

## Should Loot Boxes in Video Games be Classified Under the Interactive Gambling Act 2001?

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### About the Authors.

Dr. Aaron Drummond (Massey University, NZ) and Associate Professor James Sauer (University of Tasmania, Australia) are cognitive psychologists conducting research in the area of the psychological effects of video games. In 2018 we authored a paper in *Nature Human Behaviour* examining the gambling-like characteristics of loot boxes in video games. This paper was cited as justification for the initiation of an Australian Senate Inquiry for which we provided invited written and oral testimony in our capacity as leading experts in the field. We are currently completing work on a \$300,000 NZD Marsden Fund Fast Start Grant to investigate this issue further. This grant has produced the first work utilising Australian data on the issue, the first meta-analysis on the topic, and the first experimental investigation of the effects of loot boxes on short-term risk-taking behaviour. Ms. Lauren Hall graduated with First Class Honours in Economics from Victoria University of Wellington, NZ in 2017, and is the current Laboratory Manager for the International Media Psychology Laboratory at Massey University. In 2020, we co-authored a paper (in collaboration with Dr. David Zendle, University of York, UK) in *Nature Human Behaviour* entitled: "Why loot boxes could be regulated as gambling." Dr Emily Lowe-Calverley (University of Tasmania, Australia) is a social psychologist who studies the psychology of human interaction with digital media, including the effects of engagement with social media and video games on well-being. We provide this written submission in our capacity as experts in the field of the psychology of loot boxes.

## **1. Executive Summary**

- Loot boxes differ in the extent to which they meet psychological and legal definitions of gambling. However, many loot boxes meet psychological and common legal criteria for gambling.
- A robust meta-analytic association shows that people with greater symptoms of problem gambling spend more on loot boxes than people with fewer problem gambling symptoms (Garea et al., 2021).
- The size of the association between loot box purchasing and problem gambling symptomatology is typically stronger for adolescents than for adults.
- There is mixed evidence about whether loot box spending is associated with psychological distress (see Drummond et al., 2022, and Etchels et al., 2022).
- Whether spending on loot boxes leads to the development of problem gambling symptomatology or whether problem gambling symptoms leads to increased engagement with loot boxes remains unclear.
- Our nascent experimental research suggests that engaging with loot boxes does not appear to increase risk taking behaviour in the short term, though more research on this issue is required before a definitive answer is known. The consequences of long term engagement with loot boxes are presently unknown.
- Loot box spending does not appear to be primarily from wealthy individuals (“whales”): Income has little impact on spending patterns (Close et al., 2021; Garrett et al., 2022).

### **Regulation Under the Interactive Gambling Act 2001 (Cth)**

- Although it may be possible to regulate loot boxes under existing gambling legislation (Drummond et al., 2020), this approach may be ineffective.
- Emerging research shows that loot box bans have been relatively ineffective in Belgium, even under threat of hefty fine (Xiao, 2022).
- Bans based upon specific loot box characteristics (e.g., randomisation) have been circumnavigated by some games companies via minor variations to loot box design.
- Motivated consumers can circumvent bans.
- Gamers may be disadvantaged in cross national gaming if bans are implemented in some jurisdictions but not others – providing some players with competitive advantages against their peers – increasing motivation to circumvent bans.
- We favour a cautious, consumer-centred response over classification under the Interactive Gambling Act. The aims of this consumer centred response should be to provide consumers with the information they need to make informed decisions for themselves and their children.
- A consumer education approach is important, as community understanding about loot boxes, and comprehension of warnings referring to loot boxes, appears relatively poor (Garrett et al., 2023).
- Harm minimization techniques such as limit setting might be appropriate for high-engagement spenders.

## **2. Are Loot Boxes Gambling?**

### **2.1 What are Loot Boxes?**

“Loot Box”, “Loot Crate”, “Loot Chest”, “Prize Crate”, and “Card Pack” are all catch-all terms for a digital container of randomised rewards that are obtainable in some video games. Herein, we refer to these mechanisms collectively as “loot boxes”.

Rewards within loot boxes may allow players to customise aspects of the in-game experience (e.g., the appearance of their character), or confer some benefit in terms of gameplay (e.g., providing players with more powerful weapons to offer them a competitive advantage). Importantly, players are not able to discern the item that they will receive prior to obtaining a loot box. Items may vary in terms of both utility (e.g., a powerful weapon versus a cosmetic change such as a new costume) and rarity (e.g., common versus rare items).

Loot boxes are not homogenous. Some games offer loot boxes as rewards based on merit (e.g., a player may receive a reward or access to a loot box for accomplishing a challenging in-game task); other systems allow, or require, players to purchase loot boxes using real-world money.

