

1        **Assessing compliance with UK loot box industry self-regulation on the Apple**  
2        **App Store: a 6-month longitudinal study on the implementation process**

3  
4                                      Leon Y. Xiao<sup>\*†‡¶</sup> [0000-0003-0709-0777] <[lexi@itu.dk](mailto:lexi@itu.dk)>

5  
6                                      \*: Center for Digital Play, IT University of Copenhagen, Denmark

7                                      †: Department of Computer ScienceSociology, Manchester Metropolitan University  
8    of York, UK

9                                      ‡: Transatlantic Technology Law Forum, Stanford Law School, CA, USA

10                                     ¶: The Honourable Society of Lincoln's Inn, UK

11  
12        **Abstract**

13        Loot boxes in video games can be purchased with real-world money in exchange for  
14        random rewards. Stakeholders are concerned about loot boxes' similarities with  
15        gambling and their potential harms (*e.g.*, overspending). The UK Government has  
16        decided to first try relying on industry self-regulation to address the issue, rather  
17        than to impose legislation. These self-regulations have since been published by Ukie  
18        (UK Interactive Entertainment). Many stakeholders are interested in a transparent  
19        and independent assessment of their implementation. Compliance with some of  
20        these self-regulatory measures are empirically testable. The highest-grossing iPhone  
21        games will be played for up to one hour to confirm whether they contain loot boxes.  
22        If they do, probability disclosures will be searched for in-game; presence disclosures  
23        will be searched for on the Apple App Store product page; and attempts will be  
24        made to purchase loot boxes without parental consent whilst pretending to be under  
25        18 (*e.g.*, entering an appropriate birth date whenever demanded). This will be done  
26        six months after the publication of the principles (baseline; to track the  
27        implementation progress) and then again 12 months after their publication (follow-  
28        up; to check compliance, as by that point all games would be required to comply).  
29        Conclusions will be drawn as to whether the measures have been complied with by  
30        companies to an adequate degree. In addition, by checking whether the games  
31        identified as non-compliant at baseline have since complied or been removed at  
32        follow-up, conclusions will be drawn as to whether stakeholders (*e.g.*, Apple) are  
33        enforcing the regulations.

34  
35        **Keywords:**

- 36 Loot boxes; Video games; Video gaming regulation; Interactive entertainment law;
- 37 Information technology law; Consumer protection; Industry self-regulation; Social
- 38 corporate responsibility

39 **Conflict of Interest**

40 L.Y.X. was employed by LiveMe, then a subsidiary of Cheetah Mobile  
41 (NYSE:CMCM), as an in-house counsel intern from July to August 2019 in Beijing,  
42 People’s Republic of China. L.Y.X. was not involved with the monetisation of video  
43 games by Cheetah Mobile or its subsidiaries. L.Y.X. undertook a brief period of  
44 voluntary work experience at Wiggin LLP (Solicitors Regulation Authority (SRA)  
45 number: 420659) in London, England in August 2022. L.Y.X. has contributed and  
46 continues to contribute to research projects that were enabled by data access  
47 provided by the video game industry, specifically Unity Technologies (NYSE:U)  
48 (October 2022 – Present). L.Y.X. has met and discussed policy, regulation, and  
49 enforcement with the Belgian Gaming Commission [Belgische Kansspelcommissie]  
50 (June 2022 & February 2023), the Danish Competition and Consumer Authority  
51 [Konkurrence- og Forbrugerstyrelsen] (August 2022), the Department for Digital,  
52 Culture, Media and Sport (DCMS) and its successor of the UK Government (August  
53 2022 & August 2023), PEGI (Pan-European Game Information) (January & March  
54 2023), a member of the European Parliament (February 2023), the US Federal Trade  
55 Commission (February 2023), the Finnish Gambling Administration at the National  
56 Police Board [Poliisihallituksen arpajaishallinto / Polisstyrelsens lotteriförvaltning]  
57 (March 2023), the Danish Gambling Authority [Spillemyndigheden] (April 2023), the  
58 Netherlands Authority for Consumers and Markets [Autoriteit Consument & Markt]  
59 (May & June 2023), and the Swedish Gambling Authority [Spelinspektionen] (June  
60 2023). L.Y.X. has been invited to provide advice to the DCMS on the technical  
61 working group for loot boxes and the Video Games Research Framework. L.Y.X. was  
62 the recipient of two AFSG (Academic Forum for the Study of Gambling)  
63 Postgraduate Research Support Grants that were derived from ‘regulatory  
64 settlements applied for socially responsible purposes’ received by the UK Gambling  
65 Commission and administered by Gambling Research Exchange Ontario (GREO)  
66 (March 2022 & January 2023). L.Y.X. has accepted funding to publish academic  
67 papers open access from GREO that was received by the UK Gambling Commission  
68 as above (October, November, & December 2022 & November 2023). L.Y.X. has  
69 accepted conference travel and attendance grants from the Socio-Legal Studies  
70 Association (February 2022 & February 2023); the Current Advances in Gambling  
71 Research Conference Organising Committee with support from GREO (February  
72 2022); the International Relations Office of The Jagiellonian University (Uniwersytet  
73 Jagielloński), the Polish National Agency for Academic Exchange (NAWA;

74 Narodowa Agencja Wymiany Akademickiej), and the Republic of Poland  
75 (Rzeczpospolita Polska) with co-financing from the European Social Fund of the  
76 European Commission of the European Union under the Knowledge Education  
77 Development Operational Programme (May 2022); the Society for the Study of  
78 Addiction (November 2022 & March 2023); the organisers of the 13th Nordic SNSUS  
79 (Stiftelsen Nordiska Sällskapet för Upplysning om Spelberoende; the Nordic Society  
80 Foundation for Information about Problem Gambling) Conference, which received  
81 gambling industry sponsorship (January 2023); and the MiSK Foundation (Prince  
82 Mohammed bin Salman bin Abdulaziz Foundation) (November 2023). L.Y.X. has  
83 received an honorarium from the Center for Ludomani for contributing a parent  
84 guide about a mobile game for Tjekspillet.dk, which is funded by the Danish  
85 Ministry of Health's gambling addiction pool (Sundhedsministeriets  
86 Ludomanipulje) (March 2023). A full gifts and hospitality register-equivalent for  
87 L.Y.X. is available via: [https://sites.google.com/view/leon-xiao/about/gifts-and-](https://sites.google.com/view/leon-xiao/about/gifts-and-hospitality-register)  
88 [hospitality-register](https://sites.google.com/view/leon-xiao/about/gifts-and-hospitality-register). The up-to-date version of L.Y.X.'s conflict-of-interest statement  
89 is available via: [https://sites.google.com/view/leon-xiao/about/conflict-of-](https://sites.google.com/view/leon-xiao/about/conflict-of-interest)  
90 [interest](https://sites.google.com/view/leon-xiao/about/conflict-of-interest).

