

Chapter 3

Psychology and loot boxes

3.1 Despite the view that many of the legal definitions of gambling do not extend to loot boxes (both in Australia and internationally), submitters argued that some types of loot box are so functionally similar to, or share enough characteristics with, other forms of gambling that they should be regulated accordingly.

3.2 Evidence was twofold: that some types of loot boxes meet the psychological definition of gambling; and that loot boxes use psychological mechanisms in the same way that other forms of gambling do, in order to encourage play.

3.3 Submitters also argued that loot boxes may cause gambling-related harms, encourage gambling activity, and familiarise children and young people with gambling and gambling-like activities.

Psychological definitions of gambling

3.4 It was argued that many loot boxes meet the psychological definition of gambling, even where they do not meet the legal definitions. In particular, submitters highlighted the criteria used in psychology literature to distinguish gambling from other forms of risky behaviour. The criteria used to identify gambling activity are as follows:

- the exchange of money or valuable goods;
- an unknown future event determines the exchange;
- chance at least partly determines the outcome;
- non-participation can avoid incurring losses; and
- winners gain at the sole expense of losers.¹

3.5 Dr James Sauer and Dr Andrew Drummond (Sauer and Drummond) explained that to meet these criteria, a loot box system would need to:

- be purchasable for real-world currency;
- be accessed after payment is made;
- provide a reward determined at least partly by chance; and
- be optional (i.e. players must be able to choose not to buy the loot box).²

1 Dr James Sauer and Dr Aaron Drummond, *Submission 2*, pp. 3–4.

2 Dr James Sauer and Dr Aaron Drummond, *Submission 2*, p. 4.

3.6 Sauer and Drummond submitted that the fifth psychological criterion, that players profit at the expense of losers, would only be met if the obtained reward provides winners with a direct competitive advantage over losers in future gameplay. Sauer and Drummond described this as 'a conservative approach'.³ Dr Sauer told the committee:

We've adopted a fairly conservative interpretation of this and thought that it only occurs where players might gain some sort of real-world competitive advantage in future games. This is not the only way you might conceptualise value. The combination of scarcity of items, desirability of items and social status of items may well contribute to people wanting those items, and the desirability and value that they have to people.⁴

3.7 As noted in Chapter 2, Sauer and Drummond examined the loot box mechanisms contained in 22 games released in 2016 and 2017. Sauer and Drummond examined such mechanisms against the above established psychological criteria for gambling and found that:

Nearly half of the games reviewed met all the psychological criteria, and more than one-in five met the cash-out criterion (allowing players to cash out winnings). These cases appear most clearly to constitute a form of gambling.⁵

3.8 It was however noted that the study only examined major home game-console and PC releases and did not analyse smartphones and tablet releases of video games. Dr Drummond told the committee that 'market research does suggest that loot boxes and micro-transactions for chance-based items are much more common' in mobile games. As such, the overall percentage of video games meeting the psychological criteria for gambling could not be assessed; however, it is possible that the overall percentage of loot boxes meeting the criteria 'is likely to be a little bit higher' with the inclusion of mobile games.⁶

Psychological mechanisms

3.9 Submitters also presented evidence that loot boxes share psychological mechanisms with other forms of gambling. These include:

- variable ratio reinforcement schedules;
- game-play experience such as sensory feedback;
- entrapment and other mechanisms encouraging continued spending; and
- ready and constant availability.

3 Dr James Sauer and Dr Aaron Drummond, *Submission 2*, p. 4.

4 Dr Aaron Drummond, *Proof Committee Hansard*, 17 August 2018, p. 2.

5 Dr James Sauer and Dr Aaron Drummond, *Submission 2*, p. 4. See also Dr James Sauer, *Proof Committee Hansard*, 17 August 2018, p. 1.

6 Dr Aaron Drummond, *Proof Committee Hansard*, 17 August 2018, pp. 1–2.

3.10 The following sections will outline the evidence received in relation to a range of mechanisms commonly found other forms of gambling. The following sections will also explore the way in which these mechanisms influence and affect players; and the potential for gambling-related harms to be experienced by players as a result of these mechanisms.

Variable ratio reinforcement schedule

3.11 Operant conditioning, or the rewarding of certain behaviours to encourage the repetition of such behaviour, is a well-recognised concept. However, one of the key findings in psychological research into operant conditioning is that 'the most effective way to encourage a behaviour is not to reward every instance of that behaviour. It's to deliver rewards on a seemingly random schedule...this is...a variable reinforcement schedule'. Dr Sauer explained:

What this means is that on average a behaviour might be rewarded once every 10 times it's committed, but in practice it might be two instances to your first reward, 13 instances to your second reward, five instances to your third reward and so on. This is called a variable ratio reinforcement schedule. What it does, in addition to offering rewards at intermittent points in time or following a certain number of responses, is that each time the player commits the behaviour but doesn't get the reward they get a little tinge of disappointment, but they also think, 'Well, I'm one step closer to getting the reward the next time'.⁷

