamble in a casino

Insights from cognitive bias in gambling

My 1994 study on cognitive bias raised many interesting points and by studying gamblers within session, I obtained a lot of interesting data. I found that regular gamblers produced significantly more irrational verbalisations than non-regular gamblers. (The ethics committee would not let me use non-gamblers, as they did not want participants to be introduced to gambling via a university research study.) One of the most interesting observations in my study was that regular gamblers often *personified the slot machine*. They attributed thought processes to it and would talk to it as if it could actually hear them.

Another of the more interesting observations concerned the psychology of the near miss (or, more accurately, the near win). I noticed that, when I used the thinking aloud method as a way of gaining direct cognitive access to what gamblers were thinking as they played a slot machine, regular gamblers often explained away their losses and changed clear losing situations into near winning ones. On a cognitive level, *gamblers were not constantly losing, they were constantly nearly winning*, and this, I argued, was both psychologically and physiologically rewarding for them. I also did a study where I measured gamblers' heart rates in an amusement arcade (see Griffiths 1993) where, like Anderson and Brown (1984), I found regular gamblers had significantly increased heart rates when compared to baseline resting levels.

Study limitation?

Anyone reading my 1994 paper will instantly spot what appears to be a major limitation to the study: the fact that there was no inter-rater reliability in the coding of the verbalisations that I transcribed. Could this be (as some have argued) the Achilles heel of the study? I maintain that, in the context of this study, having a second rater might have added a confounding variable in itself. Another rater would not have had the time with the data that I had and would not have been there at the time of the experiment. In short, not being there would have been a great disadvantage to a second coder, as they would not have understood the context in which various verbalisations were made. I transcribed each tape straight after each trial so that I could remember the context of everything that was said by each player. I would also add that this was one study that was done in conjunction with lots of others simultaneously. Details of these are provided below.

Influences on other psychologists

The work of Paul Delfabbro in Australia built on my idea of analysing gamblers within session. He postulated that gambling is maintained by winning and losing sequences within the operant conditioning paradigm (the only rewards and reinforcers in gambling are purely monetary). In response to that paper, I argued that Delfabbro and Winefield's contribution

(Delfabbro and Winefield 1999) was too narrow in its focus, in that they had taken no account of the 'near miss' in relation to *operant conditioning theory* and that there may be other reinforcers playing a role in the maintenance process (such as physiological rewards, psychological reward and social rewards). I also argued that gambling was bio-psychosocial behaviour and should therefore be explained by a bio-psychosocial account.

Implications of my research

My 1994 study showed that gamblers could be studied in real-life contexts and that useful data could be collected. It also showed the complexity of gambling and that gamblers could turn apparently objective outcomes (losing) into ones that were highly subjective (near winning ones). I also showed that this had implications for treatment (see Griffiths 1993) and that perhaps these cognitive biases could be used by psychologists as a way of re-educating gamblers through some kind of cognitive correction technique.

I should also point out that this one experimental study was a small part of a much bigger jigsaw. What I mean by this is that my 1994 study should not be seen in isolation, but read along with my simultaneous observational studies of arcade gamblers, my other experimental studies, my semi-structured interview studies, surveys and my case studies. All of these studies as a whole were featured in my first book on *adolescent gambling* (Griffiths 1995).

Gambling as a behavioural addiction

My work into the role of cognitive bias in gambling and gambling addiction also led to my studying behavioural addictions more generally. Since finishing my PhD, I have branched out and carried out research into video game addiction, internet addiction, sex addiction and exercise addiction (see Griffiths 2008 for my most recent overviews). Many psychologists do not view excessive behaviour as an addiction, but I consider gambling to be the breakthrough addiction. I have argued that, when gambling is taken to excess, it can be comparable to other more recognised addictions like alcoholism. If you accept that gambling can be a genuine addiction, there is no theoretical reason why other behaviours, when taken to excess, cannot be considered potentially addictive if gambling addiction exists.



Regular gamblers often personify the slot machine

Despite studying behavioural addiction for over two decades, the number of people I have come across who are genuinely addicted to video games or the internet are few and far between. A key difference between excessive use and addiction is the detrimental effects (or lack of) that arise as a result of that behaviour. When people are addicted to a behaviour that becomes the single most important thing in their life, they compromise everything else in their life to do it. A person's job or work, personal relationships and hobbies are severely compromised. The basic difference between an excessive healthy enthusiasm and an addiction is that healthy enthusiasms add to life; addictions take away from it. This is a (non-psychological) lay view, but there is a lot of truth in it.

Addicted to anything?

Why do people get addicted to things? Can we get addicted to anything at all? My own thinking is that, as humans we would not do something excessively without getting any rewards from it. Rewards underlie all addictive processes and, as a result, there are some things that people cannot get

addicted to. For instance, I would argue that someone cannot get addicted to a bi-weekly national lottery because there are only two chances a week to find the results of their gamble. (That does not mean the person cannot spend too much money though.)

However, a slot machine is an activity where someone can gamble 12 times a minute. They may experience physiological rewards by getting a buzz or a high when they win or nearly win, they may experience psychological rewards (near misses), they may get social rewards (peer praise from when they do something well), and/or they may get the financial reinforcement of playing. As I observed earlier, the rewards a person can get from gambling are spread across the spectrum: physiological, psychological, social and financial.

Addictive personality?

Another dimension to my work is insights into other areas of great interest, such as the existence of an addictive personality. Is there such a thing? I am firmly in the 'no' camp. I would argue that, if there is an addictive personality, psychologists would need to show that a set of predictive traits

exists that is predictive of addiction and addiction alone. There are many personality traits that have been found to relate to specific addictions. However, there are also people with these same traits who are not addicted. Therefore, these cannot be traits that are specific to addiction. However, I do acknowledge 'reciprocity' (that addicts who give up one addiction often move on to another). For instance, when I sit in on a Gamblers' Anonymous meeting, I am not surprised to see a large group of coffee-drinking, chain-smoking individuals.

The last word

I am the first to admit that my 1994 study, when taken in isolation, is hardly among the classic studies of people like Freud, Watson, Skinner or Milgram. However, when seen as part of two decades of research into gambling and other potentially excessive behaviours, I would like to think that I have had an influence in my field. Only time will tell.

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Key words

Addiction	Gambling
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