## 91 **1. Introduction**

92 Loot boxes are products inside video games that players can buy to obtain random  
93 rewards. Some non-paid loot boxes may be obtained without spending real-world  
94 money (*e.g.*, through performing various in-game tasks)<sup>[1]</sup>. However, the present  
95 study focuses on paid loot boxes that players spend real-world money to purchase  
96 either directly or indirectly by spending money to purchase ‘premium’ in-game  
97 currency that can then be used to buy loot boxes. Hereinafter, references to ‘loot  
98 boxes’ refer only to ‘paid loot boxes’ unless otherwise specified. Importantly, a ‘loot  
99 box’ needs not be visually portrayed as a box: any in-game purchase involving real-  
100 world money with any randomised elements satisfies the definition<sup>[2]</sup>.

101

102 Stakeholders (*e.g.*, consumers, parents, and advocacy groups) are concerned about  
103 loot boxes’ structural and psychological similarities with gambling<sup>[3]</sup> and how  
104 vulnerable consumers (*e.g.*, children and people experiencing problem gambling  
105 harms) might be at risk of overspending money<sup>[4-6]</sup>. Policymakers around the world  
106 are considering potential regulation<sup>[7-10]</sup>, and a few countries have already taken  
107 action<sup>[11]</sup>. For example, in 2018, Belgium applied pre-existing gambling law to  
108 attempt to ‘ban’ loot boxes as unlicensed illegal gambling<sup>[12]</sup>. However, this  
109 intervention has been poorly enforced, such that 82 of the 100 highest-grossing  
110 iPhone games on the Belgian Apple App Store in mid-2022 continued to sell loot  
111 boxes in exchange for real-world money<sup>[13]</sup>. The Belgian experience demonstrates  
112 that a traditional gambling regulator that was originally resourced (*e.g.*, in terms of  
113 public funding and manpower) to monitor only the traditional gambling industry  
114 would not be capable of also regulating the video game industry (which is  
115 composed of many smaller operators often based in foreign jurisdictions) without  
116 significantly more additional support, monetary and otherwise.

117

118 For other countries, amending gambling law to additionally include loot boxes and  
119 thereby place them within the purview of the gambling regulator is therefore likely  
120 unworkable without substantial investments towards that end. Such investments  
121 may be viewed as an unjustifiable expenditure of public money<sup>[14(paras 248-250)]</sup>.

122 Recognising that, the UK Government (specifically, the Department for Culture,  
123 Media and Sport (DCMS)) decided in July 2022 to ask the industry to try better self-  
124 regulating loot boxes and addressing relevant concerns first, rather than to  
125 immediately impose legislation<sup>[14]</sup>. The Government did promise that it ‘will not

126 hesitate to consider legislative options,' if video game companies and platforms do  
127 not 'improve protections for children, young people and adults' and if 'tangible  
128 results' cannot 'begin to be seen in the near future'<sup>[14(para. 32)]</sup>. These self-regulatory  
129 rules, presented as 11 principles, have since been published one year later by Ukie  
130 (UK Interactive Entertainment), the national video game industry trade body, on 18  
131 July 2023<sup>[15]</sup>, with support from the Government<sup>[16]</sup>.

132

133 Besides the aforementioned Belgian example, previous research has also found that  
134 companies' compliance with various other loot box-related regulation has been poor.  
135 In China, where companies are required by law to disclose the probabilities of  
136 obtaining various random rewards from loot boxes<sup>[17]</sup>, most high-grossing games  
137 were found to have complied sub-optimally by choosing methods of displaying the  
138 disclosures that lacked visual prominence and were difficult to access<sup>[18]</sup>. Indeed,  
139 industry self-regulation of loot boxes is not a new concept and has already been  
140 attempted for several years to dubious benefit. The potential underlying efficacy of  
141 the interventions has not been scientifically proven and has never been measured  
142 since implementation (although this easily could have, and should have, been done  
143 by the industry to inform all stakeholders and improve public confidence).  
144 Importantly, many of the highest-grossing games were found to have been non-  
145 compliant, and relevant platforms and rule-makers did not appear to have actively  
146 monitored compliance, nor punished non-compliance, with previous industry self-  
147 regulation. For example, in mid-2021, 36% of the highest-grossing iPhone games  
148 containing loot boxes were found to have failed to disclose probabilities, as required  
149 by Apple App Store's platform rules, seemingly with impunity<sup>[19]</sup>.

150

151 The North American (ESRB; the Entertainment Software Rating Board) and  
152 European (PEGI; Pan-European Game Information) age rating organisations'  
153 mandated loot box presence warning label was not properly implemented through  
154 the IARC (International Age Rating Coalition) system, such that 71% of popular  
155 games containing loot boxes did not bear the label on the Google Play Store and  
156 thereby failed to inform consumers about the potential risks<sup>[20]</sup>. Many games were  
157 also identified as unlabelled on other storefronts operated by Epic Games, Nintendo,  
158 Sony, and Microsoft<sup>[21]</sup>. A number of unlabelled games have since been duly labelled,  
159 for which some credit is due to the self-regulatory age rating organisations;  
160 however, that was done only in response to external academic scrutiny and after

161 being explicitly requested, in the absence of which, those games would likely have  
162 remained incorrectly unlabelled even today<sup>[22]</sup>.

163

164 Prior research has demonstrated that loot box regulations, particularly industry self-  
165 regulatory ones, were poorly complied with in the past. Accordingly, reasonable  
166 doubt can, and ought to, be cast on whether companies will comply with the newly  
167 proposed UK loot box industry self-regulation. Many stakeholders are interested in  
168 a transparent and fair assessment of the implementation of the Ukie self-regulatory  
169 principles. Not every principle contained therein is capable of empirical study. For  
170 example, Principle 7 is to support the implementation of the *Video Games Research*  
171 *Framework*<sup>[23]</sup>, which is a UK Government document intended to promote better  
172 research into video games and related issues. Similarly, Principle 9 is a commitment  
173 to adopt more lenient refund policies when it can be demonstrated that in-game  
174 purchases were made without parental consent or knowledge. Such principles  
175 would be welcomed by all stakeholders without controversy, but compliance with  
176 them is difficult to quantify or objectively measure against a predetermined  
177 standard.

178

179 However, three principles are empirically testable (and indeed two of them have  
180 already previously been so assessed<sup>[18-21]</sup>). Firstly, Principle 1 demands that the  
181 purchase of loot boxes with real-world money by under-18s is to be restricted such  
182 that it may only be done with parental consent. (This is the only 'new' requirement  
183 that has not already been otherwise introduced; the following two requirements  
184 should already have been adopted elsewhere as detailed below.) Secondly, Principle 4  
185 requires companies to disclose the presence of paid loot boxes to consumers prior to  
186 purchasing or downloading the game using, *inter alia*, the relevant PEGI presence  
187 warning label<sup>[24]</sup>. Thirdly, Principle 5 states that companies must make probability  
188 disclosures informing players of their likelihood of obtaining various random  
189 rewards from loot boxes.

