



HOUSE OF LORDS

Select Committee on the Social and Economic Impact of the Gambling Industry

Corrected oral evidence: Social and Economic Impact of the Gambling Industry

Tuesday 3 March 2020

3.15 pm

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Members present: Lord Grade of Yarmouth (The Chair); Lord Butler of Brockwell; Lord Filkin; Lord Foster of Bath; Lord Layard; Lord Mancroft; Lord Smith of Hindhead; The Lord Bishop of St Albans; Baroness Thornhill; Lord Trevethin and Oaksey; Lord Watts.

Evidence Session No. 17

Heard in Public

Questions 183 - 197

Witness

I: Dr Luke Clark, Professor, Department of Psychology and Director, Centre for Gambling Research at the University of British Columbia [[video link](#)].

USE OF THE TRANSCRIPT

1. This is a corrected transcript of evidence taken in public and webcast on www.parliamentlive.tv.

Examination of witness

Dr Luke Clark [video link].

Q183 **The Chair:** Good morning. It is very good of you to take part. There are some formalities that I need to go through for the record. A list of the interests of Members relevant to the inquiry has been sent to you and is available. The session is open to the public, being recorded and is accessible via the parliamentary website. A verbatim transcript will be taken of the evidence and put on the parliamentary website. A few days after this session, you will be sent a copy of the transcript to check for accuracy. It would be helpful if you could advise us of any corrections as quickly as possible. If you wish to clarify or amplify any points made in your evidence after this session or have any additional points to make, you are very welcome to submit supplementary evidence to us later.

For the record, could you introduce yourself? We will then get on to the questions.

Dr Luke Clark: I am a professor of psychology at the University of British Columbia in Vancouver, Canada and director of the Centre for Gambling Research at UBC. The centre was launched in 2014 when I moved from the UK. As a disclosure, the centre receives joint funding from the provincial government in British Columbia and the British Columbia Lottery Corporation which is the Canadian Crown corporation that oversees all gambling in the province. Our research is independent from those bodies.

Q184 **The Chair:** Thank you very much. I will go to the first question. Bear in mind that we are laymen at the mercy of your intimate and scholarly knowledge of the subject. We are trying to grapple with the notion of addiction in the context of gambling and whether there are any differences between gambling addiction, drug addiction, alcohol addiction and other kinds of addiction. Is it useful to make those kinds of comparisons?

Dr Luke Clark: I believe that it is. Gambling disorder is a recognised psychiatric illness in the American DSM and the World Health Organization ICD schedules. In both of those current systems, it is recognised alongside substance addictions as the first behavioural addiction. There is a lot of research from neuroscience in particular that supports that classificatory decision for gambling disorder as an illness.

If we think about what happens in the brain when people gamble, a gamble is an example of a risky decision. Any gamble involves some choice, or at least a simple decision to bet again. There is then a delay, from seconds to days, and an outcome of whether the person has won or lost. We can see a large network in the brain that is recruited when people engage in those stages.

Dopamine is a neurotransmitter and a core component in that network, particularly in the anticipation and the coding of wins. It is also commonly targeted by all drugs of abuse. There is strong evidence that gambling

stimulates the dopamine system. This has been shown by having people gamble during a particular kind of brain scan using dopamine radiotracers. There is also compelling evidence that medications that boost dopamine—for example, in Parkinson's disease—can influence gambling tendencies and cause a sudden emergence of gambling problems in some people.

The Chair: I will give you a stupid hypothetical; forgive me. If you had twins who had exactly the same upbringing, education, parents and environment, could it be possible that, for physiological reasons, one of them might have a propensity to become a problem gambler and the other one not? Is it predetermined by your physiological makeup or is it something else more characterful or ill-defined?

Dr Luke Clark: We can see there are biological risk factors for gambling disorder. Some of that evidence comes from twin studies showing a heritable biological component. That heritability is about 50%, so this is not an entirely genetic condition by any means. That means that there is also effectively a lot of room for environmental factors. In academic literature, we talk about this as a biopsychosocial framework: there are all three sets of influences. At the biological level, we can see some genetic contribution, which would be linked with particular personality traits: impulsivity is an important one. We can see basic demographic risk factors, such as male gender, younger age and lower income. We can also see a range of well-established environmental factors, such as current stress levels, as well as earlier life factors such as various forms of childhood adversity and childhood exposure to gambling.

That wide range of factors come together to determine that person's level of risk to developing a gambling problem. On top of that, whether that risk is expressed will depend further on what gambling products that person is exposed to and the wider gambling environment in their community—what games are legal and accessible, levels of advertising and so on.