This latter category is the focus of our submission. It is important to note that our conclusions here relate specifically to loot boxes providing randomised outcomes and purchased using real-world money (or where real-world money is converted to virtual currency to purchase a loot box). Our conclusions are not intended to be applied broadly to all forms of in-game monetisation or reward systems.

Nonetheless, this purchasable category of loot boxes represents a common and profitable aspect of modern video game design. Zendle et al. (2020) suggests that approximately 58.5% of top games on mobile phones and tablets, and 36% of top games on Personal Computers contain loot boxes. In 2021, Juniper Research estimated that revenue from loot boxes was \$15bn, and projected revenue from loot boxes to reach \$20bn by 2025 (Juniper Research, 2021).

### **2.2 Are Loot Boxes a form of gambling?**

In 2018 and 2020, we authored papers specifically investigating this question (Drummond & Sauer, 2018; Drummond et al., 2020). In our first investigation, we examined twenty-two console and PC games, published in 2016-2017, containing loot box systems to determine if these reward mechanisms constituted a form of gambling according to established psychological criteria for gambling. All the loot box systems reviewed met some psychological criteria for gambling, and nearly half met all five psychological criteria for gambling (Drummond et al., 2018). In some cases, virtual items obtained from loot boxes could also be sold for real-world money in online marketplaces. In our subsequent

investigation we demonstrated that loot box rewards have financial value to players; countering the argument that loot boxes cannot be considered a form of gambling because the digital items won from loot boxes have no value (Drummond et al., 2020). Where purchasable for real-world money, loot boxes may therefore meet the consideration, chance, and prize components of the legal criteria for gambling in Australia (Interactive Gambling Act, 2001).

However, prior to elaborating further upon these findings, it is necessary to consider (a) the shared psychological mechanisms underpinning loot box systems and more conventional forms of gambling, and (b) the psychological and legal criteria used to define gambling.

#### *Loot boxes and gambling: Shared psychological mechanisms*

Where purchasable for real-world money, loot box systems present some striking similarities to more conventional forms of gambling, especially lotteries (Griffiths, 2018). Players purchase a loot box for money without knowing its contents. They then receive rewards of varying utility and/or rarity based upon chance. In this way loot boxes approximate a lottery ticket – a small investment of funds for a chance of winning a desirable or valuable item.

The element of chance creates an important “randomness” in the delivery of rewards. 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 loot boxes purchased. Critically, however, the *exact* number of loot boxes that must be purchased to obtain a valuable item is unknowable. This kind of reward structure is a *variable ratio reinforcement schedule*, and underpins many conventional forms of gambling (Rachlin, 1990). Variable ratio reinforcement results in people quickly acquiring behaviours and repeating these behaviours frequently in the hopes of receiving a reward. Behaviours acquired with variable ratio reinforcement are extremely persistent (Ferster & Skinner, 1957). Variable ratio reinforcement is a central feature of electronic gaming machine (EGM) gambling.

#### *Defining gambling: Psychological and legal criteria*

In the psychological literature, Griffiths (1995) has identified five criteria that distinguish gambling from other forms of risky behaviour.

1. The exchange of money or valuable goods.
2. An unknown future event determines the exchange.
3. Chance at least partly determines the outcome.
4. Non-participation can avoid incurring losses.

5. Winners gain at the sole expense of losers.

Thus, to meet the psychological criteria for gambling, a given loot box system must (Drummond & Sauer, 2018):

1. Be purchasable for real-world money.
2. Be accessed after payment is made.
3. Provide a reward determined at least partly by chance.
4. Be optional (i.e., players must be able to choose not to buy the loot box).

The fifth criterion was more complicated. We adopted a conservative approach and classified a game as meeting this criterion only when the obtained reward provided winners with a direct competitive advantage over losers in future gameplay. For example, in games where players may receive a powerful weapon which advantages them in future multiplayer matches we considered this criterion to be met.

Further to these psychological criteria, legal definitions of gambling in Australia require that a gambling service must have an entry cost ('consideration'), with an outcome at least partly determined by chance ('chance'), and be played for money or anything else of value ('prize'; Interactive Gambling Act, 2001). Where loot boxes are purchasable for real-world money, the consideration criterion appears to be satisfied. When loot boxes distribute rewards on the basis of chance (a core feature of loot box systems) they appear to satisfy the chance criterion. Not all items won from loot box systems can be cashed out, but some games include the ability to cash out winnings via third party websites (i.e., not run by a game company), and others via the platform on which the game is distributed. However, our more recent findings suggest that virtual items obtained from loot boxes appear to have real-world value to players irrespective of whether they can be legitimately monetised. This may satisfy the "prize" requirements for gambling in many jurisdictions, including in Australia (Drummond et al., 2020). Price is a fundamental index of value in economic theory. By demonstrating that players are willing to spend real-world money on items won from loot boxes, we showed that these digital items have value (Drummond et al., 2020). Importantly, most items won from loot boxes sell for less than the cost of purchasing the loot boxes: meaning that players often incur a financial loss (Drummond et al., 2020). Therefore, depending upon the precise definition of "value" adopted by policymakers, loot boxes which may be cashed out, or any loot box purchasable for real-world money, may be considered to contain a prize of value.