190

191 Companies have been given a 12-month implementation period (starting from 18  
192 July 2023) to adopt these measures<sup>[15]</sup>. In other words, one cannot say that a game  
193 that continues to permit loot box purchasing by under-18s without parental consent  
194 is actually non-compliant with Principle 1 until 18 July 2024. Notwithstanding, the  
195 disclosure of loot box presence to consumers prior to purchasing and downloading

196 on any advertising of a video game (now, arguably misleadingly, presented through  
197 Principle 4 as a supposedly new measure) has already been required by advertising  
198 regulations, as clarified in the *Guidance on advertising in-game purchases* published in  
199 September 2021, which is enforced by the relevant regulator, the Advertising  
200 Standards Authority<sup>[25]</sup>. I have since complained to the Advertising Standards  
201 Authority about games that were non-compliant, and the Advertising Standards  
202 Authority Council has held in two separate rulings that companies that do not  
203 disclose the presence of loot boxes on Apple<sup>[26]</sup> and Google<sup>[27]</sup> store pages are  
204 breaching advertising *law*. Therefore, irrespective of the implementation process,  
205 games should already be compliant with the essence of Principle 4, otherwise they  
206 are advertising illegally. Similarly, many platforms, including the Apple App Store,  
207 have required the disclosure of loot box probabilities since 2019, if not earlier<sup>[28-30]</sup>, as  
208 now also expressed through Principle 5 (again, arguably misleadingly as if this is a  
209 new proposal). Hence, non-compliance with Principles 4 and 5 at present, even prior  
210 to the end of the 12-month implementation period or 18 July 2024, would contravene  
211 other existing regulation and be reprehensible.

212

213 The UK Government<sup>[16(para. 23)]</sup> and Ukie<sup>[15]</sup> have both expressed that progress should  
214 be monitored and periodically reviewed during the implementation process.  
215 Relevant civil servants have informed the author that it would be beneficial for  
216 independent, transparent scrutiny of the compliance with these measures (which is  
217 one reflection of their potential efficacy, as even an effective measure that is not  
218 complied with would be ineffective) to be made six months after the publication of  
219 these principles (*i.e.*, around January 2024) and then again following the  
220 implementation period (*i.e.*, around July 2024). This would complement any  
221 assessments that the industry, represented by Ukie itself, might conduct and  
222 publish.

223

224 Research Question 1: Are the 100 highest-grossing iPhone games complying with  
225 three separate aspects of the UK loot box industry self-regulation?

226

227 Hypothesis This will be assessed by checking whether 1: Aall highest-grossing  
228 iPhone games containing paid loot boxes in the 18 January 2024 sample and the 18  
229 July 2024 sample will (i) prevent loot box purchasing by under-18s unless parental  
230 consent has been provided; (ii)-



231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265

~~Hypothesis 2: All highest-grossing iPhone games containing paid loot boxes in the 18 January 2024 sample and the 18 July 2024 sample will disclose loot box presence;~~

~~Hypothesis 3: All highest-grossing iPhone games containing paid loot boxes in the 18 January 2024 sample and the 18 July 2024 sample will and (iii) make loot box probability disclosures.~~

Research Question 2: Do platforms and rulemakers enforce their own self-regulation and punish non-compliant companies?

~~This will be assessed by checking whether~~  
Hypothesis 4: ~~a~~All highest-grossing iPhone games containing paid loot boxes in the 18 January 2024 sample that will not disclose loot box presence nor make loot box probability disclosures will either have done both, or have been delisted from the UK Apple App Store, by 18 July 2024.

## 2. Method

The list of the 100 highest-grossing games for the iPhone platform in the UK on 18 January 2024 and on 18 July 2024 will be separately collated through data.ai, a leading analytics company. These two lists will form the samples, which will be individually studied at two separate points in time immediately following each aforementioned date. If any game in the 100 highest-grossing lists will no longer be available for download from the UK Apple App Store by the data collection period, then it will be excluded from the sample and replaced with the next highest-grossing game (e.g., the first unavailable game will be replaced with the 101<sup>st</sup> highest-grossing game). The results in relation to each list/sample will be separately reported in two studies in order to ensure that the results may be promptly published to assist in policy implementation when they still remain relevant.

Previous studies assessing loot box prevalence and compliance with presence warning and probability disclosure requirements have focused on the 100 highest-grossing games. That sample size and sampling method are reasonable and justified, due to resource constraints (mostly on researcher time) and given that stakeholders (e.g., parents and policymakers) are far more interested in the situation concerning popular games that many players have demonstrably spent money on, rather than

266 that of obscure titles that may only be downloaded a handful of times per year. With  
267 that said, a key limitation must now be conceded with this sampling methodology.  
268 Previous research has repeatedly focused directly or indirectly on the 100 highest-  
269 grossing games<sup>[13,18-20]</sup>. The games on that list have not changed significantly over the  
270 years (although some entries do get replaced by newly released titles occasionally,  
271 they would still be relatively high-grossing games, *e.g.*, be within the 500 highest-  
272 grossing games), meaning that previous research has studied certain games multiple  
273 times and, importantly, had publicly identified them as being non-compliant with  
274 pre-existing regulatory requirements (that the present study will also assess), such as  
275 not making probability disclosures or not disclosing loot box presence. Those  
276 previous research efforts are known to have directly caused the companies behind  
277 some of those games to take remedial actions, or to be forced to do so by age rating  
278 organisations, to become compliant<sup>[22]</sup>. Some of these same games will likely be  
279 included in the 100 highest-grossing list again on the data collection dates of the  
280 present study, meaning that, although they may now be identified as compliant, that  
281 was already guaranteed by (and indeed only due to) previous external intervention.  
282 It cannot be known whether those now-‘compliant’ games would have been so  
283 without that external interference. This means that the compliance rates amongst the  
284 highest-grossing games are likely to now be artificially higher than those amongst all  
285 other games. Alternatively, randomly sampling 100 games from the 500 highest-  
286 grossing games also would not completely remove this bias because some games  
287 that were previously studied and whose compliance was artificially affected would  
288 have fallen below the 100<sup>th</sup> rank but still remain within the top 500. Those lower  
289 ranking and less popular games would also affect significantly fewer players and  
290 therefore be less concerning to stakeholders. Indeed, it remains valid to simply  
291 sample the 100 highest-grossing games because the findings would be the most  
292 practically informative and relevant as they show the situation as a consumer would  
293 encounter it. The artificial interventions have already happened and thereby affected  
294 the average consumer experience (hopefully positively), so although any findings  
295 would no longer be entirely ‘natural,’ such findings remain the most useful. The  
296 present results simply must not be overinterpreted as indicative of the compliance  
297 rates amongst less popular games (which are likely to be lower) or how they would  
298 have been had there been no previous intervention.