3.12 Of particular note, variable ratio reinforcement schedules result in people quickly acquiring behaviours, and repeating these behaviours frequently, in the hope of obtaining a reward. Such behaviours are 'extremely persistent' and variable ratio reinforcement schedules are a central feature of poker machine gambling.⁸ Dr Sauer described these behaviours as 'robust against extinction' and noted that 'it's very difficult for players to stop repeating the behaviour, even once the rewards become more and more infrequent'.⁹

3.13 The Royal Australian and New Zealand College of Psychiatrists (RANZCP) submitted that concurrent with such behaviours are the 'adaptation of neural pathways which further encourage these behaviours'. It also stated that:

While most people who engage in gambling activities with a variable ratio reinforcement schedule do not develop problem gambling, many do, and these are likely to be people with pre-existing vulnerabilities.¹⁰

3.14 It was argued that the variable ratio reinforcement schedule that underpins many gambling models, similarly underpins the mechanism of loot boxes. As noted

7 Dr James Sauer, *Proof Committee Hansard*, 17 August 2018, p. 2.

8 Dr James Sauer and Dr Aaron Drummond, *Submission 2*, p. 3.

9 Dr James Sauer, *Proof Committee Hansard*, 17 August 2018, p. 2.

10 Royal Australian and New Zealand College of Psychiatrists (RANZCP), *Submission 9*, p. 2.

above, variable ratio reinforcement schedules involve a reward structure where players do not know how many purchases are required to obtain an item sought¹¹ and Sauer and Drummond explained that in the context of loot boxes this means that:

Across multiple purchases, players might receive a high value item on average every X number of times they open a loot box (where X represents a number of openings determined by a pre-defined algorithm). For example, a game with a 10% chance of a high value item in a loot box may result in success, on *average*, once for every ten boxes purchased. Critically, however, the *exact* number of boxes that must be purchased to obtain a valuable item varies.¹²

3.15 The RANZCP assessed the risk to players who engage with loot boxes of developing gambling-related harms as likely being similar to the risk posed by other forms of gambling that utilise variable ratio reinforcement schedules.¹³

Predatory monetization schemes

3.16 Dr Daniel King and Professor Paul Delfabbro, School of Psychology, The University of Adelaide, described loot boxes as a predatory monetization scheme in an editorial for the academic journal *Addiction* in June 2018. King and Delfabbro stated that loot boxes contributed to increasing the similarities between gaming and gambling, and created a potential for financial harm. King and Delfabbro defined predatory monetization schemes as 'purchasing systems that disguise or withhold the long term cost of the activity until players are already financially or psychologically committed'.¹⁴

3.17 For King and Delfabbro, loot boxes encouraged repeated player spending through intrusive and unavoidable solicitations, limited disclosure of the product, and systems which manipulate reward outcomes to reinforce purchasing behaviours at the expense of encouraging skilful or strategic play.¹⁵

3.18 In addition, King and Delfabbro noted that player data is being collected and utilised to manipulate the nature and presentation of loot boxes to maximise the likelihood of players making purchases. In some cases, the prices and chances of

11 RANZCP, *Submission 9*, p. 2.

12 Dr James Sauer and Dr Aaron Drummond, *Submission 2*, p. 3.

13 RANZCP, *Submission 9*, p. 2.

14 Victorian Responsible Gambling Foundation (VRGF), *Submission 8*, p. 5. Citing, Daniel King and Paul Delfabbro, 'Predatory monetization schemes in video games (e.g. 'loot boxes') and internet gaming disorder, 28 June 2018, *Addiction*, pp. 1–2. See also Australian Council on Children and the Media (ACCM), *Submission 25*, pp. 6–7.

15 VRGF, *Submission 8*, p. 5. Citing, Daniel King and Paul Delfabbro, 'Predatory monetization schemes in video games (e.g. 'loot boxes') and internet gaming disorder, 28 June 2018, *Addiction*, pp. 1–2. See also ACCM, *Submission 25*, pp. 6–7.

winning virtual items are manipulated according to the player's spending and playing habits in the game. King and Delfabbro concluded that such schemes may entice some players to spend more money than they have, or can afford through the use of credit cards.¹⁶

3.19 Dr Marcus Carter similarly submitted that 'it is possible that some loot boxes are configured with variable odds, which change based on factors such as player profile (e.g. less likely to reward wealthier players) or behaviour (e.g. more likely to reward players the more they spend)'. Dr Carter described the latter as an 'example of predatory and manipulative practice' which exploits the 'Gamblers Fallacy', that is, 'the expectation that the probability of winning increases with the length of an ongoing run of losses'.¹⁷

3.20 International researchers, Rune Nielsen and Pawel Grabarczyk, also noted several other characteristics which are likely to be manipulated by the configuration of loot boxes. For example, players of *Marvel Strike Force* identified that they had been given different odds in the game's chance-based micro-transactions. Dr Carter stated that 'this is easily implemented when reward cannot be traded for real-money, potentially making them more harmful than rewards that can be subsequently traded for money'. However it was noted that investigating such practices is 'almost impossible' as such practices are kept strictly confidential. Dr Carter concluded that the potential impact of such practices on player's attitudes to real-world gambling are 'also potentially problematic, and may be contributing to the explosive growth of problem gambling in 18–25 year old Australian men'.¹⁸

