

1 **Assessing compliance with UK loot box industry self-regulation on the Apple**
2 **App Store**

3
4 Leon Y. Xiao^{*,†‡} [0000-0003-0709-0777] <lexi@itu.dk>

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

7 †: Department of Computer Science, University of York, UK

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

9 ¶: The Honourable Society of Lincoln’s Inn, UK

10
11 **Abstract**

12 Loot boxes in video games can be purchased with real-world money in exchange for
13 random rewards. Stakeholders are concerned about loot boxes’ similarities with
14 gambling and their potential harms (*e.g.*, overspending). The UK Government has
15 decided to first try relying on industry self-regulation to address the issue, rather
16 than to impose legislation. These self-regulations have since been published by Ukie
17 (UK Interactive Entertainment). Many stakeholders are interested in a transparent
18 and independent assessment of their implementation. Compliance with some of
19 these self-regulatory measures are empirically testable. The highest-grossing iPhone
20 games will be played for up to one1 hour to confirm whether they contain loot
21 boxes. If they do, probability disclosures will be searched for in-game; presence
22 disclosures will be searched for on the Apple App Store product page; and attempts
23 will be made to purchase loot boxes without parental consent whilst pretending to
24 be under 18 (*e.g.*, entering an appropriate birth date whenever demanded). This will
25 be done six months after the publication of the principles (baseline; to track the
26 implementation progress) and then again 12 months after their publication (follow-
27 up; to check compliance, as by that point all games would be required to comply).
28 Conclusions will be drawn as to whether the measures have been complied with by
29 companies to an adequate degree. In addition, by checking whether the games
30 identified as non-compliant at baseline have since complied or been removed at
31 follow-up, conclusions will be drawn as to whether stakeholders (*e.g.*, Apple) are
32 enforcing the regulations.

33
34 **Keywords:**

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

38 **Conflict of Interest**

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

73 Narodowa Agencja Wymiany Akademickiej), and the Republic of Poland
74 (Rzeczpospolita Polska) with co-financing from the European Social Fund of the
75 European Commission of the European Union under the Knowledge Education
76 Development Operational Programme (May 2022); the Society for the Study of
77 Addiction (November 2022 & March 2023); the organisers of the 13th Nordic SNSUS
78 (Stiftelsen Nordiska Sällskapet för Upplysning om Spelberoende; the Nordic Society
79 Foundation for Information about Problem Gambling) Conference, which received
80 gambling industry sponsorship (January 2023); and the MiSK Foundation (Prince
81 Mohammed bin Salman bin Abdulaziz Foundation) (November 2023). L.Y.X. has
82 received an honorarium from the Center for Ludomani for contributing a parent
83 guide about a mobile game for Tjekspillet.dk, which is funded by the Danish
84 Ministry of Health's gambling addiction pool (Sundhedsministeriets
85 Ludomanipulje) (March 2023). A full gifts and hospitality register-equivalent for
86 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)
87 hospitality-register. The up-to-date version of L.Y.X.'s conflict-of-interest statement
88 is available via: [https://sites.google.com/view/leon-xiao/about/conflict-of-](https://sites.google.com/view/leon-xiao/about/conflict-of-interest)
89 interest.L.Y.X. was employed by LiveMe, then a subsidiary of Cheetah Mobile
90 (NYSE:CMCM), as an in-house counsel intern from July to August 2019 in Beijing,
91 People's Republic of China. L.Y.X. was not involved with the monetisation of video
92 games by Cheetah Mobile or its subsidiaries. L.Y.X. undertook a brief period of
93 voluntary work experience at Wiggin LLP (Solicitors Regulation Authority (SRA)
94 number: 420659) in London, England in August 2022. L.Y.X. has contributed and
95 continues to contribute to research projects that were enabled by data access
96 provided by the video game industry, specifically Unity Technologies (NYSE:U)
97 (October 2022 – Present). L.Y.X. has met and discussed policy, regulation, and
98 enforcement with the Belgian Gaming Commission [Belgische Kansspelcommissie]
99 (June 2022 & February 2023), the Danish Competition and Consumer Authority
100 [Konkurrence- og Forbrugerstyrelsen] (August 2022), the Department for Digital,
101 Culture, Media and Sport (DCMS) and its successor of the UK Government (August
102 2022 & August 2023), PEGI (Pan-European Game Information) (January & March
103 2023), a member of the European Parliament (February 2023), the US Federal Trade
104 Commission (February 2023), the Finnish Gambling Administration at the National
105 Police Board [Poliisihallituksen arpajaishallinto / Polisstyrelsens lotteriförvaltning]
106 (March 2023), the Danish Gambling Authority [Spillemyndigheden] (April 2023), the
107 Netherlands Authority for Consumers and Markets [Autoriteit Consument & Markt]