299

300 The focus on the Apple App Store platform is predominantly due to resource  
301 constraints on the author's time. Ideally, the situations on other platforms (*e.g.*, the  
302 Google Play Store and the stores of consoles like the Sony PlayStation, Microsoft  
303 Xbox, and Nintendo Switch) would also be assessed. However, previous research  
304 has suggested that the loot box issue is more concerning on mobile platforms than  
305 PC and console platforms: this is because there are significantly more content on  
306 mobile platforms (which makes compliance and enforcement more difficult), and the  
307 prevalence rate of loot boxes is also significantly higher there<sup>[20]</sup>. There are also  
308 further complications with potentially studying the Android mobile platform  
309 specifically. Firstly, games can be installed through many different storefronts (*e.g.*,  
310 the Samsung Galaxy Store, HUAWEI AppGallery, etc., which are not covered by the  
311 self-regulation, as it applies only to certain explicitly listed platforms). Secondly,  
312 games may be easily installed directly with a .apk (Android Package) file that may  
313 not be the UK-compliant version. Therefore, a study of only the Google Play Store  
314 does not fully reflect the experience of a (child) consumer using Android devices.  
315 The present study is intended to focus limited resources on providing a fair  
316 perspective on the iOS platforms, where the Apple App Store solely dominates as it  
317 is the only permitted app store for the operating system<sup>[see 31]</sup>. This would also  
318 provide data comparable to those of a previous 2021 study on iPhone probability  
319 disclosures in the UK<sup>[19]</sup>. Finally, the versions of the game available on the Apple  
320 App Store and Google Play Store should, in theory, be substantively identical, and  
321 the highest-grossing lists for the two platforms overlap significantly, so the present  
322 results should be broadly transferable. For example, if the iPhone version made  
323 probability disclosures, then the Google Android version probably would have done  
324 as well.

325  
326 The following variables will be measured:

327  
328 *Apple age rating*

329 This will be copied from the relevant age rating information displayed on the game's  
330 UK Apple App Store page. No game will be excluded due to its age rating because  
331 Apple's highest age rating is 17+ and the Ukie principles apply to all young people  
332 under 18. Therefore, 17-year-olds can play all games available on the Apple App  
333 Store but are still supposed to be protected by the self-regulation.

334

335 *Presence of paid loot boxes*

336 Each game will be downloaded from the UK Apple App Store and played for an  
337 hour to identify whether paid loot boxes (as defined in Annex B of the Ukie self-  
338 regulation, which aligns with the present study's and the ESRB's definition as set out  
339 in the Introduction section<sup>[2]</sup>) are being implemented and sold in exchange for real-  
340 world money or premium in-game currency that could in turn be bought with real  
341 money. If multiple loot boxes are found within that hour, then they will each be  
342 separately noted. Screenshots will be taken of any found loot boxes.

343

344 One hour of 'playing' the game will mean that, from downloading and starting the  
345 software, I will use my best endeavours for 60 minutes to unlock as many aspects of  
346 the game and gain access to as many in-game purchasing offers as possible: for  
347 example, I will choose to access the in-game store where loot boxes are presumably  
348 sold as soon as able, including by skipping unnecessary story elements. Our  
349 previous research using this methodology has acknowledged that the detection rate  
350 of loot boxes is not 100% because there are likely games that only begin to sell loot  
351 boxes many hours after the player starts playing and because loot boxes might  
352 simply be missed by the researcher<sup>[19(p. 12)]</sup>. This one-hour time limit is justified on  
353 resource constraints on my time. In addition, based on previous research, this  
354 method should be sufficient to detect at least 80% games with loot boxes (assuming  
355 that every game contains loot boxes, which is most likely untrue, so the true  
356 detection rate is higher)<sup>[13]</sup>. The percentage rate of games found to contain paid loot  
357 boxes within one hour of examination will be referred to as the 'prevalence rate' of  
358 loot boxes (as has been done in the past), even though more accurately, it would be  
359 the prevalence rate when only one hour has been spent examining the game and the  
360 true prevalence rate is therefore likely higher.

361

362 *Presence of technical measures to prevent loot box purchasing by under-18s*

363 When playing each game, if and whenever prompted by the game to answer any  
364 questions relating to age (such as 'how old are you?' and 'in which year were you  
365 born?'), an answer that would make the user appear to be 17 years old will be  
366 provided. This age was chosen because some games on the Apple App Store  
367 platform are given the highest age rating of 17+, which should render them  
368 unavailable for download by younger users. A 17-year-old can download and play  
369 them, but they also remain under 18 for the purposes of the Ukie loot box industry

370 self-regulation, such that their loot box purchasing should be restricted until  
371 parental consent is provided. The purchase of paid loot boxes will be attempted to  
372 check whether this could be done without parental consent or knowledge on a user  
373 account that will purportedly belong to a 17-year-old. A game will be deemed as  
374 having complied with Principle 1 if the aforementioned paid loot box purchasing  
375 attempt is unsuccessful.

376

377 Importantly, the operating system-level spending control feature that Apple  
378 provides for parents ('Ask to Buy'<sup>[32]</sup>) will not be accounted for by the present study.  
379 Activating this would blanketly require under-18s to send requests for approval to  
380 their parents for *all* in-game purchases (regardless of whether they are loot box  
381 purchases), app store purchases, and even app store downloads of 'free' games.  
382 Under-18s must wait until these are approved before the transaction can take effect.  
383 That feature is undoubtedly valuable for parents and other caretakers wanting to  
384 better monitor and manage their child's video game spending and should be used  
385 by them, but the present study is concerned with individual game-level compliance  
386 and interventions that specifically relate to loot boxes by highlighting that a  
387 purchase is potentially problematic because it is a loot box purchase. Broad,  
388 platform-wide spending control mechanisms like Apple's Ask to Buy often fail to  
389 provide specific information about loot boxes because loot boxes are very rarely  
390 directly purchased with real-world money and often must be purchased using  
391 (premium) in-game currency (*e.g.*, 'Green Gems') that is in turn bought using real-  
392 world money. (Indeed, representatives of the video game industry, including  
393 Ukie<sup>[33(p. 9, para 43), see also 34(p. 13)]</sup>, have previously argued that games that directly sell loot  
394 boxes, rather than sell them through an intermediary premium currency, are  
395 confusing for the player and arguably in contravention of Principle 4 of the Office of  
396 Fair Trading's Principles for online and app-based games.<sup>[11,35]</sup>) The payment request  
397 to parents would therefore merely appear as a request to purchase in-game currency  
398 with real-world money and provide no information on what that currency will then  
399 be used for (*e.g.*, purchasing loot boxes). No further notification would be provided  
400 by the Ask to Buy system to the parent when those Green Gems are then used in-  
401 game to purchase loot boxes. This latter instance is where an in-game intervention  
402 asking for parental consent to a loot box purchase (as envisioned by the Ukie self-  
403 regulation) is expected to occur.

404

405 To further illustrate, by relying on platform-level controls only, it would require the  
406 parent to ask the child what they intend to spend the Green Gems on (when the Ask  
407 to Buy request for that transaction appears), before the real-money-to-Green-Gems  
408 transaction takes place, for them to find out that loot boxes will be purchased. The  
409 child might be undecided as to how they want to spend the Green Gems, and the  
410 child might also not understand that, with those Green Gems, they will be buying a  
411 gambling-like 'loot box' that is seen as problematic (as many of these products are  
412 not advertised as such) or be untruthful. The game company must directly  
413 communicate the fact that loot box purchasing by a child is taking place to the  
414 parent. Alternatively doing this through the child as an intermediary is not a  
415 dependable or acceptable proposal. In short, the platform-level controls (assuming  
416 that they are turned on) effectively restrict the first premium currency transaction  
417 using real-world money but never the second loot box purchasing transaction using  
418 in-game premium currency (which is where the intervention should take place).  
419 Platform-level controls may be deemed sufficient for games where the payment  
420 request is for loot box-like mechanics directly and that request clearly explains how  
421 the mechanic works and any associated concerns. However, given that nearly all  
422 games do not offer this, relying solely on this measure would be unwise. For  
423 payment requests to purchase premium currency, Apple may consider allowing (but  
424 has not yet allowed) games to append information on how that premium currency  
425 might then be spent on loot boxes and such mechanics and outline the potential  
426 related concerns. However, until that is uniformly and satisfactorily done, a parent  
427 cannot trust the Ask to Buy feature alone to protect their child.

