



Loot box probability disclosure statements in iPhone games in China

What this research is about

Loot boxes provide randomized virtual rewards in video games. These rewards have varying in-game and potential real-world value. Some loot boxes can be 'opened' for free. But other loot boxes have to be bought with real-world money. Some loot boxes also include pity-timers. Pity-timers increase a person's likelihood of receiving rarer and more valuable rewards as more loot boxes are purchased.

Buying loot boxes is linked to disordered gambling. The People's Republic of China (PRC) is the only country that requires video game companies to include probability disclosure statements. A disclosure statement outlines the likelihood of obtaining certain rewards from a loot box.

The researchers examined the prevalence of paid loot boxes in the PRC and the proportion of games with loot boxes that had probability disclosures. The researchers examined how companies interpreted the probability disclosure regulations in the PRC.

What the researchers did

The researchers used App Annie (an analytics company) to select the 100 highest-grossing iPhone games on the PRC Apple App Store in mid-2020. Three games were not examined as they were duplicates or were no longer available on the App Store. Also, the researchers were not sure whether two games used loot boxes. These games were replaced with the next games on the highest-grossing list.

The researchers examined:

- Presence of loot boxes. The researchers determined whether there were loot boxes by playing each game for up to 45 minutes (75 games) or by

What you need to know

Loot boxes provide randomized rewards in video games. The People's Republic of China (PRC) is the first and only jurisdiction to require video game companies to include probability disclosure statements. A disclosure statement outlines the likelihood of obtaining certain rewards from a loot box. The researchers examined the prevalence of paid loot boxes in the PRC and how companies interpreted the probability disclosure regulations in the PRC. Loot boxes were found in 91 of the 100 highest-grossing iPhone games in the PRC. Loot boxes were also found in over 90% of games that were rated as suitable for children aged 12+. Probability disclosures were not found for 4.4% of games that had loot boxes. Companies included probability disclosures in different ways. Some companies included disclosures both in-game and on the games' official website. But very few companies (5.5%) included the disclosures in the most visible way possible (i.e., automatically displayed on the in-game loot box purchase page).

searching for videos or screenshots of people engaging with loot boxes (25 games).

- Apple App Store age rating.
- The location of the disclosure, and how easily the disclosure could be accessed.
- Whether a pity-timer mechanism was disclosed.

What the researchers found

The researchers found loot boxes in 91 of the 100 highest-grossing iPhone games in the PRC. Loot boxes were also found in over 90% of games that were rated

as suitable for children aged 12+ (57 out of 63 games). Probability disclosures were found in 95.6% of games containing loot boxes.

Companies most often included disclosures on the website only (38.5%). Some games only included disclosures in-game (23.1%). Disclosures were found in both locations for 34.1% of games.

The researchers found six categories for in-game disclosure formats. These included disclosures that were shown in the following ways: (1) immediately after tapping on a generic symbol (e.g., a question mark sign; 56% of games); (2) after tapping on a generic symbol and following extra steps (15%); (3) after tapping a button that explicitly referenced “probabilities” (12%); (4) being automatically displayed on the loot box purchase page (10%); (5) after tapping a graphic element that did not appear to be interactable (6%); and (6) after chatting with the in-game customer support system bot (2%).

Overall, very few companies (5.5%) included the disclosures in the most visible way possible (i.e., automatically displayed on the in-game loot box purchase page). Moreover, games that were rated as suitable for children did not disclose probabilities in more visible formats.

A total of five categories were found for website disclosure formats: (1) disclosure published chronologically under “news” or “notice” tabs (78.8% of games); (2) disclosure was linked directly from the home page (9%); (3) disclosure existed but was inaccessible from the homepage (8%); (4) disclosure published categorically under the “news” or “notice” tab (3%); and (5) disclosure published categorically under the “probabilities” tab (1.5%).

Of the 91 games that contained loot boxes, 66% disclosed at least one pity-timer mechanism associated with one of its loot boxes. All pity-timers that were disclosed, except one, worked in the person’s favour. This means that the likelihood that people would receive a rare reward increased as people purchased loot boxes.

How you can use this research

The researchers suggested that policy makers should require video game companies to use a uniform disclosure format that is visible and accessible.

About the researchers

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