### *Our findings*

Of the twenty-two video games containing loot box systems we reviewed, ten met all five of the psychological criteria for gambling. For four of these ten games, players could cash out in-game rewards for real-world money. A fifth game met four of the five psychological criteria, and allowed players to cash out in-game rewards.

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.

Our follow up work examining just three popular games containing loot boxes revealed approximately 1.45 billion sales, worth \$1,004,955,106.92 USD in real currency across the life of these games. The average sales price for an individual item was \$5.03 USD ( $sd = \$34.83$  USD, range: \$0.03–\$743.80 USD). Thus, at both an aggregate and individual level, these items clearly have monetary value to players (Drummond et al., 2020).

## **2.2 Loot boxes, problem gambling symptomatology, and psychological distress.**

The literature on harms associated with loot boxes is a developing field. The strongest and most consistent variable associated with loot box spending in our research has been problem gambling symptomatology. Meta-analysis demonstrates that across 15 studies examining 16,229 participants there is a reliable, small-to-moderate relationship between loot box purchasing and problem gambling symptomatology, such that players with problem gambling symptoms spend more on these mechanisms than players without problem gambling symptoms (Garea et al., 2021). This suggests that a vulnerable population of problem gamblers spend more on these items than people who do not show such symptoms. We also know that the removal of loot boxes decreases in-game spending specifically for people high in problem gambling symptoms, suggesting loot boxes may play an important role in causing increased spending for problem gamblers (Zendle et al., 2019). Importantly, loot box spending does not appear to be primarily from wealthy individuals (aka “whales”). Our research, together with research by our UK colleagues, indicates that income appears to have little to no impact upon spending patterns (Close et al., 2021; Garrett et al., 2022).

It is unknown whether engaging with loot boxes might be a causal factor in the development of problem gambling symptoms (the “gateway” hypothesis). Des[ite speculation, there is presently little evidence to support the gateway hypothesis (Delfabbro & King, 2020). For example, our nascent experimental data suggests that engaging with loot boxes does not appear to increase risk taking in the short term (i.e., one mechanism that may support a gateway hypothesis; D’Amico et al., 2022). However, this lack of evidence should not be taken to imply that further research will not find such a causal link. There is some self-report data consistent with a gateway hypothesis (where participants identify loot box engagement as influencing subsequent gambling behaviour; Spicer et al., 2022), and emerging longitudinal work from Canada suggests that purchasing loot boxes may be a precursor to conventional forms of gambling (Brooks & Clark, 2022 pre-print). We note, however, that this longitudinal work is currently undergoing peer-review and we must therefore exercise caution when interpreting these data until that review is complete. In sum, we presently do not know whether engaging with loot boxes might cause people to migrate to traditional forms of gambling. At present, we believe it is more likely that the

mechanism is disproportionately appealing to people with problem gambling symptoms and, therefore, that a consumer awareness and protection approach is warranted. However, further evidence is required to guide regulatory thinking on the issue.

It is also unclear whether loot box spending is associated with increased psychological distress. Our recent analysis indicated that psychological distress was meaningfully higher among those who purchase loot boxes compared to those who do not purchase loot boxes (Drummond et al., 2022). However, work from international colleagues did not replicate this finding (Etchells et al., 2022). Thus, although there is some evidence that loot box spending is associated with psychological distress, further research is required before firm conclusions can be drawn.

### **3. Regulatory Issues**

Although our analysis of the features of loot boxes suggests it might be possible to regulate loot boxes under Australian law, we would encourage caution before proceeding with this approach. There are a variety of issues which may mean that bans and age restriction of these mechanisms under the Interactive Gambling Act are undesirable and/or likely to be ineffective. To foreshadow, we would endorse a consumer centred approach which aims to (a) inform consumers about the presence and potential risks of engaging with loot boxes to allow consumers to make informed decisions for themselves and their children; (b) educate users about the broader features of loot boxes and other monetisation mechanisms in video games and the potent psychological mechanisms upon which these systems operate; and (c) incorporate the implementation of harm minimisation techniques such as spending controls in games to reduce the potential impact of these mechanisms on players.