428

429 Another point is that platform-wide parental control would also require the parent  
430 to activate it. These may be turned on by default in some instances, but regulation  
431 must not proceed on the unreasonable assumption that all parents already have this  
432 turned on for every child. It would not be right to place that burden on parents. A  
433 child may also engage with a game downloaded on a parent's or the family device,  
434 in which case platform-level controls are not active. Multiple layers of protection  
435 should be provided. Indeed, had robust parental controls already been widely  
436 utilised, then no further regulation (including the Ukie self-regulation) would be  
437 required. It is precisely because of the potential failings of pre-existing parental  
438 control features that the Ukie self-regulation is being newly introduced to directly  
439 address the loot box issue. It is therefore reasonable to expect individual games to be

440 taking action and making interventions inside the game. The drafters of the self-  
441 regulation surely must not have deemed pre-existing platform-wide parental  
442 controls to already be sufficient, as those have already been available for many years  
443 and so the self-regulation would then be proposing nothing new.

444

#### 445 *Presence of presence disclosures*

446 For each game found to contain paid loot boxes, its Apple App Store product page  
447 will be reviewed to attempt to find a disclosure of loot box presence, such as the  
448 PEGI warning label of 'In-game Purchases (Includes Random Items)'<sup>[20,24]</sup> or some  
449 text describing the availability of paid loot boxes. Any disclosure, however difficult  
450 to find and access and however phrased, will be recognised as a disclosure having  
451 been made as long as it can reasonably be so interpreted, because the self-regulation  
452 merely requires that this be done and not that it be done visually prominently or  
453 informatively<sup>[15(p. 5)]</sup>. Nonetheless, different methods of disclosure will be categorised.  
454 A game will be deemed as having complied with Principle 4 if a loot box presence  
455 disclosure can be found.

456

#### 457 *Presence of probability disclosures*

458 In relation to each type of loot box found in each game, a corresponding probability  
459 disclosure will be searched for in-game. No external searches will be conducted (*e.g.*,  
460 through a search engine) for disclosures that are available only on websites and not  
461 linked from within the game because the relevant Ukie guidance makes clear that  
462 disclosures should be 'easily [accessible]'<sup>[15(p. 5)]</sup> and any website-based disclosures  
463 (although permitted) should also be sign-posted from within the game itself<sup>[15(p. 15)]</sup>.  
464 All found probability disclosures will be screenshotted, and the process for accessing  
465 them from the loot box purchase screen will be documented. Any disclosure  
466 formats, regardless of their visual prominence or ease of access, will be recognised as  
467 a disclosure having been made, because even though Principle 5 encourages 'easily  
468 [accessible]' and 'clear and simple' probability disclosures, those qualities are  
469 subjective to a certain degree. Different methods of disclosure will be categorised. A  
470 game will be deemed as having complied with Principle 5 only if a corresponding  
471 probability disclosure can be found for every identified loot box type.

472

#### 473 *Changes in compliance following initial study and reporting to Apple and other stakeholders*

474 Any non-compliance with Principles 4 and 5 found amongst the 18 January 2024  
475 sample will be reported to Apple and other stakeholders (e.g., DCMS and Ukie) for  
476 enforcement actions to be taken (e.g., an ultimatum to comply by a certain date,  
477 failing which the game would be removed from the UK Apple App Store for  
478 contravening platform rules or advertising regulations). Any non-compliance with  
479 Principle 1 will also be reported, but no further action will be requested given that a  
480 game is required only to comply with that measure by 18 July 2024. For games that  
481 would be included in the 18 January 2024 sample and would be found to have been  
482 non-compliant with any one of the three principles, they will be re-examined  
483 alongside the 18 July 2024 sample (if they would not already be included in that  
484 sample), to check any potential changes in compliance (e.g., (a) having since  
485 complied or (b) having since been delisted).

486

487 *Date and time of data collection*

488 The date and time, based on UK time, on and at which the game was examined, will  
489 be recorded.

490

491 The 'compliance rate' with each loot box self-regulatory measure will be calculated  
492 as follows:

493

$$494 \frac{\text{Games containing loot boxes and complying with the relevant measure}}{\text{Games containing loot boxes}}$$

495

496

497 Even though some games might be inaccurately marked as not containing loot boxes  
498 even though they do using the present methodology of examining the game for one  
499 hour only (because the loot boxes would only become available for purchase after  
500 more than one hour of gameplay), the compliance rates with various regulatory  
501 measures will not be affected because games assumed to not contain loot boxes will  
502 be excluded. The relevant compliance rates will reflect the true situation amongst the  
503 games containing loot boxes that were actually tested.

504

505 For each measure assessed for Research Question 1, a compliance rate of Hypotheses  
506 1 to 3 will each be respectively accepted if at least 95% of games containing loot  
507 boxes do comply with the relevant measure (i.e., the compliance rate is  $\geq 95\%$ ) will  
508 be interpreted in the Discussion section as near perfect and satisfactory compliance.



509 ~~Otherwise, they will be rejected.~~ This 5% of leeway (from a perfect compliance of  
510 100%) will be permitted as a type 1 error control measure to account for potential  
511 false positives. ~~As to the interpretation of different potential results, if the~~  
512 ~~compliance rate for a certain measure is  $\geq$  95%, then it will be interpreted as that~~  
513 ~~measure having been nearly perfectly complied with.~~ A compliance rate that is  $\geq$   
514 80% but  $<$  95% will be interpreted as a measure having been mostly complied with  
515 but needs some improvements. A compliance rate that is  $<$  80% will be interpreted  
516 as the measure not having been adequately complied with and needs significant  
517 improvements to achieve the regulatory aim. In addition, if the compliance rate with  
518 a specific measure improves from one band into the next (e.g., from  $<$  80% to  $\geq$  80%)  
519 when the 18 January 2024 sample is compared with the 18 July 2024 sample, then I  
520 will comment positively on how compliance has improved. These cut-offs were used  
521 previously and are based on the author's intuition as to what consumers,  
522 policymakers, and independent researchers would likely deem acceptable or not<sup>[20,21]</sup>.  
523 These cut-offs are being preregistered to ensure that the author's subsequent  
524 interpretation will not be affected by the compliance rates that will eventually be  
525 found. This is because a certain compliance rate is open to multiple interpretations  
526 by various stakeholders and indeed by the same person. For example, one might  
527 subjectively interpret a 60% compliance rate as either poor or satisfactory: an  
528 industry representative might say it is good, whilst an advocacy group in favour of  
529 banning loot boxes might view it as terrible; both sides are arguable. However, any  
530 flexibility in potential interpretation by the author is hereby eliminated through  
531 preregistration of the aforementioned cut-offs.