3.21 The committee also received evidence from individuals concerned that video game developers and publishers are 'using advanced algorithms to encourage and then positively re-enforce the purchase of...loot boxes and the items they contain within'. Ms Stephanie Gray explained that games 'match make' to ensure that players that do not purchase loot boxes are forced to play against those who have made purchases. The virtual items won through loot boxes are significantly more powerful than free items and the player who has not made purchases is likely to lose repeatedly. If a player then decides to purchase loot boxes, they are likely to then be matched with those who have not, allowing them to begin winning games. Ms Gray submitted that this positively reinforces the decision to purchase a loot box.¹⁹

3.22 Dr Paul Cairns, Reader in Human-Computer Interaction, University of York, compared the development of electronic gaming machines (EGMs) with the

16 VRGF, *Submission 8*, p. 5. Citing Daniel King and Paul Delfabbro, 'Predatory monetization schemes in video games (e.g. 'loot boxes') and internet gaming disorder, 28 June 2018, *Addiction*, pp. 1–2. See also ACCM, *Submission 25*, pp. 6–7. See also Mr Tony Phillips, VRGF, *Proof Committee Hansard*, 17 August 2018, p. 19.

17 Dr Marcus Carter, *Submission 11*, p. 3.

18 Dr Marcus Carter, *Submission 11*, p. 3.

19 Ms Stephanie Gray, *Submission 30*, p. 1.

development of loot box mechanisms. Dr Cairns noted that the mechanics of EGMs (also called pokies, poker machines or slot machines) have been researched and developed to ensure effectiveness, particularly in ensuring that players continue to spend money. Dr Cairns stated:

...the research in slot machines is very clear. It's highly effective if you get those ratios right in what's called offering a smooth ride to extinction; in other words, literally taking all the money off the gambler. They worked over decades to get these proportions right and to get the balance right in order to monetise slot machines.²⁰

3.23 Dr Cairns went on to note that though game designers and developers are not working 'at the same industrial level at which slot machine developers are working', nevertheless 'there are people looking at these analytics, and if their job is to increase monetisation they will be doing exactly the same thing in the loot box context'.²¹

3.24 It was also highlighted that players are 'heavily incentivised to permit mobile games to send them push notifications, for example to remind them when they can play again'. Dr Carter stated that:

These appear like text messages on a players' phone. Some games send push-notifications about limited time offers such as a discount on purchasing in-game currency, or a for free 'loot-box' for logging in every day. Large companies likely spend considerable resources on identifying the most effective way to send these messages to encourage player to engage in in-app purchases, many of which (as discussed) heavily resemble gambling.²²

3.25 Dr Carter concluded that 'for some players (many of whom are children), this would be like having a slot machine in your pocket that actively encourages you to gamble at your most vulnerable moment'.²³

Optional participation

3.26 However, the Interactive Games and Entertainment Association (IGEA) argued that 'loot boxes are simply one form of optional micro-transaction that will always provide players with in-game items. They are not necessary or required to enjoy, progress in or complete a video-game'.²⁴

3.27 Mr Ron Curry, Chief Executive Officer, IGEA told the committee that loot boxes are not predatory because 'loot boxes are not the only way to do those things

20 Dr Paul Cairns, University of York, *Proof Committee Hansard*, 17 September 2018, p. 5.

21 Dr Paul Cairns, *Proof Committee Hansard*, 17 September 2018, p. 5.

22 Dr Marcus Carter, *Submission 11*, pp. 3-4.

23 Dr Marcus Carter, *Submission 11*, p. 4.

²⁴ IGEA, *Submission 3*, p. 4.

[game achievements], and nor is a loot box the only way to finish a game for example'.²⁵

Game-play experience

3.28 A number of submitters raised concern that the game-play experience of opening loot boxes is similar to the experience of playing EGMs. For example, like EGMs, loot boxes:

...often encompass rapid playing speeds combined with rapid (or in the case of micro-transactions, immediate) payouts, the potential to quickly and easily multiply bets/transactions, and audio-visual effects to enhance the gam(b)ling experience.²⁶

3.29 In particular, the sensory feedback provided to players during the opening of a loot box was compared to those provided by poker machines. For example, Mr Lindsay Shaw, Senior Policy and Knowledge Officer, Victorian Responsible Gambling Foundation (VRGF) stated that when a 'loot box opens there's flashing lights and there's music, the same as a poker machine'.²⁷ The committee also heard that the animations used to deliver loot boxes in games are similar to those used by EGMs. For example, Mr Glen Bruton submitted:

I would suggest you watch some of the animations used in games when 'opening a loot box', try to divorce them from similar animation and sound techniques used on poker machines, you probably won't be able to.²⁸

3.30 Similarly, Mr James Donnelly stated:

When opening the boxes, the possibilities of what may be ultimately draw for the player is scrolled across before them on their screen. This is identical to the way a slot machine scrolls around before ultimately stopping. As with the slot machine, the graphic display eventually stops on an item, which is given to the player – regardless of whether that is what they desired or not.²⁹

²⁵ Mr Ron Curry, IGEA, *Proof Committee Hansard*, 17 August 2018, p. 32.

²⁶ RANZCP, *Submission 9*, p. 2. See also Mr Greg Tannahill, *Submission 20*, p. 7.