The Chair: To what extent is the addicted gambler really chasing money or is it the thrill and the sensory by-product of gambling? It is not just greed and a kind of fortune hunting, is it?

Dr Luke Clark: Monetary motives are somewhere in the mix in all forms of gambling and will be particularly important in someone starting to gamble. However, I think that you are right that in people with severe levels of problem gambling we see a range of other psychological processes that act as reinforcements in a way and maintain the behaviour.

In some of our research looking at slot machine gambling, we see a powerful state of immersion in the game or product that is closely correlated with symptoms of problems gambling as well. People with higher levels of slot machine problems report a stronger state of immersion. In that state, the player or gambler loses track of the world

around them and the passage of time. That may provide a powerful form of escape from depression, low mood, anxiety, boredom and so on.

- Q185 **Lord Watts:** Dr Clark, the Chair has touched on some of the subjects that I was going to raise with you. Would you like to say anything about the addiction itself? Are people who have a gambling addiction problem more likely to be addicted to other things as well as gambling?

Dr Luke Clark: Many of the risk factors that I was talking about earlier cut across the addictions. For example, we can see from that biological component that identical twins of someone with a gambling problem are also at risk of other substance addictions. There is a common heritability shared in particular with alcohol use disorders. This is from work by Wendy Slutske and colleagues in the US. Many of these addictions become expressed in late adolescence and early adulthood. We can see that the risk seems to be shared across many addictive behaviours.

Lord Watts: Is that addiction problem treatable? Can you change people's behaviour to the extent that that disappears?

Dr Luke Clark: I am an experimental psychologist, not a clinician. I think that you are asking about a switching of behaviours. There is clinical evidence of what is called substitution: if somebody stops using one of the behaviours that they are addicted to, you can see rebound effects in other behaviours. There are clinical conditions under which that may or may not happen.

- Q186 **Lord Foster of Bath:** Dr Clark, thank you very much for giving up your time this morning. I want to ask you about the way in which gambling products are often designed to exploit people's biases. I know that this is an area that you have quite a lot of expertise in. Could you talk about those designs, particularly those to keep people with disordered gambling problems playing? Do you believe that the way that they are designed meets UK requirements that gambling is conducted in a fair and open way?

Dr Luke Clark: There is quite a lot to unpack in that question. You may want to bring me back to certain points. The first point is around the design features of different products. We can see that forms of gambling differ on a number of psychological dimensions, one of which is speed: some games are very fast, while others are much slower. Another would be sensory feedback—bells and whistles, effectively. Some games contain flashing lights and loud noises, while other games do not.

A lot of our research has been trying to isolate particular features of gambling games and look at their impact on behaviour. These are often called structural characteristics. I mentioned two, but we could list many of these dimensions, probably 10 or so variables. A lot of that research is on gambling machines and computerised forms of gambling. These are engineered products in which those features can be manipulated quite easily.

An example from our research is the audio-visual feedback. For example, when the gambler wins on a fruit machine, that is often accompanied by a lot of flashing lights and jingles. That is not changing the monetary payoff at all. In a sense, the feedback is irrelevant. However, we can see in healthy people that adding those lights and sounds increases risk preferences within a gambling game compared to a game that does not have any light and sound feedback. We do not know yet whether people with gambling problems are more susceptible to the biasing effect of that sensory feedback. We are currently running that study.

Another example from my work is around near misses. In a fruit machine game, a near miss would be having two cherries on the pay line and the third reel maybe stopping just short of a cherry. Again, objectively, those are loss events, there is not a pay out there. However, gamblers typically find near misses to be exciting events that motivate continued play. With gambling machines and even scratchcards, it is quite straightforward for the game to be designed in a way that more near misses can be delivered than we would expect by chance. We have done a number of brain imaging studies in which we have seen that people with gambling problems show a stronger brain response to near misses in the parts of the reward system that I talked about earlier.

Q187 Lord Foster of Bath: I am slightly confused. Could you help me? You have described that there are structural characteristics of games, given us some specific examples and suggested that they motivate the player to continue to play. You have also suggested that, with the exception of the near miss disguised almost as a win, there is not yet any research evidence that links problem gambling and structural characteristics leading to motivation to continue. Is that a correct assumption?