532

533 For that same reason, the author invited sStakeholders (specifically, the DCMS and  
534 Ukie) will be invited to preregister how they will interpret different potential results  
535 that may be found by the present study. However, both have refused. DCMS stated  
536 in response to the author's request that it is 'extremely cognisant of the need for a  
537 high rate of compliance and suitable tracking of it, but [DCMS has] made a recent  
538 public statement on loot boxes [referring to its 18 July 2023 statement supporting  
539 and approving the Ukie self-regulations upon their publication, which did not set  
540 out what degree of compliance would be deemed satisfactory by the UK  
541 Government<sup>[16]</sup> and are not planning to say anything further publicly at this point  
542 while [it continues] to work behind the scenes with academics and industry.' The  
543 author also understands that there might also be some hesitancy on the parts of civil

544 servants in purporting to bind not just the current government's interpretation but  
545 also the next government's (which might well be formed by the opposing political  
546 party with different views on what degree of compliance is acceptable).

547  
548 Ukie's refusal of the author's request stated, firstly, that it does not think the  
549 assessment should occur before the end of the 12-month implementation period and,  
550 secondly, that the author's proposed method of testing Principle 1, which  
551 specifically excludes platform-level controls, is unacceptable. The author is willing to  
552 accept Ukie's refusal in relation to Principle 1 (prevent under-18s from purchasing  
553 loot boxes without parental consent). However, the reasons provided by Ukie does  
554 not apply to the testing of Principles 4 (presence disclosures) and 5 (probability  
555 disclosures), which are both already required by other regulations, irrespective of  
556 the implementation period of the Ukie self-regulatory principles, and whose  
557 assessment methods are objective and have not been objected to. The author  
558 therefore replied and asked Ukie to then instead preregister its potential  
559 interpretations for Principles 4 and 5 only. Ukie has not responded after one month.  
560 Unfortunately, these negative responses mean that there is a lack of transparency  
561 and accountability to the public. It is also unfortunate for the industry that it does  
562 not have a clear target to meet and may still be regulated against despite many  
563 members having used their best endeavours. If the compliance rate with a specific  
564 measure improves from one band into the next (e.g., from < 80% to ≥ 80%) when the  
565 18 January 2024 sample is compared with the 18 July 2024 sample, then I will  
566 comment positively on how compliance has improved.

567  
568  
569 For Research Question 2, I will conclude that the self-regulations are being properly  
570 enforced Hypothesis 4 will be accepted if all games amongst the 18 January 2024  
571 sample that were non-compliant with either Principle 4 or 5 will have either  
572 complied with both measures, or have been delisted from the UK Apple App Store,  
573 by 18 July 2024. ~~Otherwise,~~ I will make the opposite conclusion and criticise  
574 relevant stakeholders for not strictly enforcing platform rules, advertising  
575 regulations, and the Ukie self-regulatory principles it will be rejected. The only  
576 exception would be ~~that if~~ a game has since stopped selling loot boxes, in which case  
577 that would cause that game will to be excluded when answering Research Question  
578 2 for the purposes of Hypothesis 4. The expectation that 100% (rather than 95%) of

579 games will either become compliant or be delisted is justified on the basis that a list  
580 containing all relevant games will have been provided to the stakeholders to take  
581 enforcement actions. Any potential Type 1 error will be eliminated by how the  
582 Apple App Store and/or the relevant video game companies will be given the  
583 opportunity to provide evidence that the game does not contain loot boxes or have  
584 already made the relevant disclosures, so a further 5% of leeway (given above for  
585 other assessments to Hypotheses 1–3) is not appropriate herefor Hypothesis 4. In the  
586 event Hypothesis 4 is rejected, relevant stakeholders will be criticised for not strictly  
587 enforcing platform rules, advertising regulations, and the Ukie self-regulatory  
588 principles. Otherwise, the conclusion will be that the self-regulations are being  
589 properly enforced.

590  
591 To further address the issue of how the compliance rates amongst the highest-  
592 grossing games may have been affected by previous external intervention, the  
593 compliance rates for each loot box self-regulatory measure will also be separately  
594 reported for games that have previously been studied and those that have not been.

595  
596 In accordance with the *Danish Code of Conduct for Research Integrity*<sup>[36]</sup>, as adopted by  
597 the IT University of Copenhagen, the present programmatic registered report will  
598 not require research ethics assessment and approval because no human participants  
599 or personal data will be involved and only publicly available information will be  
600 examined and recorded.

### 601 602 **3. Results**

603 **tbd**

### 604 605 **4. Discussion**

606 **tbd**

### 607 608 **5. Conclusion**

609 **tbd**

610 **Positionality Statement**

611 In terms of the author's personal engagement with loot boxes, he plays video games  
612 containing loot boxes, but he has never purchased any loot boxes with real-world  
613 money.

614

615 **Data Availability Statement**

616 The raw data and a full library of PDF printouts and screenshots showing, *inter alia*,  
617 the relevant Apple App Store webpage sections and in-game loot box purchase  
618 pages for each game will be publicly available in the Open Science Framework at  
619 <https://doi.org/10.17605/OSF.IO/YNJ5X>.

620

621 **Acknowledgement**

622 Thanks to Laura L. Henderson for helpful comments on earlier drafts of this  
623 manuscript.

624

625 **Funding Information**

626 L.Y.X. is supported by a PhD Fellowship funded by the IT University of Copenhagen  
627 (IT-Universitetet i København), which is publicly funded by the Kingdom of  
628 Denmark (Kongeriget Danmark).

629 **References**

- 630 1. Larche, C. J., Chini, K., Lee, C., & Dixon, M. J. (2022). To Pay or Just Play?  
631 Examining Individual Differences Between Purchasers and Earners of Loot  
632 Boxes in Overwatch. *Journal of Gambling Studies*.  
633 <https://doi.org/10.1007/s10899-022-10127-5>
- 634 2. Entertainment Software Rating Board (ESRB). (2020, April 13). Introducing a New  
635 Interactive Element: In-Game Purchases (Includes Random Items). *ESRB*  
636 *Official Website*. [https://www.esrb.org/blog/in-game-purchases-includes-](https://www.esrb.org/blog/in-game-purchases-includes-random-items/)  
637 [random-items/](https://www.esrb.org/blog/in-game-purchases-includes-random-items/)
- 638 3. Drummond, A., & Sauer, J. D. (2018). Video Game Loot Boxes Are Psychologically  
639 Akin to Gambling. *Nature Human Behaviour*, 2(8), 530–532.  
640 <https://doi.org/10.1038/s41562-018-0360-1>
- 641 4. Zendle, D., & Cairns, P. (2018). Video game loot boxes are linked to problem  
642 gambling: Results of a large-scale survey. *PLOS ONE*, 13(11), e0206767.  
643 <https://doi.org/10.1371/journal.pone.0206767>
- 644 5. Spicer, S. G., Nicklin, L. L., Uther, M., Lloyd, J., Lloyd, H., & Close, J. (2022). Loot  
645 boxes, problem gambling and problem video gaming: A systematic review  
646 and meta-synthesis. *New Media & Society*, 24(4), 1001–1022.  
647 <https://doi.org/10.1177/14614448211027175>
- 648 6. Close, J., Spicer, S. G., Nicklin, L. L., Uther, M., Lloyd, J., & Lloyd, H. (2021).  
649 Secondary analysis of loot box data: Are high-spending “whales” wealthy  
650 gamers or problem gamblers? *Addictive Behaviors*, 117, 106851.  
651 <https://doi.org/10.1016/j.addbeh.2021.106851>
- 652 7. Xiao, L. Y. (2021). Regulating Loot Boxes as Gambling? Towards a Combined  
653 Legal and Self-Regulatory Consumer Protection Approach. *Interactive*  
654 *Entertainment Law Review*, 4(1), 27–47. <https://doi.org/10.4337/ielr.2021.01.02>
- 655 8. Moshirnia, A. (2018). Precious and Worthless: A Comparative Perspective on Loot  
656 Boxes and Gambling. *Minnesota Journal of Law, Science & Technology*, 20(1), 77–  
657 114.
- 658 9. Xiao, L. Y., Henderson, L. L., Nielsen, R. K. L., & Newall, P. W. S. (2022).  
659 Regulating gambling-like video game loot boxes: A public health framework  
660 comparing industry self-regulation, existing national legal approaches, and  
661 other potential approaches. *Current Addiction Reports*, 9(3), 163–178.  
662 <https://doi.org/10.1007/s40429-022-00424-9>