108 (May & June 2023), and the Swedish Gambling Authority [Spelinspektionen] (June
109 2023). L.Y.X. has been invited to provide advice to the DCMS on the technical
110 working group for loot boxes and the Video Games Research Framework. L.Y.X. was
111 the recipient of two AFSG (Academic Forum for the Study of Gambling)
112 Postgraduate Research Support Grants that were derived from ‘regulatory
113 settlements applied for socially responsible purposes’ received by the UK Gambling
114 Commission and administered by Gambling Research Exchange Ontario (GREO)
115 (March 2022 & January 2023). L.Y.X. has accepted funding to publish academic
116 papers open access from GREO that was received by the UK Gambling Commission
117 as above (October, November, & December 2022). L.Y.X. has accepted conference
118 travel and attendance grants from the Socio-Legal Studies Association (February
119 2022 & February 2023); the Current Advances in Gambling Research Conference
120 Organising Committee with support from GREO (February 2022); the International
121 Relations Office of The Jagiellonian University (Uniwersytet Jagielloński), the Polish
122 National Agency for Academic Exchange (NAWA; Narodowa Agencja Wymiany
123 Akademickiej), and the Republic of Poland (Rzeczpospolita Polska) with co-
124 financing from the European Social Fund of the European Commission of the
125 European Union under the Knowledge Education Development Operational
126 Programme (May 2022); the Society for the Study of Addiction (November 2022 &
127 March 2023); and the organisers of the 13th Nordic SNSUS (Stiftelsen Nordiska
128 Sällskapet för Upplysning om Spelberoende; the Nordic Society Foundation for
129 Information about Problem Gambling) Conference, which received gambling
130 industry sponsorship (January 2023). L.Y.X. has received an honorarium from the
131 Center for Ludomani for contributing a parent guide about a mobile game for
132 Tjekspillet.dk, which is funded by the Danish Ministry of Health’s gambling
133 addiction pool (Sundhedsministeriets Ludomanipulje) (March 2023). The up-to-date
134 version of L.Y.X.’s conflict of interest statement is available via:
135 <https://sites.google.com/view/leon-xiao/about/conflict-of-interest>.

136 **1. Introduction**

137 Loot boxes are products inside video games that players can buy to obtain random
138 rewards. Some non-paid loot boxes may be obtained without spending real-world
139 money (*e.g.*, through performing various in-game tasks)^[1]; However, the present
140 study focuses on paid loot boxes that players spend real-world money to purchase
141 either directly or indirectly by spending money to purchase ‘premium’ in-game
142 currency that can then be used to buy loot boxes. Hereinafter, references to ‘loot
143 boxes’ refer only to ‘paid loot boxes’ unless otherwise specified. Importantly, a ‘loot
144 box’ needs not be visually portrayed as a box: any in-game purchase involving real-
145 world money with any randomised elements satisfies the definition^[2].

146
147 Stakeholders (*e.g.*, consumers, parents, and advocacy groups) are concerned about
148 loot boxes’ structural and psychological similarities with gambling^[3] and how
149 vulnerable consumers (*e.g.*, children and people experiencing problem gambling
150 harms) might be at risk of overspending money^[4-6]. Policymakers around the world
151 are considering potential regulation^[7-10], and a few countries have already taken
152 action^[11]. For example, in 2018, Belgium applied pre-existing gambling law to
153 attempt to ‘ban’ loot boxes as unlicensed illegal gambling^[12]. However, this
154 intervention has been poorly enforced, such that 82 of the 100 highest-grossing
155 iPhone games on the Belgian Apple App Store in mid-2022 continued to sell loot
156 boxes in exchange for real-world money^[13]. The Belgian experience demonstrates
157 that a traditional gambling regulator that was originally resourced (*e.g.*, in terms of
158 public funding and manpower) to monitor only the traditional gambling industry
159 would not be capable of also regulating the video game industry (which is
160 composed of many smaller operators often based in foreign jurisdictions) without
161 significantly more additional support, monetary and otherwise.