Our concerns about loot box bans and regulation under Gambling Laws are based on several key issues. First and foremost, banning items can be ineffective and, under at least some circumstances, create backfire or “forbidden fruit” effects where the banned items become more attractive to consumers (Binder et al., 2020; Varava et al., 2015). Little research has examined the efficacy of loot box bans on the availability of loot boxes in video games. However, recent research suggests that in Belgium where loot boxes were banned under threat of heavy fine (€800,000) as many as 82% of top-grossing phone games continued to generate some form of income from randomised rewards such as loot boxes (Xiao, 2022, pre-print). Thus, efforts to ban loot boxes have not been particularly effective at reducing their prevalence in games.

The Netherlands banned loot boxes that contain items which are transferrable (i.e., those that can be bought and sold). On the surface, this seems consistent with stronger protections for loot boxes which most closely resemble gambling. However, in practice, the approach taken by some companies in response to this ban highlights a counter-intuitive and problematic consequence. For example, the developer 2K removed the after-purchase

marketplace from their title *NBA 2K21* while leaving in situ the ability to purchase digital card packs with real-world money. Thus, players can still purchase randomised items for real-world money, but the removal of the after-purchase marketplace means players can no longer purchase the item they want directly. Thus, for players who want a particular in-game character or item, the only option to purchase randomised card packs until they obtain the desired item. There are unverified early reports of players spending more than \$500 on card packs in this title upon the release of new card packs (Reddit, 2020). For this reason, when considering the potentially maladaptive consequences of engaging with loot boxes, we caution against focusing too heavily upon the post-game monetisation of items, and recommend keeping the focus on the ability to purchase randomised items for real-world money.

Speaking further to challenges associated with attempting to ban loot boxes, there are examples of companies which appear to be pre-empting regulatory changes. For instance, in France, following the French gambling authority's criticism of and commitment to take action against loot boxes, one company changed the way their loot boxes worked such that a 2 step purchasing process was required. Players must now use an 'x-ray' system to reveal the contents of a single loot box before paying to open that loot box. Thus, players will know what they are purchasing, and this system therefore technically bypasses the 'chance' criteria of many gambling regulations. However, once a player has scanned an item, they must purchase the item before buying another loot box. This means that if players wish to redeem other earned loot boxes they must purchase a potentially unwanted item before they can do so (Tuffcub, 2019).

Furthermore, even if a ban were implemented, consumers may work around these bans if motivated to do so. Tech savvy users could likely circumvent the ban to gain access to loot boxes. For instance, gamers may feel that they are being disadvantaged if they do not have access to rewards which provide gameplay advantages when competing against peers in other jurisdictions. Given the public nature of this document, we will not list the various ways this might be done, save to say that many require only rudimentary technological skills.

It should also be noted that gamers are often staunchly against strict bans of games which might limit their freedom of choice of what and how to play. Gamers will almost certainly react more favourably to a strategy which educates, informs, and protects consumers while allowing consumers to maintain their freedom of choice than a strategy which might be perceived as paternalistic. Again, this reinforces our preference for the consumer-focused strategies proposed below to protect potentially vulnerable players from overspending on loot boxes.

To minimise potentially problematic outcomes associated with loot box spending, we recommend a strategy of industry collaboration focused upon increasing consumer awareness and age guidance for gamers and parents/guardians of gamers. This may be

achieved through the Australian Classification Board, or other supplementary classifications guidance. In April 2020, the video game regulatory boards across the United States (ESRB) and Europe (PEGI) announced a new warning label for games that include loot boxes: “In-Game Purchases (Includes Random Items)”. However, our early work suggests that consumers do not appear to understand the ESRB/PEGI loot box warnings; consumers did not intuit these warnings as indicating the presence of gambling-like reward mechanisms (i.e., loot boxes) in the game. Thus, current warnings do not appear to advance consumer understanding. However, in addition to more intuitive content descriptors/warnings, an effective consumer awareness approach may require a consumer education campaign that explains the psychological similarities between loot boxes and conventional forms of gambling, and the psychological mechanisms through which loot box engagement may lead to problematic outcomes for some consumers.

We also recommend the development, trial, and incorporation of harm minimisation strategies, such as spending controls in games, and spending limits to reduce overspending by vulnerable groups. This may include, for example, the incorporation of limit setting measures in which gamers can be limited (either voluntarily or as a centrally capped amount) to spending no more than a specific amount during a given time period (Drummond, Sauer, & Hall, 2019). As another example, many games and gaming systems include spending controls such as the need to re-enter credit card details for every purchase. Ensuring that these controls must be set ‘on’ by default in games sold within Australia may help to reduce unintentional overspending. Requiring the re-authentication of credit cards for every purchase would reduce unauthorised overspending incidents enacted by underage gamers using stored credit card details to purchase large quantities of loot boxes and other virtual items. Finally, we see merit in a public awareness campaign to increase parental awareness of these spending controls.

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