Dr Luke Clark: It is important to recognise that it is not easy to do this research on product features. For that reason, although it is quite well recognised that personal vulnerabilities and product features have a role in gambling problems and harm, the research has emphasised personal vulnerabilities for two or three decades. There is less research on product features, partly because they are very difficult to study. The industry is not always willing to make real games available: the source code is not shared. The products are very sophisticated, so it is not easy for academics to emulate these games in the laboratory and manipulate the key factors.

In direct response to the question, we can see from field research that problem gamblers prefer to play games that are faster, have more sensory feedback—bells and whistles—in the game, and give more options to configure different bets. As I said before, we have seen in our research that they are more sensitive to near misses. These products are so sophisticated and there are so many of these variables acting at once that the perfect research designs to figure out exactly which dimensions are most important in determining harm are very challenging. Ultimately, more research needs to be done.

Lord Foster of Bath: A number of witnesses have suggested that the

UK's Gambling Commission does not adequately conduct testing on the design of games, both on land and online. From what you are suggesting, given the present state of research, it would be very difficult for them to conduct such assessments on the likelihood of new games leading to addiction. Could you advise us on this?

Dr Luke Clark: I do not agree with what you have said there. For the designer of the games, it is relatively straightforward to manipulate these features; they just change lines of code. For academics to reverse-engineer these games to figure out exactly what is going on after the fact is much harder to do. As with video games or any sort of social media app, game designers can create many different versions of this game—for instance, one that has or does not have various forms of sensory feedback or one that is faster or slower. With any online product in particular, the game designers get very fast feedback from thousands of users about what is effective. The Gambling Commission could be more attuned to that process.

Q188 The Lord Bishop of St Albans: Dr Clark, can I ask a supplementary question about how people are kept gambling by asking a question about teenagers' brain development and playing various forms of games? Some people are worried. In Belgium, people are so worried that some of the games with loot boxes and skins have now been banned. Do you have any research suggesting or seeing a similar process with young people and gaming that may lead people into gambling at a later stage?

Dr Luke Clark: There have been very rapid developments in this area over the past decade. The research inevitably lags behind the current environment. Loot boxes are a very good example of that which have existed in video games for many years. There was a lot of media discussion and outrage, primarily among gamers, in late 2017 around loot boxes in "Star Wars Battlefront II". At that point, there were still no published research studies evaluating loot boxes and their links with gambling. A year after that, the research started to appear.

There are various components of video gaming that involve monetisation. These are leading to new forms of financial harms in video gamers, in addition to the traditional harms of spending too much time gaming. There is a lot of concern about the potential crossover from gaming to gambling, partly through that conduit. The research to date shows associations between loot box use, loot box spending and gambling problems, but we have not yet been able to separate the exact pathways that you were talking about and whether high involvement with loot boxes and monetisation features lead to gambling problems or the opposite pathway, that people with some disposition to gambling problems get drawn to those aspects of gaming.

The Chair: I have a very quick question. You mentioned that the game designers or programmers are not keen to share their code with respectable academic research institutions. Do they give a reason for that, or can you speculate as to why they are reluctant to do that for research purposes? They could get you to sign an NDA.

Dr Luke Clark: I am not in a position to comment on the industry's motives there. The industry could be mandated to share gambling products and the associated code. It is not clear to me why that has not been forthcoming.

The Chair: Would you be in favour of them being mandated to share it for specific research purposes?

Dr Luke Clark: Yes, very much so.

Q189 **Lord Layard:** All kinds of betting are banned in Australia—in-play betting, slot machines, scratchcards, et cetera. Are you able to say how this affects the total amount of gambling harm? Does it just divert people from one form of betting to another?

Dr Luke Clark: Within any environment—Australia or the UK—there are a range of forms of gambling available. Those games may or may not be legally available and regulated. We can see that one of the main predictors of gambling harm is the number of different forms of gambling that a person engages in. This has been a particularly important issue in online gambling. There is quite a lot of research showing that online gamblers report high levels of engagement and gambling problems and other indicators of poor mental health and well-being.

In the research on online gambling, it has been very difficult to separate whether that is a sort of pure effect of the online mode of access or is driven by the fact that online gamblers are more likely to engage in a wide range of different forms of gambling. In studies that statistically control for that range or variety of different forms, the online mode per se is no longer a significant predictor. At the same time, it is still the case that these mixed-mode gamblers—who gamble online and offline—have a wide range of gambling problems and harms.

Q190 **Lord Filkin:** I will ask you an enormous question that is central to our inquiry. Please come at it from the angles of research and your own knowledge of the UK industry and what is happening in North America. It is the obvious question: what would be the most effective ways to reduce and prevent gambling-related harm in the UK?

