

A review of factors influencing adolescents' engagement with loot boxes

What this research is about

Loot boxes are virtual items in video games that players receive at random. Loot boxes can be earned through in-game actions or be purchased with real-world money. Concerns have been raised regarding the similarities between loot boxes and gambling, given that both can involve spending money for a random reward of an uncertain value. Adolescents may be particularly vulnerable to the negative outcomes associated with purchasing loot boxes.

The current study is a systematic review of existing research into the factors associated with loot box engagement in adolescents and the outcomes of such engagement. The review is guided by the Stimulus–Organism–Response framework (S-O-R):

- Stimulus: What external factors influence loot box use?
- Organism: What internal factors (personality, behavioural factors, demographics) are associated with loot box use?
- Response: What problematic outcomes may arise from loot box use?

What the researchers did

The researchers searched several academic databases, including PsycINFO (EBSCOhost), ERIC (EBS-COhost), Medline (EBSCOhost), Web of Science, Scopus, Ovid, PubMed, and ScienceDirect. Only empirical studies published in peer-reviewed journals between 2017 and 2025 were included in the review. Studies must focus on adolescents aged 10–19 years. Studies with mixed-aged participant groups were also included if they reported separate data for adolescents. Additionally, studies that looked at loot

What you need to know

This study is a review of research on loot box engagement among adolescents. A total of 26 studies were included in the review. A variety of factors, both internal and external, influence loot box use. Female adolescents, although less likely to purchase loot boxes, were more vulnerable to problem gambling if they engaged with loot boxes. Several studies looking at outcomes of loot box use established a relationship between loot box use and problem gambling. Based on the review, the authors proposed four pathways that could be tested in future research.

box mechanisms or advertising features were included if these were relevant to adolescents.

After removing duplicates, the researchers screened the titles and abstracts of 243 articles. The full texts of 60 articles were then reviewed to determine eligibility. Finally, a total of 26 studies were included in the review. Half of the studies took place in Western Europe, followed by Australia (5 studies) and Japan (4 studies). Two studies took place in the United States, and one study each took place in China and New Zealand.

What the researchers found

Stimulus: What external factors influence loot box use?

Twelve studies looked at external factors. Factors that restrict loot box use include age ratings, payment methods, age verification, and parental intervention. Studies found that many games with

low age ratings contain loot boxes. Advertisements on social media often do not disclose a game's age rating. Further, age verification measures are often easy to bypass. Adolescents mainly rely on bank cards belonging to parents or others to pay for loot boxes. Parents can intervene by, for example, setting limits on the number of loot boxes purchased or uninstalling games with loot boxes.

Factors that can influence loot box use include sales strategies and advertising. Sales strategies, like offering loot box content with a time limit, and advertising could increase loot box use. One study found that loot box use increased during the pandemic, mostly in younger adolescents. A study looking at website content found that parental strategies include playing the game with their children and speaking about the risks of loot boxes. Loot boxes are more prevalent on mobile games than PC games, with most top-selling games offering loot boxes.

Organism: What internal factors are associated with loot box use?

Fourteen studies looked at cognitive and behavioural factors. In terms of gender, although female adolescents are less likely to purchase loot boxes, the relationship between loot box purchases and problem gambling was stronger. Female adolescents who use loot boxes are more vulnerable to problem gambling and have more positive views towards loot boxes. Regarding age, the association between loot boxes and problem gambling is more pronounced in older adolescents. Additionally, a study in Australia found that loot box users are more likely to be Indigenous and to live apart from parents. Other studies examined being impulsive, planned or unplanned loot box purchases, being bullied, peer pressure, and purchasing motives.

Response: What problem outcomes arise from loot box use?

Thirteen studies explored problem behaviours as outcomes of loot box use. Studies generally found that loot box use has a positive association with problem gambling and gaming.

While there is some longitudinal evidence, research that follows participants over time remains scarce.

How you can use this research

Based on the findings, the researchers proposed four pathways to be tested in future research:

- (1) The gaming–loot box–gambling convergence pathway, where adolescents who engage with loot boxes through video games develop an interest in gambling.
- (2) The multifactorial pathway influencing loot box engagement, where multiple sociodemographic, cognitive, and behavioural factors influence loot box use.
- (3) The moderating pathway of perceived normative pressure, where adolescents may engage with loot boxes due to peer pressure.
- (4) The feedback loop between problem use and cognitive–behavioural factors.

About the researchers

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