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Loot box buying among adolescent gamers: A cause for concern?

In November 2018, the UK Gambling Commission published its annual statistics showing that based on a self-report survey of 2,865 children and adolescents aged 11-16 year-olds, that the prevalence of problem gambling had risen to 1.7% (2% for boys and 1.3% for girls) compared to 0.4% in 2016 and 0.9% in 2017 (Gambling Commission, 2018). One of the factors behind the increase may have been the playing of simulated gambling games (or gambling-like activities such as the buying of loot boxes) in video games. The Gambling Commission's (2018) report noted that 13% had played gambling-style games online, and that 31% had accessed loot boxes in a videogame or app, to try to acquire in-game items.

The buying of loot boxes has received a lot of national and international publicity over the past year (e.g., BBC, 2019a, 2019b). In May 2019, the US Republican senator Josh Hawley said that loot boxes exploit children and should be banned when attempting to pass the 'Protecting Children from Abusive Games Bill'. He was quoted as saying: *"When a game is designed for kids, game developers shouldn't be allowed to monetise addiction. And when kids play games designed for adults, they should be walled off from compulsive micro-transactions"* (BBC 2019b).

What are loot boxes?

Loot box buying takes place within online gaming and have been described as virtual games of chance (Griffiths, 2018). Players use real money to buy keys to open the boxes where they receive a chance selection of virtual items. Other types of equivalent in-game virtual assets that can be bought include chests, bundles, crates,

card packs, and cases. The virtual in-game items that can be 'won' can comprise basic customization (i.e., cosmetic) options for a player's online avatar to in-game assets that can help players progress more effectively in the game (e.g., gameplay improvement items such as armour and weapons) (Drummond & Saur, 2018; Griffiths, 2018).

All players hope that they can win 'rare' items and are often encouraged to spend more money to do so because the chances of winning such items are minimal (King & Delfabbro, 2018). Many popular videogames now feature the chance to buy loot boxes (or equivalents) including *Star Wars Battlefront 2*, *FIFA Ultimate Team*, *Overwatch*, *Middle-earth: Shadow of War*, and *Lawbreakers* (to name just a few). In short, all of these require the paying of real money in exchange for a completely random in-game item.

Is loot box buying a form of gambling?

Many researchers have questioned whether loot boxes are a form of gambling (e.g., Brooks & Clark, 2019; Griffiths, 2018; King & Delfabbro, 2019; Li, Mills & Nower, 2019; Zendle & Cairns, 2018). Although there are many definitions in many disciplines defining gambling, there are a number of common elements that occur in the majority of gambling instances that distinguish 'true' gambling from mere risk-taking. These include: (i) the exchange is determined by a future event, which at the time of staking money (or something of financial value), the outcome is unknown, (ii) the result is determined (at least partly or wholly) by chance, (iii) the re-allocation of wealth (i.e., the exchange of money [or something of financial value] usually without the

introduction of productive work on either side, (iv) losses incurred can be avoided by simply not taking part in the activity in the first place, and (v) winners gain at the sole expense of losers (Griffiths, 1995). In addition to the five aforementioned defining features of gambling, Drummond and Sauer note:

“A sixth characteristic that is important to consider is whether the winnings can be converted in some way into real-world money – that is, ‘cashed out’. The ability to cash out winnings is often considered a criterion for gambling by regulatory bodies...Although not all games with loot boxes contain this functionality, some games include the ability to cash out via third party websites (that is, not run by a game company), others via the platform on which the game is distributed.”

Added to this, it could be argued that the money or prize to be won should be of greater financial value than the money staked in the first place (Griffiths, 2018). Based on these elements, the buying of loot boxes (or equivalents) would arguably be classed as a form of gambling.

The UK Gambling Commission’s most recent position paper on virtual currencies and social casino gambling (Gambling Commission, 2017) noted:

“One commonly used method for players to acquire in-game items is through the purchase of keys from the games publisher to unlock ‘crates’, ‘cases’ or ‘bundles’ which contain an unknown quantity and value of in-game items as a prize. The payment of a stake (key) for the opportunity to win a prize (in-game items) determined (or presented as determined) at random bears a close resemblance, for instance, to the playing of a gaming machine. Where there are readily accessible opportunities to cash in or exchange those awarded in-game items for money or money’s worth those elements of the game are likely to be considered licensable gambling activities [Section 3.17]...Additional consumer protection in the form of gambling regulation, is required in circumstances where players are being incentivised to participate in gambling style activities through the provision of prizes of money or money’s worth. Where prizes are successfully restricted for use solely within the game, such in-game features would not be licensable gambling, notwithstanding the elements of expenditure and chance [Section 3.18]”.

Consequently, the UK Gambling Commission does not consider loot boxes as a form of gambling because (they claim) the in-game items have no real-life value outside of the game. However, this is not the case because there are many websites that allow players to trade in-game items and/or virtual currency for real money. The Gambling Commission appears to acknowledge this point and claim that the buying of in-game loot boxes (and their equivalents) are not gambling but, if third party sites become involved (by allowing the buying and selling of in-game items), the activity does become a form of gambling. As Hood (2017) rightly notes, this appears to be a case of the law struggling to keep pace with technology. There are also issues surrounding age limits and whether games that offer loot boxes (or equivalents) should be restricted to those over the age of 18 years.