Dr Luke Clark: That is a big question. I do not believe that there is a silver bullet. The public health framework indicates a multifaceted harm reduction approach. I see two pillars to that broad framework. One is a much wider spectrum of harm across the population than the clinical diagnosis that we have focused on in the questions so far. I think that we clearly see a much wider spectrum of harm from international data. In my view, the other pillar of this public health framework to gambling harm is the recognition of personal vulnerabilities, the product and the environment coming together.

Within this harm reduction strategy, there will be different interventions targeted at different parts of the problem. For example, some programmes around treatment and self-exclusion would be targeted to severely affected problem gamblers. Others would be targeted primarily

at youth, reducing exposure through age restrictions and educational programmes, for example. There is a lot of interest in interventions targeting at-risk gamblers, the middle group between those two extremes. These are people gambling currently whose gambling may become excessive. This is one particular area where behavioural tracking of account-based gambling is of great interest at the moment. Can gambling operators use behavioural tracking to identify high-risk gamblers and can interventions then be directed to those high-risk individuals, such as showing them their recent expenditure or encouraging gamblers to set limits?

A final category of intervention would be programmes cutting across that whole spectrum, which are some of the most exciting approaches. Some of these involve the banking sector—for example, the proposed banning of credit cards in online gambling. Other programmes could entail a lot of attention to gambling marketing and modern forms of personalised advertising, particularly online. That attention to marketing is important because it is associated with basic exposure to gambling in youth, but also because these are powerful triggers of cravings and urges in people with gambling problems.

Lord Filkin: That is very helpful. I will pick up on one inference that I drew from what you said. Could you tell me whether it is correct? I understood you to say that if we focused only on the most serious harm or most vulnerable people, we would be in danger of not recognising that a wide-spectrum approach is more appropriate. If that is true, by a wide-spectrum approach you mean that there is a range of people at risk and a range of products or approaches that could put them at risk and we should therefore look broadly, rather than narrowly looking at the most serious harms. Have I have understood you correctly? Why are these things so?

Dr Luke Clark: I would agree with what you have said there. The traditional approach to problem gambling across much of the world for the past couple of decades has been very medicalised—a model that thinks about a gambling problem as quite a binary thing that somebody has or not. The prevalence is associated with that clinical condition.

The research over the past five or so years has shown quite convincingly that there is a much wider spectrum of harm spread throughout the population. These examples of milder harms that would not traditionally be called symptoms could be an inability to pay debts, sleep difficulties through worrying about gambling, selling personal belongings and items to support gambling, and a range of effects on significant others. There are so many more mildly affected individuals in the population experiencing those harms that the actual majority of the harm in the population is attributable to those individuals who do not meet clinical thresholds. That is the idea of the prevention paradox.

Q191 **Baroness Thornhill:** I absolutely accept looking at the wider population, certainly from our experience. Is it inevitable that somebody on that outer ring, for want of a different way of putting it, will inevitably go on

to have a real disorder? Will someone struggling along inevitably end up in a worse position? If not, what pulls them back from that?

Dr Luke Clark: That is a good question and an important one to research. From longitudinal studies done in other countries around the world, we can see a lot of transitions and movement in and out of gambling categories. I believe that around a third of individuals in an at-risk category will transition to problematic levels of gambling within a few years.¹ There is definitely some movement in that direction. This would support the need for that kind of longitudinal research in the UK.

Q192 **Lord Watts:** The Committee will agree about the difficulties faced by people with gambling compulsion. However, I am struggling a bit to see how you make a difference with gambling in comparison to, for example, alcohol, food, prescription drugs and credit cards. These are also addictive products. In public policy terms, how do you see the difference between gambling and some of the adverse effects that take place from people drinking alcohol, eating the wrong foods, taking prescription drugs and those sorts of things?

Dr Luke Clark: That is an important question. I am glad that we have had the chance to come back to it, because it relates to something that we talked about at the very start around the neuroscience here.

When we talk about drugs of abuse and the brain reward system and the dopamine system, we talk about drugs hijacking this system, which means that they perturb this system in a much more powerful way than natural rewards. It is important to recognise that all rewarding activities—which would include, for example, eating pizza—stimulate the dopamine system to a degree. Drugs of abuse hijack that system.

