Gaming the system: legally-required loot box probability disclosures in video games in China are implemented sub-optimally

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Keywords

ABSTRACT

Background and Aims: Paid 'loot boxes' represent a new randomised monetisation method in video games. Previous psychology research has established that loot boxes are conceptually similar to gambling (Drummond & Sauer, 2018; Nielsen & Grabarczyk, 2019); linked to disordered gambling (eg Zendle & Cairns, 2019); and accessible to vulnerable consumers, *e.g.* children (Zendle et al., 2020).

The regulation of loot boxes represents a global consumer protection challenge: various methods of regulation of varying degrees of restriction are currently being considered by policymakers across the world. Belgium has effectively banned paid loot boxes, whilst the UK gambling regulator determined that it is unable to regulate most paid loot boxes under existing law (Xiao, 2020). The Australian House of Representatives Standing Committee on Social Policy and Legal Affairs (2020) recommended that the Australian Government '[restrict] access to loot boxes … to adults aged 18 years or over.'

A recent survey of the 100 top-grossing UK iPhone games found that 59% contained paid loot boxes (Zendle et al., 2020). A recent Australian study suggests that 62% of the most popular games in Australia contain paid loot boxes (Rockloff et al., 2020). However, little is known about loot box prevalence and accessibility to children outside of 'Western' countries, whose video game market may be structurally different. Indeed, the People's Republic of China (PRC) has taken a unique regulatory approach to paid loot boxes compared to Western countries: the PRC is the only country to legally require companies to disclose the probabilities of obtaining randomised loot box rewards. This is relevant to other countries because leading video game companies also predominantly favour the disclosure of loot box reward probabilities as a self-regulatory approach (Entertainment Software Association (ESA), 2019).

Research in other domains, such as gambling, alcohol and tobacco, suggests that companies may not disclose information in an optimal manner to consumers. This is relevant because PRC loot box disclosure policies provide significant discretion to game companies. Probabilities can be disclosed in-game on the loot box purchase screen, or on the game's official website, and there are no requirements as to the size or type of symbol used to signify loot box disclosures in-game, or as to the placement of website disclosures. Prominent and uniformly designed disclosures are likely to be the most helpful for consumers.

Additionally, the probabilities of obtaining rewards from loot boxes may change during game-play due to the presence of 'pity-timer' mechanics, which increase the player's probability of receiving more valuable rewards as more loot boxes are purchased. Pity-timers plausibly make probability disclosures harder to understand, and have been secretly implemented in at least one Western game—*Hearthstone* (Xiao & Henderson, 2019).

This study assesses the prevalence of loot boxes and loot box accessibility to children in the PRC; companies' interpretations of loot box disclosure regulations; and the prevalence of pity-timer mechanics.

Method: The 100 highest-grossing iPhone games on the Apple App Store in the PRC were surveyed to determine the age rating of each game and whether each game contained loot boxes. Probability disclosures were then searched for in-game and on the game's official website, and features of found probability disclosures were recorded.

Findings: Loot boxes were present in 91% of games. 90.5% of games deemed suitable for children aged 12+ contained loot boxes. For games with loot boxes, disclosure statements could not be found for 4.4%; website-only disclosures were found for 38.5%; in-game-only disclosures were found for 23.1%; and disclosures were found at both locations for 34.1%. Five distinct forms of website disclosures and six forms of in-game disclosures were identified (Figs.1–4). Overall, 13.6% of website disclosures and 9.6% of in-game disclosures could be considered reasonably prominent (cf Figs.1a and 1b). 65.9% of games containing loot boxes disclosed the implementation of at least one pity-timer mechanic in relation to one of its loot boxes.

Fig.1: Game 80's (仙境传说RO：守护永恒的爱 [Ragnarok M: Eternal Love]) in-game probability disclosure (fig.1a) was automatically displayed on the loot box purchase screen (on the right side, annotated) without requiring any additional input from the player (9.6% of in-game disclosures). Game 104's (野蛮时代 [Brutal Age: Horde Invasion]) in-game probability disclosure can be accessed after interacting with the in-game customer support system and chatting with a bot (fig.1b shows the process; 1.9% of in-game disclosures). Notably, although the game is available in Simplified Chinese, the interaction with the support bot could be done only in English. © 2003– 2020 心动网络 [X.D. Network Inc.]; 2020 Chengdu Nibirutech Co., Ltd, a.k.a. tap4fun

Fig.2: Game 61's (碧蓝航线 [Azur Lane]) probability disclosure can be accessed immediately after tapping a small generic symbol (the '[i]' symbol, annotated, 55.8% of in-game disclosures). © 2009–2020 bilibili; 上海蛮啾网络科技有限公司[Shanghai Manjuu Technology Co.,Ltd]; 厦门勇仕网络技术股份有限公司

