The gamblification of video games: An overview of ‘Loot Boxes’ and their links with disordered gambling.

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Disclosure Statement:

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Objectives:

• To describe features typical of loot boxes.

• To provide an overview of current loot box concerns, and the initial regulatory actions taken.

• To look at emerging data regarding loot boxes and gambling-related cognitions and behaviour.

• To review policy implications of these findings.
What are Loot Boxes?

• These are a virtual good common to many modern video games, typically included as a form of monetization.

  1) Are rewarded during gameplay or bought.
  2) Produce a randomly-generated reward once “opened”.
  3) Received items vary in desirability.

Apex: Legends (Electronic Arts)  
Counter-Strike: Global Offensive (Valve Corp)
Loot Box Design: Variation

- Substantial variation across games:
  - Loot box design and unlocking animations
  - Functionality of received items
  - Ability to sell or trade items

Fortnite (Epic Games)

PlayerUnknown’s Battlegrounds (PUBG Corp)
Why Discuss Loot Boxes?

Apex Legends:
• 50 million players a month after release (Polygon – March 4\textsuperscript{th} 2019).

PlayerUnknown’s Battlegrounds:
• 87 million players a day reported last year (Polygon - June 19\textsuperscript{th} 2018).

Dota 2:
• 550,000 concurrent player average (Steam Charts – March 7\textsuperscript{th} 2019).
Increasing Concern:

'EASY TRAP TO FALL INTO': WHY VIDEO-GAME LOOT BOXES NEED REGULATION

The Guardian – Mattha Busby (29 May 2018)

THE GAMES INDUSTRY DOESN'T KNOW HOW TO CURE ITS LOOT BOX ADDICTION

Wired – Edwin Evans-Thirlwell (7 June 2018)

HOW LOOT BOXES HOOKED GAMERS AND LEFT REGULATORS SPINNING

The Verge – Makena Kelly (28 Feb 2019)

Op-ed: Game companies need to cut the crap—loot boxes are obviously gambling

Ars Technica – Peter Bright (28 May 2018)
Increasing Concern:


- “Games that allow players to sell their virtual items (that is, cash-out their winnings) provide the clearest example of gambling in video games”.

King & Delfabbro (*Addiction*, 2018):

- Loot Boxes represent a “predatory monetization scheme”, which entrap the player in a pattern of continued expenditure (i.e., sunk cost).
- Increase risk of financial harm within video games
Regulatory Response:

China (2016):
• Item probabilities made public and prohibition of direct sale, may still be awarded or ‘gifted’.

Netherlands (2018):
• Loot Boxes that allow the sale or trade of received items were deemed in contravention of existing gambling laws.

Belgium (2018):
• Purchase of in-game currency to buy loot boxes constitutes a bet under Belgian Gaming and Betting Act.
Zendle & Cairns (PLoS One, 2018)

- Survey administered to 7,422 gamers.
  1) Loot box expenditure associated with severity of problem gambling ($\eta^2 = 0.054$).
  1) Association between other microtransactions was weaker ($\eta^2 = 0.004$).
  
- Concluded gambling-like features are responsible for this relationship.

- Results were supportive of regulation.
Centre for Gambling Research: Objectives

• Wanted to explore adult gamer engagement with, and attitudes toward, loot boxes.

• Hypothesized that risky use of loot boxes would be associated with both gambling behaviour and gambling-related cognitions.

• To examine the influence of marketplace affiliated games upon loot box behaviour and attitudes.
Centre for Gambling Research: Exploratory Data

- 1,000 respondents completed a “pre-screen” questionnaire on Amazon’s Mechanical Turk (MTurk).

- 144 MTurk respondents completed a larger survey regarding gaming, loot box, and gambling perceptions and behaviour.

- A second sample of university students also collected ($n = 113$).
Descriptive Statistics:

Pre-Screen Data:
- 85% were familiar with loot boxes

<table>
<thead>
<tr>
<th>Loot Box Engagement</th>
<th>MTurk</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has played game with loot boxes</td>
<td>93.8%</td>
<td>97.4%</td>
</tr>
<tr>
<td>Has opened a loot box</td>
<td>88.9</td>
<td>94.8</td>
</tr>
<tr>
<td>Has spent time to earn loot boxes</td>
<td>63.2</td>
<td>55.2</td>
</tr>
<tr>
<td>Has bought a loot box or “key”</td>
<td>49.3</td>
<td>60.3</td>
</tr>
<tr>
<td>Has sold a loot box or loot box item</td>
<td>27.8</td>
<td>39.7</td>
</tr>
<tr>
<td>Has profited from loot boxes</td>
<td>18.1</td>
<td>25.9</td>
</tr>
</tbody>
</table>
Descriptive Statistics:

Loot Box Perceptions:
• 76% and 79% agreed that “opening Loot Boxes sometimes feels like making a bet”.
• 68% and 86% endorsed “I believe Loot Boxes are a form of gambling”.