An important question about behavioural addictions such as gambling is how these behaviours also hijack the system or whether they affect the system in the same way as natural rewards. In the case of gambling, there is a lot of research showing the importance of unpredictable reward schedules. This goes back to Skinner's famous research in psychology in the 1950s around variable ratio schedules. We can see that the dopamine system is very interested in the combination of reward and its uncertainty. A £1 win on an unpredictable gambling game drives a

¹ Note by witness: In fact, two longitudinal studies in adults point to a lower transition rate of 9-15% of 'at risk' individuals moving to the 'problem gambling' category (Billi et al 2014 in Victoria, Australia; Williams et al 2015 in the Canadian 'Quinte' study), but this rate is likely to be higher in certain populations, especially young adults (Wardle, session 2 Q20)

References:

Billi, R., Stone, C.A., Marden, P., Yeung, K., (2014). The Victorian Gambling Study: A longitudinal study of gambling and health in Victoria, 2008–2012. Victoria, Australia: Victorian Responsible Gambling Foundation. Available at <https://prism.ucalgary.ca/handle/1880/50212>

Williams, R., Hann, R., Schopflocher, D., West, B., McLaughlin, P., White, N., King, K., & Flexhaug, T. (2015). Quinte longitudinal study of gambling and problem gambling. Report prepared for the Ontario Problem Gambling Research Centre. Guelph, Ontario. February 20, 2015. Available at <http://opus.uleth.ca/handle/10133/3641>

stronger dopamine response than a £1 win that you knew that you would get. That surplus of dopamine activity driven by uncertainty can be a mechanism for a similar hijacking.

In current clinical and neuroscience research, gambling disorder is recognised as a behavioural addiction. There is currently quite a major controversy around video gaming disorder, but there are various sources of uncertainty and unpredictable reward schedules in video games. It is not known whether foods and various forms of natural reward can be understood in those terms.

The Chair: Thank you. Before I come to Baroness Thornhill, I will ask you about advertising. En passant, in a previous answer you talked about advertising being a trigger. In layman's terms, if all advertising—paid marketing—was abolished and forbidden, do you think that there would be a good result in terms of fewer people gambling or being tempted into problem gambling? I am sorry, that is a horribly simplistic question.

Dr Luke Clark: People with gambling problems widely report the triggering effects of gambling adverts. In the work that I did in the UK with Dr Bowden-Jones at the National Problem Gambling Clinic, clients would often report that just the sight of betting shop fronts was a very powerful trigger. These are learned cues. There is a huge amount of research cutting across addictive behaviours about the basic learning mechanisms through which these stimuli elicit cravings. Reductions in gambling advertising will inevitably reduce the triggering impact and the associated risk.

Q193 **Baroness Thornhill:** I will ask what I hope is a simple question on the back of that one. I am quite interested in the agency of self in all this. If you go down the behavioural addiction route, what is the road to recovery in your brain-based model?

Dr Luke Clark: Current treatments for gambling problems in much of the world are psychological and entail a combination of approaches. Cognitive behavioural therapy is well supported by evidence as being effective in the treatment of problem gamblers. The cognitive component is around some of the biases and misperceptions of gambling games. This is a different area that we have not talked much about today. The behavioural component of CBT would be around identifying motivations for gambling and triggers of gambling episodes. Cognitive behavioural therapy would work on those components and would often be combined with debt counselling and family therapy. These are evidence-based treatments.

I have slightly lost the thread. I feel that there was another aspect to your question that I have missed.

Baroness Thornhill: I suppose that I was looking at whether there was the agency of self in making choices. It was really about whether something is an illness and you cannot help yourself. At what point is it about what you choose to do in pulling yourself back from the brink? For example, awful though it might sound, you could argue that the decision

to end your life is a choice, as is the decision to live and pull back. At what point does the more psychotherapeutic issue come into your interpretation of what causes gambling?

Dr Luke Clark: Frankly, personal responsibility in this area is a difficult concept. I agree that each gamble, for example, involves some level of personal decision. At the same time, these games and gambling products are drawing on a lot of sophisticated features. The cognitive biases at work here and the transition into an addictive state ultimately reduce that personal responsibility.

Q194 **Baroness Thornhill:** I get that. I will ask you a more boring question, my official one. We want to put some responsibility back on to the operator, what we would call a duty of care to their customers. At the moment, our law is quite ambiguous in the way that it is interpreted. Do you have a similar mechanism? How might it be defined? Is it effective in making operators realise that they have a real duty of care? For example, if somebody who asks to be self-excluded is not, we currently have no means of bringing that back on to the operator and saying that they were somehow responsible for what happened. Do you have similar mechanisms? Could you advise on this?