Fig.3: Game 50's (天龙八部手游) website probability disclosures (annotated) were published under the '新闻 [news]' or '公告 [notice]' tab and which were then chronologically listed alongside other posts (78.8% of website disclosures). The disclosures for various loot boxes were presented in separate posts making it more difficult for a player to identify the disclosure of a particular loot box. © 1998 – 2020 Tencent
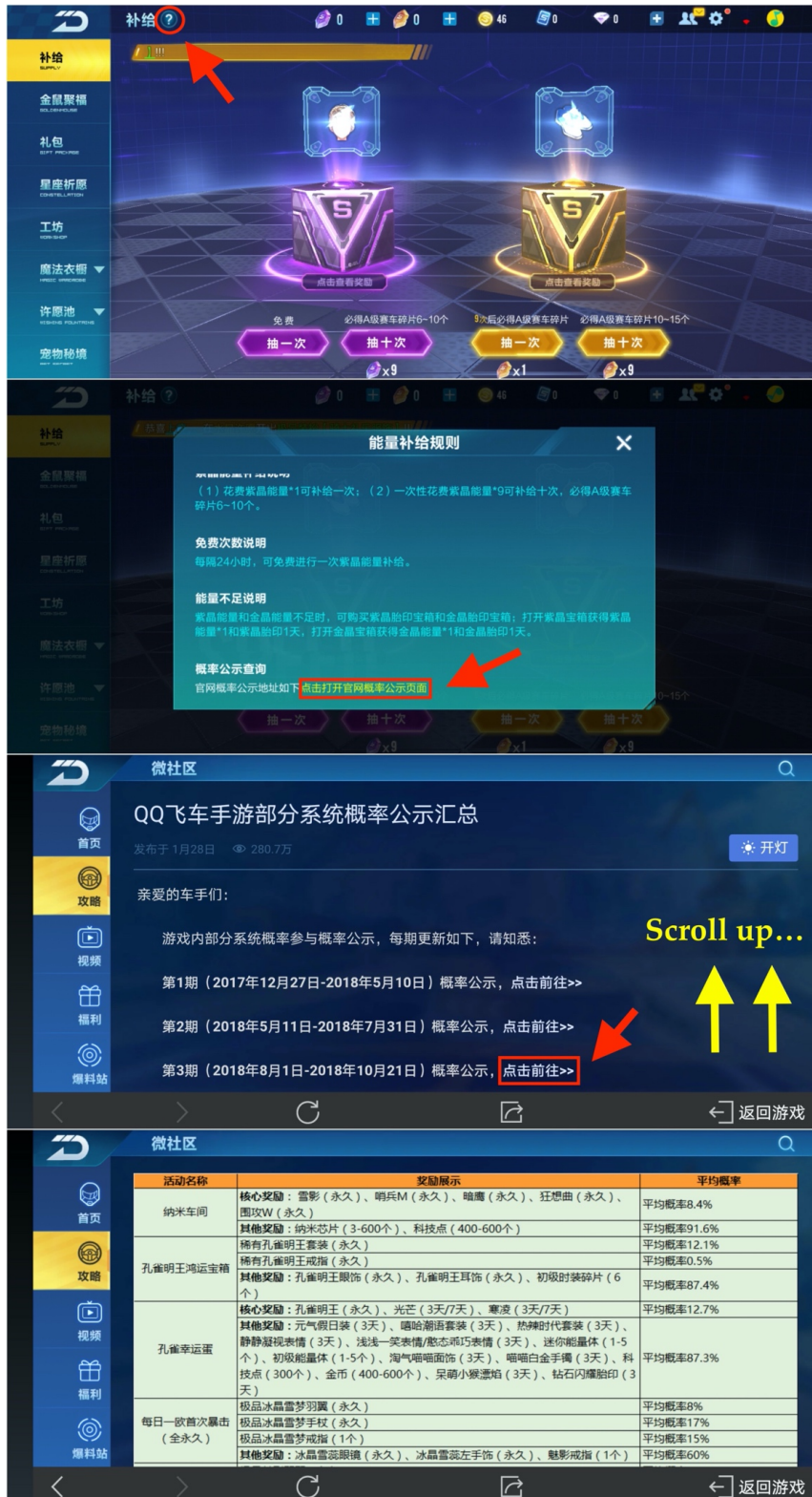
Fig.4: Game 17's (QQ飞车) probability disclosure can be accessed after tapping a small generic symbol and following additional steps (15.4% of in-game disclosures). The process for Game 17 is detailed as follows: tapping the '(?)' (annotated) at the top of the first screenshot; then tapping the hyperlink at the bottom of the second screenshot (annotated); then tapping on the hyperlinks on the third screenshot (annotated). Notably, the notices are listed in chronological order and not in reverse chronological order, meaning that to access the most recently updated probability disclosure, the player must scroll down to the bottom of the page shown on the third screenshot. The bottommost screenshot shows the probability disclosure being shown after following the above steps. © 2010–2020 Tencent