- 663 10. Leahy, D. (2022). Rocking the Boat: Loot Boxes in Online Digital Games, the  
664 Regulatory Challenge, and the EU's Unfair Commercial Practices Directive.  
665 *Journal of Consumer Policy*, 45, 561–592. [https://doi.org/10.1007/s10603-022-](https://doi.org/10.1007/s10603-022-09522-7)  
666 [09522-7](https://doi.org/10.1007/s10603-022-09522-7)
- 667 11. Xiao, L. Y. (2023). *Loot Box State of Play 2023: Law, Regulation, Policy, and*  
668 *Enforcement Around the World*. OSF Preprints.  
669 <https://doi.org/10.31219/osf.io/q2yv6>
- 670 12. Belgische Kansspelcommissie [Belgian Gaming Commission]. (2018).  
671 *Onderzoeksrapport loot boxen [Research Report on Loot Boxes]*.  
672 [https://web.archive.org/web/20200414184710/https://www.gamingcommi-](https://web.archive.org/web/20200414184710/https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoekrapport-loot-boxen-final-publicatie.pdf)  
673 [ssion.be/opencms/export/sites/default/jhksweb\\_nl/documents/onderzoek](https://web.archive.org/web/20200414184710/https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoekrapport-loot-boxen-final-publicatie.pdf)  
674 [rapport-loot-boxen-final-publicatie.pdf](https://web.archive.org/web/20200414184710/https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoekrapport-loot-boxen-final-publicatie.pdf)
- 675 13. Xiao, L. Y. (2023). Breaking Ban: Belgium's Ineffective Gambling Law Regulation  
676 of Video Game Loot Boxes. *Collabra: Psychology*, 9(1), Article 57641.  
677 <https://doi.org/10.1525/collabra.57641>
- 678 14. Department for Digital, Culture, Media & Sport (UK). (2022, July 17). *Government*  
679 *response to the call for evidence on loot boxes in video games*. GOV.UK.  
680 [https://www.gov.uk/government/consultations/loot-boxes-in-video-](https://www.gov.uk/government/consultations/loot-boxes-in-video-games-call-for-evidence/outcome/government-response-to-the-call-for-evidence-on-loot-boxes-in-video-games)  
681 [games-call-for-evidence/outcome/government-response-to-the-call-for-](https://www.gov.uk/government/consultations/loot-boxes-in-video-games-call-for-evidence/outcome/government-response-to-the-call-for-evidence-on-loot-boxes-in-video-games)  
682 [evidence-on-loot-boxes-in-video-games](https://www.gov.uk/government/consultations/loot-boxes-in-video-games-call-for-evidence/outcome/government-response-to-the-call-for-evidence-on-loot-boxes-in-video-games)
- 683 15. Ukie (UK Interactive Entertainment). (2023, July 18). *New Principles and Guidance*  
684 *on Paid Loot Boxes*. <https://ukie.org.uk/loot-boxes>
- 685 16. Department for Culture, Media and Sport (UK). (2023, July 18). *Loot boxes in video*  
686 *games: Update on improvements to industry-led protections*. GOV.UK.  
687 [https://www.gov.uk/guidance/loot-boxes-in-video-games-update-on-](https://www.gov.uk/guidance/loot-boxes-in-video-games-update-on-improvements-to-industry-led-protections)  
688 [improvements-to-industry-led-protections](https://www.gov.uk/guidance/loot-boxes-in-video-games-update-on-improvements-to-industry-led-protections)
- 689 17. 文化部 [Ministry of Culture] (PRC). (2016, December 1). *文化部关于规范网络游戏*  
690 *运营加强事中事后监管工作的通知 [Notice of the Ministry of Culture on*  
691 *Regulating the Operation of Online Games and Strengthening Concurrent and Ex-*  
692 *Post Supervisions]* 文市发 (2016) 32 号.  
693 [https://web.archive.org/web/20171220060527/http://www.mcprc.gov.cn:8](https://web.archive.org/web/20171220060527/http://www.mcprc.gov.cn:80/whzx/bnsjdt/whscs/201612/t20161205_464422.html)  
694 [0/whzx/bnsjdt/whscs/201612/t20161205\\_464422.html](https://web.archive.org/web/20171220060527/http://www.mcprc.gov.cn:80/whzx/bnsjdt/whscs/201612/t20161205_464422.html)
- 695 18. Xiao, L. Y., Henderson, L. L., Yang, Y., & Newall, P. W. S. (2021). Gaming the  
696 system: Suboptimal compliance with loot box probability disclosure