162
163 For other countries, amending gambling law to additionally include loot boxes and
164 thereby place them within the purview of the gambling regulator is therefore likely
165 unworkable without substantial investments towards that end. Such investments
166 may be viewed as an unjustifiable expenditure of public money^[14(paras 248-250)].

167 Recognising that, the UK Government (specifically, the Department for Culture,
168 Media and Sport (DCMS)) decided in July 2022 to ask the industry to try better self-
169 regulating loot boxes and addressing relevant concerns first, rather than to
170 immediately impose legislation^[14]. The Government did promise that it ‘will not

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

177

178 Besides the aforementioned Belgian example, previous research has also found that
179 companies' compliance with various other loot box-related regulation has been poor.
180 In China, where companies are required by law to disclose the probabilities of
181 obtaining various random rewards from loot boxes^[17], most high-grossing games
182 were found to have complied sub-optimally by choosing methods of displaying the
183 disclosures that lacked visual prominence and were difficult to access^[18]. Indeed,
184 industry self-regulation of loot boxes is not a new concept and has already been
185 attempted for several years to dubious benefit. The potential underlying efficacy of
186 the interventions has not been scientifically proven and has never been measured
187 since implementation (although this easily could have, and should have, been done
188 by the industry to inform all stakeholders and improve public confidence).
189 Importantly, many of the highest-grossing games were found to have been non-
190 compliant, and relevant platforms and rule-makers did not appear to have actively
191 monitored compliance, nor punished non-compliance, with previous industry self-
192 regulation. For example, in mid-2021, 36% of the highest-grossing iPhone games
193 containing loot boxes were found to have failed to disclose probabilities, as required
194 by Apple App Store's platform rules, seemingly with impunity^[19].

195

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

206 being explicitly requested, in the absence of which, those games would likely have
207 remained incorrectly unlabelled even today^[22].

208

209 UK Component

210 ~~Considering~~ ~~Prior research has demonstrated that various cases of poor compliance~~
211 ~~with~~ loot box regulations, ~~particularly and with~~ industry self-regulatory ones, ~~tion~~
212 ~~in particular were poorly complied with~~, in the past. ~~Accordingly~~, reasonable doubt
213 can, and ought to, be cast on whether companies will comply with the newly
214 proposed UK loot box industry self-regulation. Many stakeholders are interested in
215 a transparent and fair assessment of the implementation of the UK self-regulatory
216 principles. Not every principle contained therein is capable of empirical study. For
217 example, Principle 7 is to support the implementation of the *Video Games Research*
218 *Framework*^[23], which is a UK Government document intended to promote better
219 research into video games and related issues. Similarly, Principle 9 is a commitment
220 to adopt more lenient refund policies when it can be demonstrated that in-game
221 purchases were made without parental consent or knowledge. Such principles
222 would be welcomed by all stakeholders without controversy, but compliance with
223 them is difficult to quantify or objectively measure against a predetermined
224 standard.

225

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

237

238 Companies have been given a 12-month implementation period (starting from 18
239 July 2023) to adopt these measures^[15]. In other words, one cannot say that a game
240 that continues to permit loot box purchasing by under-18s without parental consent

241 is actually non-compliant with Principle 1 until 18 July 2024. Notwithstanding, the
242 disclosure of loot box presence to consumers prior to purchasing and downloading
243 on any advertising of a video game (now, arguably misleadingly, presented through
244 Principle 4 as a supposedly new measure) has already been required by advertising
245 regulations, as clarified in the *Guidance on advertising in-game purchases* published in
246 September 2021, which is enforced by the relevant regulator, the Advertising
247 Standards Authority^[25]. I have since complained to the Advertising Standards
248 Authority about games that were non-compliant, and the Advertising Standards
249 Authority Council has held in two separate rulings that companies that do not
250 disclose the presence of loot boxes on Apple^[26] and Google^[27] store pages are
251 breaching advertising *law*. Therefore, irrespective of the implementation process,
252 games should already be compliant with the essence of Principle 4, otherwise they
253 are advertising illegally. Similarly, many platforms, including the Apple App Store,
254 have required the disclosure of loot box probabilities since 2019, if not earlier^[28-30], as
255 now also expressed through Principle 5 (again, arguably misleadingly as if this is a
256 new proposal). Hence, non-compliance with Principles 4 and 5 at present, even prior
257 to the end of the 12-month implementation period or 18 July 2024, would contravene
258 other existing regulation and be reprehensible.