²⁷ Mr Lindsay Shaw, VRGF, *Proof Committee Hansard*, 17 August 2018, p. 20.

²⁸ Mr Glen Bruton, *Submission 19*, p. 1.

²⁹ Mr James Donnelly, *Submission 14*, p. 1

Monitoring of spending

3.31 It was submitted that 'users can quickly become unaware of how much money they have spent'.³⁰ The ability for players to monitor and control spending on loot boxes is affected by a number of factors including: the use of in-game currency and the dematerialisation of payment; one-click purchasing; and a lack of real-time feedback.

3.32 These are mechanisms commonly found in other forms of gambling, and which can contribute to the development of gambling-related harms.

In-game currency

3.33 The committee received evidence that many video games use items such as crystals, gold coins, hearts or other symbols appropriate for the specific genre of the game to represent currency for micro-transactions. As such, players purchase such in-game currency with real-world currency and then purchase virtual items such as loot boxes with the in-game currency.

3.34 The use of so-called in-game currency can affect players' ability to track purchases and monitor spending. The Australian Council on Children and the Media (ACCM) submitted that 'the effect of virtual money use is the dematerialisation of payment' where 'the user often has no clear idea of [the] actual cost' of the loot box.³¹

3.35 Similarly, Dr Drummond explained that 'there is some research that suggests that this conversion into abstract currency may also increase people's willingness to spend money when it is in abstract forms rather than real-world dollars'.³²

3.36 Mr David Wanden, a video game player, told the committee that many games use digital currencies which are purchased with real-world currency. Mr Wanden submitted that:

The idea behind this strategy is to detach you from your money so that you are more comfortable spending it much like casinos use chips or credits that you gamble with rather than your real money. For example \$4.99 might get you 500 'coins' 2 loot boxes cost 480 coins. You spin the slot on 2 loot boxes and then have 20 coins left over that you can't spend so if you want to use them you are forced to spend more money.³³

30 Mr Julian Rzechowicz, *Submission 22*, p. 5.

31 Australian Council on Children and the Media (ACCM), *Submission 25*, p. 3. Citing Nenad Tomic, 'Effects of micro transactions on video games industry', *Megatrend revija – Megatrend Review Vol. 14*, No 3, 2017: 239–258 March 2017.

32 Dr Aaron Drummond, *Proof Committee Hansard*, 17 August 2018, p. 7.

33 Mr David Wanden, *Submission 24*, p. 1.

One-click purchasing

3.37 The ease with which micro-transactions can occur was highlighted as affecting players' ability monitor spending. Dr Drummond explained that particularly with tablet and phone games, in-app purchases are 'incredibly easy'. Dr Drummond stated:

Once you have entered your card details, all you have to do is re-enter your password in order to get those in-app purchases, which may be for chance based items. So it is very easy for players in those mediums to spend money. It is a little bit harder for players in more conventional mediums like consoles and PCs to spend that money; usually they would have to drop out of the game and go to a separate marketplace. But within smartphone releases and tablet releases it is much easier.³⁴

3.38 Dr Cairns, University of York, told the committee that 'the physical world puts natural barriers in the way of people's behaviour'. In contrast, online activities are characterised by 'velocity and volume', that is, 'computers can do...things quickly and in large quantities', including making rapid and repeated purchases of items such as loot boxes. Dr Cairns explained:

...if I wanted to go and buy a Kinder egg I have to pop down to the shop and buy a Kinder egg, or I can buy a box full of Kinder eggs. But once I've spent that and opened them, I'd have to go back to a shop again, and that slows things down, because it is a physical action. When I am on a computer, I can keep pressing 'buy' at a rate as fast as my finger can click. So there is velocity is there. And of course the volume is that I can spend as much as I think is reasonable as well...If I was an addicted book reader I could buy a book a minute on Amazon without any problem whatsoever. Nothing would stop me. And it is the same with loot boxes and games. There's nothing stopping people spending at that volume and that velocity. It is a difference in nature, not a difference in quality.³⁵

3.39 Dr Drummond concluded that such ease of purchase creates 'the hazard of not being able to receive real-time feedback about the amount of money that is being spent'.³⁶ Similarly, Mr Tony Phillips, VRGF, told the committee that where users are at risk of losing control of their spending, the tracking of spending is 'really important'.³⁷

34 Dr Aaron Drummond, *Proof Committee Hansard*, 17 August 2018, p. 7.

35 Dr Paul Cairns, *Proof Committee Hansard*, 17 September 2018, p. 3.

36 Dr Aaron Drummond, *Proof Committee Hansard*, 17 August 2018, p. 7.

37 Mr Tony Phillips, Victorian Responsible Gambling Foundation, *Proof Committee Hansard*, 17 August 2018, p. 18.

Entrapment

3.40 The committee also heard that gaming micro-transactions for chance-based items can reinforce and perpetuate continued play which sustains ongoing spending through so-called 'entrapment' (when an individual believes they have invested too much to quit).³⁸

3.41 The RANZCP explained that continued play through entrapment is similar to individuals 'chasing losses' in traditional gambling and that 'people who engage in micro-transactions often report their primary motivation as a desire to extend play, as well as an aim to chase lost credits and to speed up play'.³⁹