- 697 regulations in China. *Behavioural Public Policy, Advance Online Publication*, 1–  
698 27. <https://doi.org/10.1017/bpp.2021.23>
- 699 19. Xiao, L. Y., Henderson, L. L., & Newall, P. (2023). What are the odds? Lower  
700 compliance with Western loot box probability disclosure industry self-  
701 regulation than Chinese legal regulation. *PLOS ONE*, 18(9), Article e0286681.  
702 <https://doi.org/10.1371/journal.pone.0286681>
- 703 20. Xiao, L. Y. (2023). Beneath the label: Unsatisfactory compliance with ESRB, PEGI,  
704 and IARC industry self-regulation requiring loot box presence warning labels  
705 by video game companies. *Royal Society Open Science*, 10(3), Article 230270.  
706 <https://doi.org/10.1098/rsos.230270>
- 707 21. Xiao, L. Y. (2023). Shopping Around for Loot Box Presence Warning Labels:  
708 Unsatisfactory Compliance on Epic, Nintendo, Sony, and Microsoft Platforms.  
709 *ACM Games: Research and Practice*, 1(4), Article 25.  
710 <https://doi.org/10.1145/3630631>
- 711 22. Xiao, L. Y. (2023). Opening the compliance and enforcement loot box: A  
712 retrospective on some practice and policy impacts achieved through academic  
713 research. *Societal Impacts*, 1(1–2), Article 100018.  
714 <https://doi.org/10.1016/j.socimp.2023.100018>
- 715 23. Department for Culture, Media & Sport (UK). (2023, May 30). *Video Games*  
716 *Research Framework*. GOV.UK.  
717 [https://www.gov.uk/government/publications/video-games-research-  
718 framework/video-games-research-framework](https://www.gov.uk/government/publications/video-games-research-framework/video-games-research-framework)
- 719 24. Pan European Game Information (PEGI). (2020, April 13). *PEGI Introduces Notice*  
720 *To Inform About Presence of Paid Random Items*. PEGI Official Website.  
721 <https://pegi.info/news/pegi-introduces-feature-notice>
- 722 25. Committee of Advertising Practice & Broadcast Committee of Advertising  
723 Practice. (2021, September 20). *Guidance on advertising in-game purchases*.  
724 [https://www.asa.org.uk/resource/guidance-on-advertising-in-game-  
725 purchases.html](https://www.asa.org.uk/resource/guidance-on-advertising-in-game-purchases.html)
- 726 26. Advertising Standards Authority. (2023, October 4). *ASA Ruling on Hutch Games*  
727 *Ltd [concerning F1 Clash on the Apple App Store] A23-1196857*.  
728 [https://www.asa.org.uk/rulings/hutch-games-ltd-a23-1196857-hutch-  
729 games-ltd.html](https://www.asa.org.uk/rulings/hutch-games-ltd-a23-1196857-hutch-games-ltd.html)
- 730 27. Advertising Standards Authority. (2023, October 4). *ASA Ruling on Hutch Games*  
731 *Ltd [concerning Rebel Racing on the Google Play Store] A23-1196862*.

- 732 [https://www.asa.org.uk/rulings/hutch-games-ltd-a23-1196862-hutch-](https://www.asa.org.uk/rulings/hutch-games-ltd-a23-1196862-hutch-games-ltd.html)  
733 [games-ltd.html](https://www.asa.org.uk/rulings/hutch-games-ltd-a23-1196862-hutch-games-ltd.html)
- 734 28. Kuchera, B. (2017, December 21). *Apple adds new rules for loot boxes, requires*  
735 *disclosure of probabilities*. Polygon.  
736 [https://www.polygon.com/2017/12/21/16805392/loot-box-odds-rules-](https://www.polygon.com/2017/12/21/16805392/loot-box-odds-rules-apple-app-store)  
737 [apple-app-store](https://www.polygon.com/2017/12/21/16805392/loot-box-odds-rules-apple-app-store)
- 738 29. Gach, E. (2019, May 30). *Google Now Requires App Makers to Disclose Loot Box Odds*.  
739 Kotaku. [https://kotaku.com/google-now-requires-app-makers-to-disclose-](https://kotaku.com/google-now-requires-app-makers-to-disclose-loot-box-odd-1835134642)  
740 [loot-box-odd-1835134642](https://kotaku.com/google-now-requires-app-makers-to-disclose-loot-box-odd-1835134642)
- 741 30. Entertainment Software Association (ESA). (2019, August 7). Video Game  
742 Industry Commitments to Further Inform Consumer Purchases. *ESA Official*  
743 *Website*. [https://www.theesa.com/perspectives/video-game-industry-](https://www.theesa.com/perspectives/video-game-industry-commitments-to-further-inform-consumer-purchases/)  
744 [commitments-to-further-inform-consumer-purchases/](https://www.theesa.com/perspectives/video-game-industry-commitments-to-further-inform-consumer-purchases/)
- 745 31. Gurman, M. (2022, December 13). Apple to Allow Outside App Stores in  
746 Overhaul Spurred by EU Laws. *Bloomberg.Com*.  
747 [https://www.bloomberg.com/news/articles/2022-12-13/will-apple-allow-](https://www.bloomberg.com/news/articles/2022-12-13/will-apple-allow-users-to-install-third-party-app-stores-sideload-in-europe)  
748 [users-to-install-third-party-app-stores-sideload-in-europe](https://www.bloomberg.com/news/articles/2022-12-13/will-apple-allow-users-to-install-third-party-app-stores-sideload-in-europe)
- 749 32. Apple. (2022, December 20). *Approve what kids buy with Ask to Buy*. Apple  
750 Support. <https://support.apple.com/en-gb/HT201089>
- 751 33. Ukie (UK Interactive Entertainment), & Scott, T. (2021, January 21). *Response to the*  
752 *Committee of Advertising Practice and the Broadcast Committee of Advertising*  
753 *Practice consultation on 'Guidance on advertising in-game purchases'*.  
754 [https://ukie.org.uk/resources/ukie-response-to-the-committee-of-](https://ukie.org.uk/resources/ukie-response-to-the-committee-of-advertising-practice-and-the-broadcast-committee-of-advertising-practice-consultation-on-guidance-on-advertising-in-game-purchases)  
755 [advertising-practice-and-the-broadcast-committee-of-advertising-practice-](https://ukie.org.uk/resources/ukie-response-to-the-committee-of-advertising-practice-and-the-broadcast-committee-of-advertising-practice-consultation-on-guidance-on-advertising-in-game-purchases)  
756 [consultation-on-guidance-on-advertising-in-game-purchases](https://ukie.org.uk/resources/ukie-response-to-the-committee-of-advertising-practice-and-the-broadcast-committee-of-advertising-practice-consultation-on-guidance-on-advertising-in-game-purchases)
- 757 34. Committee of Advertising Practice & Broadcast Committee of Advertising  
758 Practice. (2021, September 20). *Guidance on advertising in-game purchases: CAP*  
759 *and BCAP's evaluation of responses*. [https://www.asa.org.uk/static/8dd057b6-](https://www.asa.org.uk/static/8dd057b6-f9a2-4456-af1c90e3c6400a14/In-game-ads-guidance-Evaluation-table.pdf)  
760 [f9a2-4456-af1c90e3c6400a14/In-game-ads-guidance-Evaluation-table.pdf](https://www.asa.org.uk/static/8dd057b6-f9a2-4456-af1c90e3c6400a14/In-game-ads-guidance-Evaluation-table.pdf)
- 761 35. Office of Fair Trading (UK). (2014, January 30). *Principles for online and app-based*  
762 *games: OFT1519*. [https://www.gov.uk/government/publications/principles-](https://www.gov.uk/government/publications/principles-for-online-and-app-based-games)  
763 [for-online-and-app-based-games](https://www.gov.uk/government/publications/principles-for-online-and-app-based-games)
- 764 36. Ministry of Higher Education and Science (Denmark). (2014). *Danish Code of*  
765 *Conduct for Research Integrity*. [https://ufm.dk/en/publications/2014/the-](https://ufm.dk/en/publications/2014/the-danish-code-of-conduct-for-research-integrity)  
766 [danish-code-of-conduct-for-research-integrity](https://ufm.dk/en/publications/2014/the-danish-code-of-conduct-for-research-integrity)



