

Prevalence of Random Reward Mechanisms in the Danish-Facing Google Play Store

Asger Holmehøj Bach

IT University of Copenhagen
Rued Langgaards Vej 7
Copenhagen, Denmark
asgbac@itu.dk

Yuchen Huang

City University of Hong Kong
Tat Chee Avenue, Kowloon Tong,
Kowloon, Hong Kong SAR
yuchuang@cityu.edu.hk

Rune Kristian Lundedal Nielsen

Institutional Affiliation
Rued Langgaards Vej 7
Copenhagen, Denmark
rkln@itu.dk

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INTRODUCTION

Random Reward Mechanisms (RRMs), commonly referred to as loot boxes, are features widely implemented in video games across platforms and genres. RRM allow players to obtain randomized rewards — in many cases in exchange for real-world money (Nielsen and Grabarczyk 2019). It has been suggested that this particular structure for rewarding players is psychologically akin to gambling (Drummond and Sauer 2018). Additionally, a correlation between spending real-world money on loot boxes and problem gambling is well-established by multiple large-scale studies (Zendle, Cairns, et al. 2020; Zendle and Cairns 2018, 2019).

The prevalence of loot boxes has been measured by previous research in certain regions, including the United Kingdom (Xiao et al. 2021; Zendle, Meyer, et al. 2020), Australia (Rockloff et al. 2020), Belgium (Xiao 2023), and China (Xiao et al. 2024). Prevalence rates of loot boxes naturally vary for many reasons but are all relatively high: United Kingdom: 58-77%, Belgium 82%, China 91%, Australia: 62%.

No studies have examined the prevalence of loot boxes in Danish-facing digital storefronts. That is the aim of the present study. To accomplish this, the 100 highest-grossing games in the Danish-facing Google Play store were examined, and five variables were measured for each game: 1) the presence/absence of loot boxes that can be obtained by paying real-world money; 2) whether or not rewards can be

cashed out for real-world money; 3) the number of downloads; 4) the age-rating of the game; and 5) compliance with PEGI content labeling.

The list of games to examine was composed of the 100 highest-grossing mobile games in the Google Play store in August 2025. Presence of RRM was measured by two researchers. First, one researcher played the games from the list until an RRM was encountered or until shops and reward systems were unlocked and could be examined for RRM. In cases where it was unfeasible to unlock everything, the internet was searched for wiki websites for the games in question, and then these wiki websites were reviewed for potential RRM. The games were initially coded as having RRM if it was possible to pay real-world money to obtain randomized rewards. When a game was found to have an RRM in it, the possibility of cashing out rewards for real-world money was measured by searching in social media groups as well as digital marketplaces, where players buy and sell in-game items. If cases of players selling rewards from RRM for real-world money were found, the game was coded as having the possibility of cashing out rewards. The second researcher reviewed screenshots of RRM and options for cashing out in order to confirm or deny their validity. The number of downloads, age-ratings, and content labels were provided by the Google Play store, with the age-rating and content labels being done by PEGI (Pan European Game Information). Games were coded as non-compliant if they contained RRM but did not have the label *In-game purchases (Includes random items)*. A link to the present study's supplementary material is placed in the end notes¹.

Out of the 100 games examined, 83 of them contained RRM. Of the games with age-ratings 3+, 7+, or 12+, 83 in total, 66 (79.5 %) of them contained RRM. 14 games were coded as non-compliant, 8 of which had the PEGI age-rating 3+. Only three games, *Pokémon GO* (Niantic 2016), *Roblox* (Roblox Corporation 2014), and *Pokémon TCG Pocket* (The Pokémon Company 2024), were found to have possibilities for cashing out rewards for real-world money. The cases were found on the third-party marketplaces www.g2g.com and www.playerauctions.com that facilitate buying and selling of in-game items between players. Thus, players can turn rewards from RRM into real-world money by selling them to other players.

The prevalence of RRM in the Danish-facing Google Play store is similar to that found by Xiao (2023) in the Belgian-facing Apple App Store (82%). The prevalence found in the present study is higher than that found in two earlier studies of the United Kingdom (58-77%). It has been suggested by Xiao et al. (2022) that the increase in the prevalence from the first UK prevalence study to the second one was partly due to an increase in the popularity of loot boxes throughout the years. This may also be the reason for the higher prevalence observed in the present study. This prevalence is however significantly lower than the one found in China (91%) — according to Xiao et al. (2024, 604) there are significant differences between the Western video games market and that of the People's Republic of China when it comes to game content and monetization strategies, which may be explained by cultural and legislative differences.

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ENDNOTES

¹Supplementary material for the present study can be found at:
https://osf.io/ya49e/overview?view_only=d4d9c6bd586a4373af84e8c2c8882d09

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.
declarations.