Discussion: Loot box prevalence in the PRC (91%) is much higher than the 59% and 62% found in recent comparative UK and Australian studies. From a legal perspective, the disclosure rate of 95.6% must not be perceived as the compliance rate of PRC law, which is lower because some disclosures were evidently inaccurate. Examples include probabilities summing to less than 100% (Fig.5), and probabilities summing to more than 100% (Fig.6). From a policy perspective, these results suggest that neither the PRC's regulations nor the Apple Store's self-regulatory policies (by which these games were also governed) were sufficient to encourage all of these games to display loot box probability information prominently and uniformly, which would seem to be the most beneficial for consumers.

- 极品外附魂骨宝箱

极品外附魂骨宝箱	掉率
外附魂骨	1.24%
外附魂骨碎片	86.78%

Fig. 5: Game 41's (*新斗罗大陆*) probability disclosure disclosed probabilities summing to less than 100% for multiple loot boxes: 1.24%+86.78%=87.92%. It is not known what rewards, if any, are provided the other 12.08% of the time, as no further requisite explanation is provided. This disclosure is therefore defective, incomplete and non-compliant with the PRC law. © 2004-2017 上海玄霆娱乐信息科技有限公司

浣溪沙·秘宝	二等青铜*2: 33.00%
	二等铁锭*2: 33.00%
	三等青铜*1: 17.00%
	三等铁锭*1: 17.00%
	代金券*30: 24.00%
	四等青铜*2: 2.00%
	四等铁锭*2: 2.00%

Fig.6: Game 101's (*御龙在天*) probability disclosure disclosed probabilities summing to *more* than 100% for multiple loot boxes: 33+33+17+17+24+2+2=128%! It is not known whether or not individual rewards are separately calculated which may have caused the probabilities to sum to more than 100%, as no further requisite explanation is provided. This disclosure is therefore defective, incomplete and non-compliant with the PRC law. This game also contains up to 433 different loot boxes, according to its website disclosure, as counted by the first author. © 1998 - 2020 Tencent

Conclusions: Loot boxes are highly prevalent in the PRC and the vast majority of games containing loot boxes is deemed suitable for children. Loot box probability disclosures are often displayed non-prominently: game companies' discretionary compliance with PRC law appears sub-optimal. Legal regulation and/or self-regulation of loot box probability disclosures should require uniform and prominent disclosures to ensure maximum consumer protection. Pity-timer mechanics are prevalent and implemented widely, and should be studied further.

BIO

LYX and LLH are Lord Denning Scholars at The Honourable Society of Lincoln's Inn studying to become barristers. LYX and LLH research the regulation of randomised monetisation methods (loot boxes) in video games and ethical game design which improve consumer protection using legal and ludology (game studies) perspectives. YY is a postgraduate law student specialising in intellectual property law. PWSN is a postdoctoral researcher with expertise in gambling research. This research was conducted remotely during COVID-19 lockdown through a

collaboration by the authors who are based in three countries. The preprint of this research is here: https://doi.org/10.31234/osf.io/e6yw8.

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CONFLICT OF INTEREST

LYX was employed by LiveMe, a subsidiary of Cheetah Mobile (NYSE:CMCM) as an in-house counsel intern from July to August 2019 in Beijing, People's Republic of China. LYX was not involved with the monetisation of video games by Cheetah Mobile or its subsidiaries. LYX communicated with Playrix, the developer and publisher of sample games 48 (Gardenscapes) and 73 (Homescapes), in a legal capacity unrelated to either game's monetisation, including the absence of the implementation of loot boxes in either game, during his internship at LiveMe, a subsidiary of Cheetah Mobile (NYSE:CMCM). LLH and YY declare no conflict of interest. PWSN was a special advisor to the House of Lords Select Committee Enquiry on the Social and Economic Impact of the Gambling Industry. In the last three years PWSN has contributed to research projects funded by GambleAware, Gambling Research Australia, NSW Responsible Gambling Fund, and the Victorian Responsible Gambling Foundation. In 2019 PWSN received travel and accommodation funding from the Spanish Federation of Rehabilitated Gamblers, and in 2020 received an open access fee grant from Gambling Research Exchange Ontario.

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