

# Loot boxes in video games and their link to problem gaming\*

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## Abstract

Loot boxes are crates in video games that contain randomised game content. Generally, adolescents are more prone to play video games. More than 2 billion people worldwide play video games for relaxation. To create more profit from their products, video game developers are implementing these loot boxes in their games. Every game in the TOP 5 leaderboard on SteamCharts.com (up to 04.10.2022) contains loot boxes. Creating more games with loot boxes creates an issue linking loot boxes with problem gambling. This article will focus more on the psychological features of loot boxes and how they should be regulated for young audiences or even deemed illegal.

## 1 Introduction

Motivujte čitateľa a vysvetlite, o čom píšete. Úvod sa väčšinou nedelí na časti.

Uvedte explicitne štruktúru článku. Tu je nejaký príklad. Základný problém, ktorý bol naznačený v úvode, je podrobnejšie vysvetlený v časti ???. Dôležité súvislosti sú uvedené v častiach ?? a ??. Záverečné poznámky prináša časť ??.

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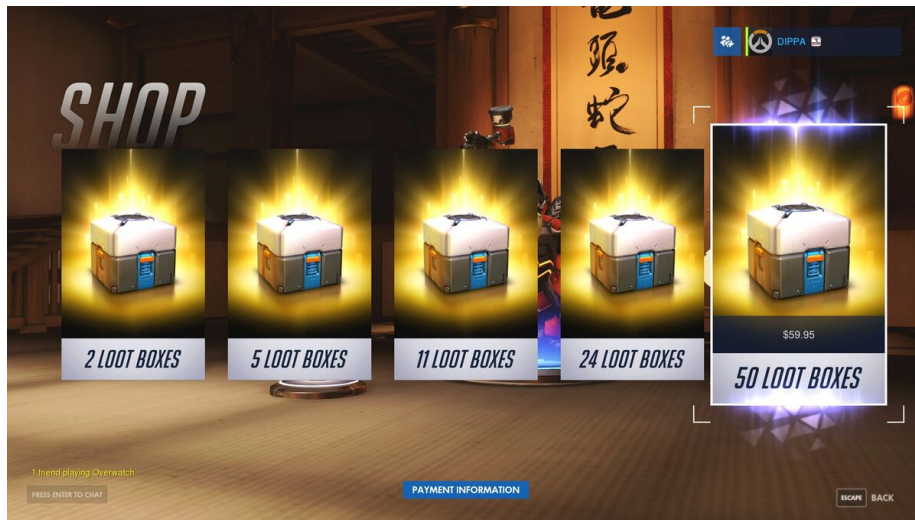


Figure 1: Loot boxes in Overwatch 1

## 2 What are loot boxes

Loot boxes are virtual containers in video games that contain one or more random rewards that alter the game in some way. Some can change avatar aesthetics, unlock new levels or improve in-game performance (e.g. via more powerful weapons or sets of armour). Possessing a unique avatar or powerful weapons is highly desirable.

They are available for players to buy in popular games like Rocket League, Counter-Strike: Global Offensive, and League of Legends. Even more and more games tend to sell these loot boxes for real-world currency. In 2018 alone, they generated approximately \$30 billion [7]. This strategy has become a leading business model for generating profit from video games.

The spread of loot boxes has raised the question of whether they should be regulated as a form of gambling. According to an article by Mark D. Griffiths, many of the loot box characteristics match those of gambling. The basic idea behind gambling is that an individual stakes money on the outcome of a future event, which is determined by chance in the hopes of receiving the desired reward. This would not be a problem if most players were not young teenagers and adolescents.

According to research [10] done on almost three thousand students in grades 7 to 12 in Ontario, most students (85%) reported playing video games in the past year and almost 19% reported playing video games daily. According to a more recent source [3], a total of 66% of Americans play video games regularly.

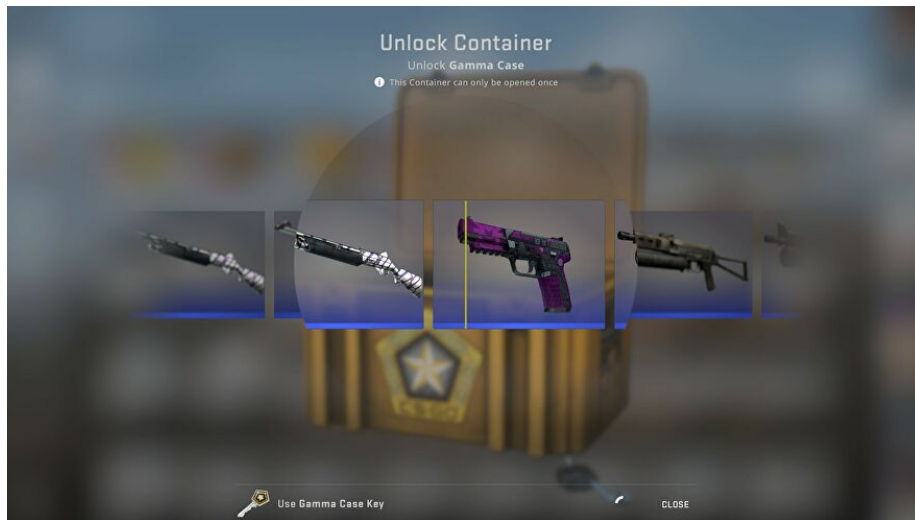


Figure 2: Opening loot boxes in Counter-Strike: Global Offensive

## 2.1 Features of loot boxes

Many games implement loot boxes in their way. Some may be more linked to the development of problem gambling than others. A few characteristics are listed below.