Dr Luke Clark: There seem to be legal aspects to that question that are outside my expertise. As a researcher working on the psychology of gambling, I would reiterate that gambling is associated with a range of objective and demonstrable harms, as well as negative consequences on health and financial well-being. It is clearly a profitable industry for operators. I would support a duty of care on the part of licensees. A gambler whose harm can be attributed to a failure on the part of the operator should have legal recourse.

Q195 **Lord Layard:** Since the Gambling Act, we have had a lot of experience of its operation. In psychology and medicine, we have learned a lot about addiction that we did not know at the time of the Gambling Act. In the light of that, do you think that the aims and priorities set out in the Act are still appropriate? For example, is the "aim to permit" clause still appropriate?

Dr Luke Clark: I was entering the gambling research field in 2005 when the Act was passed. My clear impression of the academic consensus at the time was that the changes in the Gambling Act were likely to increase gambling problems.

My approach to that question would be to consider how the gambling landscape has further changed in the 15 years since the Act and the extent to which those changes represent qualitative shifts or game-changers, things that could not have been anticipated. I feel that there are a number of such shifts, some of which we have already talked about in detail.

First, the evidence on the public health approach and the number of people being harmed by gambling is far greater than the prevalence estimates of the clinical disorder. Secondly, the accessibility has changed

dramatically. With online gambling this was somewhat anticipated in 2005, but I think that we have seen a very substantial change over the past five years in access to mobile devices. Pretty much every young person in the country can access gambling products through their phone at any time and in any place. The third set of changes, those around the use of data and account-based tracking by gambling operators, are linked to that. That data can be used for better or worse, for identifying and protecting vulnerable individuals or tailored marketing to them. This is very concerning. It is an extremely fast-moving area for regulation to respond to.

We also have a change in awareness around the effects of computerised products more generally. We are seeing similar movements for video gaming and social media. These are very sophisticated products that involve behavioural hooks to keep the person using and coming back to the products. Those platforms may be amplifying the harms associated with these products. In light of these changes, I support a major review of the Act.

Q196 The Chair: I will ask a final question. The Gambling Commission in the UK test new products from operators prior to them going to market, mostly on the basis of fairness and that the claims that operators make for those games are justified, fair and transparent. They do not seem to test for the addictive qualities of games. That is a very generic phrase, but I think that you know what I mean. If they were given the resources and people like you were allowed access to the code, et cetera, would it be possible to design some protocols that would enable the Gambling Commission to measure games for a level of addiction that would enable them to say, "Actually, no, we will not let this game on to the market; it is far too potentially addictive"? Would it be possible to create some kind of protocol and measurement?

Dr Luke Clark: That is a difficult question. These are sophisticated products, and there are a number of psychological variables and structural characteristics, which we have talked about today. There are some risk assessment tools available that score new gambling products based on an established range of dimensions to get risk ratings for them.

The Chair: The risk of what?

Dr Luke Clark: I suppose it is like an addictiveness risk. Some of those products are commercial and it is not easy to look at the inner workings of the risk assessment tool itself. There is a German product in the public domain with which you could score a lottery or gambling machine game on various components including speed, audio-visual feedback and the things that we have talked about today.

We do not know enough about where the addictiveness comes from. I mentioned immersion earlier, but that is a slightly different perspective on this. I see the immersiveness of a game almost as the whole being greater than the sum of the parts. These many ingredients might come together to create a game that is powerfully immersive, and it may not

be possible to isolate the immersiveness of the game to one particular ingredient. I think that it is the same in video gaming. There are different perspectives on this. What you are proposing is complicated, but I like the idea in principle.

The Chair: Thank you. I am sorry. There is a quick supplementary and then we will let you go.

Q197 **Lord Layard:** It will be very quick. You said, very interestingly, that the total harm from the mild to moderate cases is bigger than comes from extreme problem gambling. Could you send us a reference about that? Are you relying on some study?

Dr Luke Clark: Yes, I certainly can. This has been done most convincingly in Australia, in Matt Browne's work showing that 85% of gambling harm in Victoria comes from the mildly affected at-risk groups. Only 15% comes from the problem gambling group. The principle itself is very well understood in the context of alcohol harms. I can provide that evidence.

Lord Filkin: You can see why it is of interest to us, given Lord Layard asking the question and where he comes from on this.

The Chair: I conclude this session by thanking you on behalf of the Committee for giving up your time and for an absolutely riveting sharing of your knowledge with us. We are so grateful to you. I cannot tell you how invaluable this will be to our deliberations. We look forward to your reaction to our eventual report. Thank you so much, Dr Clark. It is very much appreciated.