At present, there are a few countries (e.g., Belgium, Holland, and Japan) who do view the buying of loot boxes as a form of gambling and have incorporated such activities into their gambling regulations (Chansky & Okerberg, 2019). However, most countries have either not considered regulating the buying of loot boxes at all, or (like the UK and New Zealand), have ruled that buying loot boxes does not currently meet their regulatory definition of gambling (Chansky & Okerberg, 2019).

Empirical studies on loot box buying

To date, there has been little research examining loot box buying. Drummond and Sauer (2018) examined 22 games containing loot boxes from the *Giant Bomb* game review site in 2016 and 2017. Using Griffiths’ (1995) five aforementioned criteria for gambling, ten of the 22 games met all five criteria. Of these ten games, four also gave players the opportunity to cash out winnings (via third-party websites that were not affiliated to the gaming company that developed the videogame but allowed gamers to trade, buy and/or sell in-game rewards for real money). Drummond and Sauer also noted that the ‘terms of use’ for playing these four games explicitly stated that re-selling or trading virtual currencies was prohibited but that does not mean that players are unable to do so.

Drummond and Sauer concluded that loot box buying shared both structural and psychological similarities with gambling and that loot box

buying sustained player engagement in the game. They also asserted that “*of those games containing loot boxes, 100% allow for (if not actively encourage) underage players to engage with these systems*” (p. 532). They also noted that although game developers do not appear to be legally responsible for third party websites that allow the trading or re-selling of virtual items, such websites facilitate the conversion of in-game items into real currency. Like Griffiths (2018), they therefore argued that loot box buying appears to meet both the legal and psychological definitions of gambling.

A large-scale survey of 7,422 adult gamers by Zendle and Cairns (2018) was the first to examine the relationship between loot box buying and problem gambling (assessed using the Problem Gambling Severity Index [PGSI]). They reported a significant association between problem gambling and the amount of money that gamers spent on loot boxes. Based on their findings, the authors went as far as saying that “*the gambling-like features of loot boxes are specifically responsible for the observed relationship between problem gambling and spending on loot boxes*” (p.1). However, given the cross-sectional nature of the study they could not determine whether loot box buying appeals more to problem gamblers than non-problem gamblers or whether loot box buying acts as a ‘gateway’ to problem gambling.

Brooks and Clark (2019) examined the relationships between gaming involvement, loot box buying, and gambling disorder in two small survey studies published in the same paper (144 adults in the first study and 113 university students in the second). Participants completed the Internet Gaming Disorder Scale and the PGSI, as well as answering questions relating to time spent gaming, monthly expenditure, and perceptions concerning loot boxes. In both studies, the majority of the samples viewed loot boxes as a form of gambling (68.1% in the first study and 86.2% in the second). More than a half had bought loot boxes and approximately one-third had sold a loot box item. They also created a new measure (the ‘Risky Loot-box Index’ [RLI]) and found that scores on the RLI were significantly associated with problem gambling in both studies.

In an online survey, Li, Mills and Nower (2019) examined the relationships between problematic gaming (using the American Psychiatric

Association’s criteria for internet gaming disorder from the *Diagnostic and Statistical Manual for Mental Disorders*), problem gambling (using the PGSI), and loot box buying among a sample of 618 adult videogame players. Just under half of the gamers had bought loot boxes (44.2%) and they found that compared to those who had never bought loot boxes, that loot box buyers engaged in more online gaming and online gambling more frequently, and had higher levels of problem gambling and gaming (as well greater levels of mental distress). Using path analyses, they also demonstrated that loot box buying was directly related to the severity of both problem gambling and problem gaming.

Zendle, Meyer and Over (2019) examined the relationship between loot box buying and problem gambling (using the Canadian Adolescent Gambling Inventory) in a survey of 1,115 adolescents aged 16-18 years. They reported that the association between loot box buying and problem gambling was stronger than that found among previous studies examining adults. They also reported some qualitative data showing that the reasons for loot box buying were similar to reasons for gambling (e.g., fun and excitement). They concluded by claiming that their “*results suggest that loot boxes either cause problem gambling among older adolescents, allow game companies to profit from adolescents with gambling problems for massive monetary rewards, or both*” (p.1).

Macey and Hamari (2019) surveyed the characteristics of 582 esports spectators who gambled via an international online survey (with 27% of the sample being under the age of 18 years). Participation in gambling and gambling-like activities was found to be 67%, with 4.5% being classed as problem gamblers in the sample using the PGSI. Approximately two-fifths of those who participated in gambling or gambling-like experiences reported that they had bought loot boxes. The study also reported that loot box buying was significantly associated with problem gambling.

Conclusions

Based on the few studies carried out to date, the findings are very consistent that there is an association between problem gambling and loot box buying among both adolescents and adults (and that the association may be even stronger among adolescents). However, it is not known

whether being a problem gambler increases the likelihood of engaging in loot box buying or whether being a loot box buyer increases the likelihood of problem gambling because none of the research carried out to date has been longitudinal in nature. Furthermore, all of the empirical research to date has collected self-report data which are subject to well-known methodological biases (e.g., social desirability, memory recall). Theoretical and conceptual analyses suggest that loot box buying is a form of gambling (or at the very least gambling-like) and that gambling regulators should at least consider whether loot box buying should be examined within a regulatory gambling framework. Governments and regulatory bodies should also consider whether individuals aged under the age of 18 years should be legally allowed to buy loot boxes given the large similarities with more traditional forms of gambling.

(Please note: Some material from this article will be appearing in a forthcoming book chapter)

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