<table>
<thead>
<tr>
<th>Opinion of Loot Boxes</th>
<th>MTurk</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Feature</td>
<td>52.1%</td>
<td>30.2%</td>
</tr>
<tr>
<td>Neutral Feature</td>
<td>33.3</td>
<td>38.8</td>
</tr>
<tr>
<td>Bad Feature</td>
<td>14.6</td>
<td>31.0</td>
</tr>
</tbody>
</table>
Risky Loot-box Index (RLI):

Five Item Index of Loot Box ‘Risk’:

1) *I have bought more Loot Boxes after failing to receive valuable items.* (Loss Chasing)
2) *I have put off other activities, work, or chores to be able to earn or buy more Loot Boxes.* (Preoccupation)
3) *I frequently play games longer than I intend to, so I can earn Loot Boxes.* (Preoccupation)
4) *Once I open a Loot Box, I often feel compelled to open another.* (Inability to Stop)
5) *The thrill of opening Loot Boxes has encouraged me to buy more.* (Tolerance?; Inability to Stop?)
Associations with the RLI:

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>Internet Gaming Disorder Scale</th>
<th>Problem Gambling Severity Index</th>
<th>Gambling-Related Cognitions Scale</th>
<th>Belief in Luck</th>
<th>Loot Box Monthly Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLI</td>
<td>7.86 (5.70)</td>
<td>.355**</td>
<td>.491**</td>
<td>.518**</td>
<td>.329**</td>
<td>.486**</td>
</tr>
<tr>
<td>IGDS</td>
<td>3.18 (2.51)</td>
<td>.426**</td>
<td>.340**</td>
<td>.224**</td>
<td></td>
<td>.183*</td>
</tr>
<tr>
<td>PGSI</td>
<td>1.90 (2.51)</td>
<td></td>
<td>.697**</td>
<td>.330**</td>
<td></td>
<td>.234**</td>
</tr>
</tbody>
</table>

Note: * p ≤ .05, ** p ≤ .01 (two-tailed), df = 141.

- Stronger associations with the PGSI and the GRCS, as compared to the IGDS.
- The PGSI correlates with estimated monthly expense on loot boxes.
Predicting the RLI:

- Using a hierarchical regression, gambling-related variables accounted for 37% of RLI’s variance.
  - $F(7, 134) = 16.3, p < .001, R^2 = .398, \text{ Adj. } R^2 = .371$

- The IGDS and other covariates predicted 15%, with gambling-related variables predicting an additional 29% of the variance
  - $F(10, 131) = 12.1, p < .001, R^2 = .479, \text{ Adj. } R^2 = .439$;
    - $F$-change$(6, 131) = 12.64, p < .001$.

- Replicated (although attenuated) within the university sample.
Marketplace Enabled Games:

- Significant positive association between preference for games with marketplaces and status as a monthly spender on loot boxes.
  - $\chi^2(1) = 5.84$, $p = 0.016$, $\phi = .262$.

- Associated with greater endorsement of statement, "Virtual items that can be sold are better than those that cannot be".
  - $M = 3.57$, $SD = 1.14$ vs. $M = 3.04$, $SD = 1.18$; $t(83) = 2.07$, $p = .041$, Cohen’s $d = 0.46$
Discussion:

• Loot boxes are a prominent feature of video games, and most gamers in our samples have opened (90 & 95%) or bought one (49 & 60%).

• A sizeable minority of participants have sold items from loot boxes (28 & 40%).

• Majority of our participants view loot boxes as a form of gambling (68 & 86%).
Discussion:

• Replicated Zendle & Cairns (2018) finding that loot box expenditure correlates with the problem gambling behaviour.

• Beyond expenditure, ‘risky use’ (e.g. loss chasing) is also associated with problem gambling behaviour.

• Positively linked to distorted cognitions (e.g., illusion of control, gambler’s fallacy), which have etiological implications in Gambling Disorder.
Discussion:

- Gambling-related variables more strongly predict risky loot box use than a typical measure of problem gaming (37% vs. 15%).
  
  Such measures emphasize excessive time and ignore financial harm.

- The presence of marketplaces to sell virtual items could increase spending and shift player’s valuation to monetary worth.
Concluding Thoughts:

• There is substantial concern that loot boxes are a largely unregulated gambling-like mechanism.

• Loot boxes can look and feel like gambling, and this is apparent to our participants.

• Our correlational data could suggest two pathways:
  1) Individuals with risky gambling beliefs and behaviours may be vulnerable to loot box features.
  2) Risky loot box use may promote problematic gambling.
Concluding Thoughts:

• The presence of item marketplaces allow loot boxes to be used as a gambling-like mechanism:
  1) Allow a ‘wager’ to be made
  2) Outcome is uncertain, chance determined
  3) Allow transformation of virtual item to cash

• Overall our results are supportive of regulation, which could borrow from the gambling field.
  • Examples: Account limit-setting, self-exclusion, age restrictions, warning labels, publish probabilities.
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