3.42 The ACCM similarly highlighted the work of King and Delfabbro which stated that in entrapment situations, 'players will often spend an escalating amount of money that begets further spending on the game'. King and Delfabbro explained that in the context of loot boxes:

The investment of an irretrievable sum of money in pursuit of desirable virtual items may be seen by players as an investment to the extent that it will increase the likelihood of obtaining these items. In this connection, spending more and more money on loot boxes may have a 'sunk cost' effect that serves to justify continued expenditure.⁴⁰

3.43 Entrapment can also be exacerbated by the use of virtual currencies, and association or play with other individuals who are similarly trapped. King and Delfabbro explained that 'entrapment by micro-transactions may occur because the costs are less salient, because these transactions are represented as virtual credits or credit card debt'.⁴¹

3.44 Further, the exposure to other online players who are entrapped may cause players to make 'maladaptive purchasing decisions'. King and Delfabbro explained:

Observing other players' spending and opening of loot boxes with favourable outcomes may provoke counterfactual comparisons (e.g. 'If only I had spent more ...') that sustain players' spending.⁴²

38 RANZCP, *Submission 9*, p. 2. See also ACCM, *Submission 25*, p. 3.

39 RANZCP, *Submission 9*, p. 2.

40 ACCM, *Submission 25*, p. 7. Citing Daniel King and Paul Delfabbro, 'Predatory monetization schemes in video games (e.g. 'loot boxes') and internet gaming disorder, 28 June 2018, *Addiction*, pp. 1–2.

41 ACCM, *Submission 25*, p. 7. Citing Daniel King and Paul Delfabbro, 'Predatory monetization schemes in video games (e.g. 'loot boxes') and internet gaming disorder, 28 June 2018, *Addiction*, pp. 1–2. See also RANZCP, *Submission 9*, p. 2.

42 ACCM, *Submission 25*, p. 7. Citing Daniel King and Paul Delfabbro, 'Predatory monetization schemes in video games (e.g. 'loot boxes') and internet gaming disorder, 28 June 2018, *Addiction*, pp. 1–2.

Potential for harm

3.45 Submitters noted that empirical evidence regarding the effect of loot boxes, and the potential for harm, is scarce due to such mechanisms being a 'relatively new and still evolving product'.⁴³ For example, Sauer and Drummond submitted that 'the current body of evidence does not yet allow us to draw confident conclusions about the short- or long-term consequences of engaging with loot box systems'.⁴⁴ Similarly, Dr David Zendle, Lecturer in Computer Science, York St John University, told the committee that:

...the literature is just...beginning with loot boxes, which is one of the things that make your decision-making very hard. There is very little evidence for you to go on. Certainly when it comes to empirical studies there is very little...It will take months, if not years, for the literature to gain the nuances that you're talking about and be able to inform you in any empirical way.⁴⁵

3.46 Dr Carter noted that 'there is little existing research into the impact of these mechanisms on players (adults or children) and factors such as their positive or negative experience with monetisation, and how it distorts or influences their perception of, and attitudes towards real-world gambling'.⁴⁶

3.47 However, the committee did receive evidence regarding 'the only large-scale study in existence regarding the effects of loot boxes'. This study was found to 'strongly support claims that loot boxes are psychologically akin to gambling' and 'suggest that there is a serious risk for loot boxes to cause gambling-related harm'.⁴⁷

Zendle and Cairns study

3.48 The study conducted by Dr David Zendle and Dr Paul Cairns 'investigated links between loot box spending and problem gambling'. It surveyed 7422 gamers and measured how much they spend on loot boxes, and the severity of their problem gambling.⁴⁸ Dr Zendle explained:

...we have run two studies. The first study was run on about 7½ thousand gamers, and the second study was run on about a thousand gamers and replicated the results. We got the same thing both times, which is always nice to see in science, because it suggests that the effect you are seeing in the world is real and it is robust. The first time we measured categories of

43 Victorian Responsible Gambling Foundation, *Submission 8*, p. 5.

44 Dr James Sauer and Dr Aaron Drummond, *Submission 2*, p. 5.

45 Dr David Zendle, *Proof Committee Hansard*, 17 September 2018, p. 2. See also, IGEA, *Supplementary Submission 3.1*, p. 2.

46 Dr Marcus Carter, *Submission 11*, p. 5.

47 Dr David Zendle, *Submission 38*, p. 1.

48 Dr David Zendle, *Submission 38*, p. 1.

spending. We asked people: 'Do you spend less than a dollar? Do you spend between \$1 and \$5? Do you spend between \$5 and \$10?'...In the second study we asked directly: 'How much are you spending in dollars? Give us the absolute amount.'⁴⁹

3.49 The study found that the more severe an individual's problem gambling, the more they spent on loot boxes. In particular, there was 'about a \$10 or \$15 difference per month in spending on average between problem gamblers and non-problem gamblers'. Dr Zendle stated that it is important to note that utilising averages 'discounts the effects of very, very extreme problem gamblers'. Dr Zendle explained:

We saw five or six people within that sample who were claiming to spend \$2,000 or so a month. In general, we see about one per cent of the people in each of our studies is spending \$300 or so, or upwards, per month on loot boxes. So you have got this long tail in the data where at the end you have a group of people who are spending really, really large amounts.⁵⁰