1. Loot boxes can give a player gameplay advantage

Loot boxes in games like Counter-Strike: Global Offensive and Overwatch only contain cosmetic rewards and do not alter gameplay. However, not all games provide cosmetic-only rewards. For example, in FIFA's Ultimate Team mode players can pay to purchase 'player packs' that contain a random set of footballers. The rarer the footballer is, the better he performs in games. [5]

2. Some loot boxes show missed rewards

Counter-Strike: Global Offensive will show you which reward you got and all the near misses. This can trigger an emotion of nearly getting a legendary reward, but instead, you got a common one. This is not the case for all loot boxes.

3. Some loot boxes are given away for free

In some games, you can only get loot boxes for real-world money. In other, however, you can get them for playing the game, completing in-game challenges, levelling up etc. For example, in Overwatch 1 you got one loot box for every level up. They could be purchased for real-world money, but you could get them for free.

4. Some loot box rewards can be cashed out

In many games, the rewards from loot boxes are bound to the player's account and cannot be cashed out or traded with other players. For example, in Overwatch or League of Legends, this is the case. However, in

some games, these rewards can be re-sold to other players on the official marketplace. For example, in Counter-Strike: Global Offensive there is a slim chance you can get a rare knife. Because of their rarity, their price is enormous. For example, one variation of knife skin was once sold for over \$2000. [8]

5. Some loot boxes are time-limited

In games like Overwatch 1, you could open specific types of loot boxes throughout the year. These special types contained different rewards from the regular ones. For example, there were Halloween, Christmas or Lunar New Year loot boxes.

### 3 Differences between gambling and other risk-related behaviour

In [4], Griffiths specifies five characteristics linked to gambling. These are:

1. The exchange of money or something of value.
2. A future event determines the results of this exchange, and the outcome of this event is unknown at the time that a bet is made.
3. Chance at least partly determines the outcome of the exchange.
4. Losses can be avoided by simply not taking part.
5. Winners gain at the sole expense of losers.

### 4 Loot boxes and their link to problem gaming

Analysis of 22 video games [1] that feature loot boxes showed that 10 of the 22 video games fulfilled all of the five characteristics of gambling specified by Griffiths 3. They found that these games containing loot boxes '100% allow for (if not actively encourage) underage players to engage with these systems'. Young people exposed to gambling are more prone to developing problematic gambling behaviours [2].

If loot boxes are linked to gambling, this would raise serious concerns about their availability to younger audiences. Given their features, the Dutch officials and government of the Netherlands have put a stop to loot boxes. This caused video game developers to alter their games and/or delete loot boxes entirely from these regions. This includes big video game studios like Activision Blizzard and Valve. Following this ban loot boxes should not be present in Belgium anymore. Unfortunately, this is not true. 82% of the 100 highest-grossing iPhone games on the Belgian Apple Store still contain loot boxes for real-world money [11].

#### 4.1 Why adolescents buy loot boxes

No research yet examined why adolescents buy loot boxes. They may be more prone to gambling in video games because playing video games is their leisure activity. In [6], Lloyd *et. al.* highlight a few motivations that are found within the gambling literature. These consist of:

- raising money,
- excitement,
- the intrinsic enjoyment of gambling,
- escaping from stress,
- coping with adverse moods,
- a sense of inquiry and competitiveness.

The presence of these motivations varies if you are gambling in video games or rather gambling in a casino. Electronic gambling machine use is associated with a need for escape [9].

## 5 Summary

## 6 Conclusion

## References

- [1] J. D. S. Aaron Drummond. Video game loot boxes are psychologically akin to gambling. June 2018.
- [2] S. W. K. Agneta Johansson, Jon E. Grant, B. L. Odlaug, and K. G. Götes-tam. Risk factors for problematic gambling: A critical literature review. 2009.
- [3] T. E. S. Association. 2022 essential facts about the video game industry. 2022.
- [4] M. Griffiths. *Adolescent Gambling*. Routledge, 1995.
- [5] J. S. Lemmens. Play or pay to win: Loot boxes and gaming disorder in fifa ultimate team. *Telematics and Informatics Reports*, 8:100023, 2022.
- [6] J. Lloyd, H. Doll, K. Hawton, W. H. Dutton, J. R. Geddes, G. M. Good-win, and R. D. Rogers. How psychological symptoms relate to different motivations for gambling: An online study of internet gamblers. *Biological Psychiatry*, 68(8):733–740, 2010. Positron Emission Tomography Imaging of Dopamine and Opiate Receptors in Addiction.
- [7] J. Research. In-game gambling - the next cash cow for publishers. Technical report, April 2018.
- [8] P. Salamon. 6 most expensive knife skins in cs:go. 2018.
- [9] A. Thomas and J. Allen, F.C. & Phillips. Electronic gaming machine gambling: Measuring motivation. 2009.
- [10] N. E. Turner. Prevalence of problematic video gaming among ontario adolescents. December 2012.
- [11] L. Y. Xiao. Breaking ban: Belgium’s ineffective gambling law regulation of video game loot boxes, 2022.