3.50 Zendle and Cairns submitted that the relationship between problem gambling and spending on loot boxes was found to be 'neither trivial, nor unimportant' and that the amount that individuals 'spent on loot boxes was a better predictor of their problem gambling than high-profile factors...such as depression and drug abuse'.⁵¹ Dr Zendle stated:

We've found that loot boxes are linked to problem gambling. The worse that people's problem gambling is, the more they spend on loot boxes. We have demonstrated and replicated this relationship in studies with over 8½ thousand participants. The link between problem gambling and loot box spending is neither small nor trivial. Our research has shown that this relationship is comparable in size to links between problem gambling and important factors like alcohol dependence, drug abuse and depression.⁵²

3.51 Zendle and Cairns noted that though the study 'provides the sole empirical evidence of a link between loot box use and gambling related harm', it is however 'important to clarify that the nature of this harm is partially unclear due to the correlational nature of the study'.⁵³ Dr Zendle explained that the relationship between loot boxes and gambling uncovered by the study indicates one of two things:

Loot boxes may well be acting as a gateway to problem gambling amongst gamers; hence the more gamers spend on loot boxes, the more severe their problem gambling becomes. Alternatively, it may be the case that

49 Dr David Zendle, *Proof Committee Hansard*, 17 September 2018, p. 2.

50 Dr David Zendle, *Proof Committee Hansard*, 17 September 2018, pp. 2–3.

51 Dr David Zendle, *Submission 38*, p. 1.

52 Dr David Zendle, *Proof Committee Hansard*, 17 September 2018, p. 1.

53 Dr David Zendle, *Submission 38*, p. 3.

individuals who are already problem gamblers instead tend to spend more on loot boxes.⁵⁴

3.52 Dr Zendle highlighted that 'problem gambling is characterised by excessive, harmful and often uncontrollable spending on gambling activities'. As such, the characteristics of loot boxes may lead gamers who are also problem gamblers to spend large amounts of money on loot boxes; just as they would spend on other forms of gambling.⁵⁵

3.53 Zendle and Cairns hypothesised that loot boxes are either causing gambling problems, or are providing an opportunity for game developers to 'exploit addictive disorders amongst their customers for profit'.⁵⁶ Dr Zendle stated:

Our research suggests that loot boxes either literally cause problem gambling or, alternatively, allow games companies to exploit serious gambling problems amongst their customers for massive monetary gain. It is important to remember that loot boxes are projected to generate as much as \$US30 billion in revenue this year alone.⁵⁷

3.54 It was also submitted that the results of the Zendle and Cairns study supports the position of academics who argue that loot boxes are psychologically similar to gambling. Dr Zendle explained:

Spending large amounts of money on loot boxes was associated with problematic levels of spending on other forms of gambling. This is what one would expect if loot boxes psychologically constituted a form of gambling. It is not what one would expect if loot boxes were, instead, psychologically comparable to baseball cards.⁵⁸

Caution advised regarding Zendle and Cairns study

3.55 In response to the evidence provided by Drs Zendle and Cairns, the IGEA provided the committee with a supplementary submission expressing concern with aspects of the study conducted.

3.56 IGEA expressed concern regarding the methodology utilised in the study and questioned 'whether an online poll using a self-reported sample of adult gamers recruited from Reddit...provides a sufficiently robust methodology for a study that may be used to inform regulatory decisions in Australia'. IGEA also questioned the

54 Dr David Zendle, *Proof Committee Hansard*, 17 September 2018, p. 1.

55 Dr David Zendle, *Submission 38*, p. 3.

56 Dr David Zendle, *Submission 38*, p. 3.

57 Dr David Zendle, *Proof Committee Hansard*, 17 September 2018, p. 1.

58 Dr David Zendle, *Submission 38*, p. 3.

reliability of responses, and noted that 'it does not appear that the research conducted by Drs Zendle and Cairns has had the opportunity to be peer-reviewed at this time'.⁵⁹

3.57 IGEA stated that it is 'worried that, in the environment of limited academic research, the Committee will be tempted to place disproportionate reliance on the research conducted by Drs Zendle and Cairns'.⁶⁰

Analogous evidence

3.58 Submitters, in acknowledging the lack of research into loot boxes specifically, offered an analysis of the potential risk of harm from loot boxes by examining their similarities to other forms of gambling which have been more widely researched. For example, the VRGF compared loot boxes with poker machines, and wagering to assess the risk of harm generators associated with each type.⁶¹

3.59 The VRGF found that loot boxes and poker machines share the following risk of harm generators:

- reinforcement through random rewards;
- associated with chasing losses;
- system of rewards are complex and hard to understand (though poker machines have a designated return to player);
- gambler's fallacy;
- accompanying visual and audio stimulation;
- near misses built into presentation of result (shows possible wins apparently just going past before final result);
- immersion (zoning out and losing track of time and spending);
- high accessibility and availability; and
- appeal to children (though poker machines are strictly regulated regarding location).⁶²

3.60 Similarly it found that loot boxes and wagering share the following risk of harm generators:

- push offers during sessions;
- offers that are hard to understand in terms of return for investment and actual price;
- ability to hide and play in private;

59 IGEA, *Supplementary Submission 3.1*, p. 2.

60 IGEA, *Supplementary Submission 3.1*, p. 2.

61 Victorian Responsible Gambling Foundation, *Submission 8*, p. 5.

62 Victorian Responsible Gambling Foundation, *Submission 8*, pp. 5–6.

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- very high levels of access (weak structural barriers to playing);
 - tokenisation or expenditure utilising an abstract form or an account;
 - social interaction which may cause a competitive or reinforcement effect leading to more expenditure or obsession; and
 - it can be hard to keep track of expenditure.⁶³

3.61 The VRGF also found that poker machines and wagering in fact offer consumer protections to players which loot boxes do not. These include self-exclusion, and the ability to track expenditure and play in some jurisdictions.⁶⁴

3.62 The RANZCP similarly submitted that the ease with which gaming platforms utilising loot boxes can be accessed 'bears similarities with the rise of interactive and online forms of gambling'. It particularly noted that online platforms provide ready and constant availability and stated that:

New gamblers are more easily recruited online, especially young people who are highly involved in web-based activities and who already have particular vulnerabilities with regard to problem gambling. In addition, online gambling sites are accessible 24 hours a day and do not require the person to leave their home. Mobile and internet games that involve micro-transactions for chance-based items carry many of these same risks.⁶⁵

Those most likely to be vulnerable to harm

3.63 Though research into the effects of loot boxes is limited, submitters drew on the research into other forms of gambling to hypothesise that the following groups of people are more likely to be vulnerable or susceptible to gambling-related harms through interaction with loot boxes: children; people with impulse control issues; and people with mental health issues.⁶⁶

3.64 It was suggested that the potential harm to players from loot boxes can be divided into three categories:

- unhealthy obsession – where players become focussed on the game in a way that results in negative outcomes or losses for themselves or those close to them;
- spending more than they can afford – where players lose control or judgement to the extent that they suffer financial losses that result in negative consequences for themselves or those close to them; and

63 Victorian Responsible Gambling Foundation, *Submission 8*, p. 7.

64 Victorian Responsible Gambling Foundation, *Submission 8*, pp. 6–7.

65 RANZCP, *Submission 9*, p. 2.

66 Victorian Responsible Gambling Foundation, *Submission 8*, p. 8.

- spending more time than they can afford – as a product of immersion and obsession, players lose track of time and incur negative consequences for themselves or those close to them.⁶⁷

3.65 The VRGF noted that children are still developing cognition and impulse control and are therefore particularly vulnerable to conditioning effects, and promotions more generally. Children are also highly attracted to games, and in many cases, children are the desired audience. The VRGF submitted that 'even without random reinforcements there are many existing immersive features in games that already cause loss of time harms for children'.⁶⁸

3.66 Connect Health and Community, a not-for-profit community health organisation told the committee that its 'youth and family counsellors are seeing younger children impacted by gaming because of the enticing colours; rewards and the opportunities games provide to socialise with friends'.⁶⁹

3.67 The Australian Institute of Family Studies (AIFS) told the committee that loot boxes increase the risk of underage gambling. It stated that 'there are few controls to prevent underage access to in-game gambling via 'loot boxes' and other chance-based items'. In addition, the unregulated nature of 'skin gambling' also means that age restrictions are largely absent on unlicensed 'skin gambling' sites. The AIFS submitted that:

Advertising, both traditional and through peer-to-peer networks, of other products on these sites, makes eSports, betting in 'skins', 'skin' lottery, casino games and other forms of gambling easily accessible to underage gamers.⁷⁰

3.68 The AIFS also noted that a lack of understanding of the issue amongst those 'not versed in gaming culture' means that 'such practices are often unclear to parents and, therefore, difficult for them to supervise'. It noted that there are widespread anecdotal reports of minors purchasing in-game items using their parents' credit cards without their knowledge, for the purpose of 'skins gambling'.⁷¹

3.69 Adults with impulse control issues are also a significant group amongst those who experience gambling related harms. Similarly, mental health issues such as anxiety, and to a lesser extent, depression are significant amongst those with problem gambling. The VRGF explained that research indicates that immersion or zoning out occurs with certain types of gambling, and that this functions as a psychological escape for some people with these issues. However, the time and money expended is

67 Victorian Responsible Gambling Foundation, *Submission 8*, pp. 7–8.

68 Victorian Responsible Gambling Foundation, *Submission 8*, p. 8.

69 Connect Health and Community, *Submission 7*, p. 3.

70 Australian Institute of Family Studies (AIFS), *Submission 10*, p. 3.

71 AIFS, *Submission 10*, p. 3.

likely to exacerbate gambling related harms, but the loss of control and cognitive reflection triggered by immersion obscures or negates any realisation of the issue.⁷²

3.70 Connect Health and Community submitted that while much of the discussion around micro-transactions has focused on young people, there are a range of individuals including those who are older and have lower levels of computer and financial literacy who are also at risk of gambling-related harms. It submitted that:

While these clients are wary of electronic gaming machines in pubs and clubs they are lured into games such as Candy Crush which encourage the buying of in-game item using micro-transactions. These include spinning wheels to win tools to complete the game or additional lives. Spending on these games can become a problem for people of all ages.⁷³

3.71 The RANZCP also noted that gaming disorder has recently been recognised in the ICD-11 and that individuals with gaming disorder are likely to be vulnerable to associated addictions including problem gambling, with potential overlap between gambling and gaming disorders. It submitted that 'as such, people with gaming and/or gambling disorder may be particularly vulnerable to developing addictive behaviours towards micro-transactions involving chance-based items available within the games they play'. The RANZCP stated that this is particularly, though not exclusively, the case when 'rewards are important for gameplay, especially when the importance of those rewards renders the game 'pay-to-win''.⁷⁴

Normalisation of gambling

3.72 For submitters that argued that loot boxes meet the psychological criteria for gambling, concern was also expressed that loot boxes may operate to normalise gambling activities to children and young players. The growth and popularity of loot boxes and simulated gambling 'means that young people are being exposed, at a minimum, to experiences that mimic gambling' and this 'has the potential to normalise gambling as a part of the experience of playing online and video games'.⁷⁵

3.73 The Association of Heads of Independent Schools of Australia (AHISA), for example, stated that research undertaken for the NSW Government concluded that 'exposure to gambling at formative stages of development is a risk factor for the normalisation of gambling as a recreational activity'. In addition, it was noted that research indicates that 'the scale of the risk of harm to children and young people in regard to online gambling is significant, given the extent of children's exposure to simulated gambling games and to in-game gambling scenarios'.⁷⁶

72 Victorian Responsible Gambling Foundation, *Submission 8*, p. 8.

73 Connect Health and Community, *Submission 7*, p. 4.

74 RANZCP, *Submission 9*, pp. 2-3.

75 Victorian Government, *Submission 35*, p. 1.

76 AHISA, *Submission 5*, p. 8.

3.74 Similarly, the AIFS submitted that loot boxes familiarises players, many of whom are minors, with a gambling activity that is almost identical to other forms of gambling. It noted that loot boxes coexist with 'lotteries, eSports betting and other more explicit gambling activities played in virtual currency'. The AIFS described this process as 'gamblification' and stated that it is analogous to the processes which exist in the 'context of sports betting, whereby gambling practices are becoming increasingly normalised as an inherent component of sports engagement'.⁷⁷

3.75 Connect Health and Community submitted that it has been 'increasingly concerned about the monetisation of gaming over a period of time' as 'predominately young men [are] graduating from gaming to sports betting and other forms of gambling'. It stated that 'recent research showed that 29% of the surveyed young men were placing bets on fantasy sports games weekly'.⁷⁸

3.76 The committee also received evidence from individuals who expressed concern that loot boxes normalise gambling for children, and that this will have later negative consequences for them. For example, one submitter stated that:

My wife is not a gamer, and has no history with games before or after the lootbox craze. My children have frequently been able to convince her to pay for random digital prizes in the hope of getting something they want - and never getting it. My main concern is that this form of gambling and addiction is being normalised for my children, so that when they have their own source of income they won't think twice about spending it on these items.⁷⁹

3.77 Similarly, Ms Stephanie Gray submitted that where children have been conditioned to view gambling as 'good' through positive reinforcement mechanisms found in games, the process of transitioning to 'adult gambling' will be 'easy'. Ms Gray stated:

When people conditioned to think that gambling is good make the transition to adult gambling (which will be easy considering they've been doing it in games for so long and see it as a good / fun thing to do, the prospect of doing it to win money as an adult will also look the same) this will have severely negative and dangerous effects for the young adult.⁸⁰

3.78 Submitters also noted the impact of gambling-related harms in Australia 'including on household functioning and relationships, health and wellbeing, and productivity and employment. In more extreme cases, these harms can lead to family breakdown, family violence and other crimes, mental illness and suicide'. As such,

77 AIFS, *Submission 10*, p. 2.

78 Connect Health and Community, *Submission 7*, p. 3.

79 Name withheld, *Submission 13*, p. 1. See also Mr Michael Rigby, *Submission 31*, p. 1.

80 Ms Stephanie Gray, *Submission 30*, p. 1.

'preventing further normalisation of gambling through 'loot boxes' in video games is a sensible public health measure'. The AIFS stated:

Gambling is recognised as a significant public health and policy issue in Australia. We submit that normalising gambling to young people through the provision of 'loot boxes' in online video games constitutes an additional, avoidable public health risk.⁸¹

3.79 However, IGEA submitted that 'research on whether loot boxes are harmful to players and whether the mechanic risks the "normalisation" of gambling is limited'. It highlighted that a number of researchers have stated that 'research into simulated gambling is in its infancy' and that more research needs to be undertaken. IGEA also highlighted that much of the research currently available relates to social gambling games and practice games rather than simulated gambling, or loot boxes. It stated:

...the limited amount of research conducted so far predominantly relates to simulated gambling games, which as described above, are video games that are very much designed to look, feel and play like traditional gambling games. Loot boxes are not designed to mimic traditional gambling activities in the same way that simulated gambling games are, yet even when it comes to these more overt forms of gambling games, research into "normalisation" is still inconclusive.⁸²

81 AIFS, *Submission 10*, p. 3.

82 IGEA, *Submission 3*, pp. 14–15.