259

260 The UK Government^[16(para. 23)] and Ukie^[15] have both expressed that progress should
261 be monitored and periodically reviewed during the implementation process.
262 Relevant civil servants have informed the author that it would be beneficial for
263 independent, transparent scrutiny of the compliance with these measures (which is
264 one reflection of their potential efficacy, as even an effective measure that is not
265 complied with would be ineffective) to be made six months after the publication of
266 these principles (*i.e.*, around January 2024) and then again following the
267 implementation period (*i.e.*, around July 2024). This would complement any
268 assessments that the industry, represented by Ukie itself, might conduct and
269 publish.

270

271 Research Question 1: Are video the 100 highest-grossing iPhone games complying
272 with the UK loot box industry self-regulation?

273

274 Hypothesis 1: All highest-grossing video iPhone games containing paid loot boxes in
275 the 18 January 2024 present sample and the 18 July 2024 sample will prevent loot box
276 purchasing by under-18s unless parental consent has been provided.

277

278 Hypothesis 2: All highest-grossing iPhone video games containing paid loot boxes in
279 the 18 January 2024 sample and the 18 July 2024 present sample will disclose loot
280 box presence.

281

282 Hypothesis 3: All highest-grossing iPhone video games containing paid loot boxes in
283 the 18 January 2024 sample and the 18 July 2024 present sample will make loot box
284 probability disclosures.

285

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

288

289 Hypothesis 4: All highest-grossing video iPhone games containing paid loot boxes in
290 the 18 January 2024 sample that will not disclose loot box presence nor make loot
291 box probability disclosures will either have done both, or have been delisted from
292 the UK Apple App Store, by 18 July 2024.

293

294 **2. Method**

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

306

307 Previous studies assessing loot box prevalence and compliance with presence
308 warning and probability disclosure requirements have focused on the 100 highest-

309 grossing games. That sample size and sampling method are reasonable and justified,
310 due to resource constraints (mostly on researcher time) and given that stakeholders
311 (e.g., parents and policymakers) are far more interested in the situation concerning
312 popular games that many players have demonstrably spent money on, rather than
313 that of obscure titles that may only be downloaded a handful of times per year. With
314 that said, a key limitation must now be conceded with this sampling methodology.
315 Previous research has repeatedly focused directly or indirectly on the 100 highest-
316 grossing games^[13,18-20]. The games on that list have not changed significantly over the
317 years (although some entries do get replaced by newly released titles occasionally,
318 they would still be relatively high-grossing games, e.g., be within the 500 highest-
319 grossing games), meaning that previous research has studied certain games multiple
320 times and, importantly, had publicly identified them as being non-compliant with
321 pre-existing regulatory requirements (that the present study will also assess), such as
322 not making probability disclosures or not disclosing loot box presence. Those
323 previous research efforts are known to have directly caused the companies behind
324 some of those games to take remedial actions, or to be forced to do so by age rating
325 organisations, to become compliant^[22]. Some of these same games will likely be
326 included in the 100 highest-grossing list again on the data collection dates of the
327 present study, meaning that, although they may now be identified as compliant, that
328 was already guaranteed by (and indeed only due to) previous external intervention.
329 It cannot be known whether those now-‘compliant’ games would have been so
330 without that external interference. This means that the compliance rates amongst the
331 highest-grossing games are likely to now be artificially higher than those amongst all
332 other games. Alternatively, randomly sampling 100 games from the 500 highest-
333 grossing games also would not completely remove this bias because some games
334 that were previously studied and whose compliance was artificially affected would
335 have fallen below the 100th rank but still remain within the top 500. Those lower
336 ranking and less popular games would also affect significantly fewer players and
337 therefore be less concerning to stakeholders. Indeed, it remains valid to simply
338 sample the 100 highest-grossing games because the findings would be the most
339 practically informative and relevant as they show the situation as a consumer would
340 encounter it. The artificial interventions have already happened and thereby affected
341 the average consumer experience (hopefully positively), so although any findings
342 would no longer be entirely ‘natural,’ such findings remain the most useful. The
343 present results simply must not be overinterpreted as indictive of the compliance

344 rates amongst less popular games (which are likely to be lower) or how they would
345 have been had there been no previous intervention.

346

347 The focus on the Apple App Store platform is predominantly due to resource
348 constraints on the author's time. Ideally, the situations on other platforms (*e.g.*, the
349 Google Play Store and the stores of consoles like the Sony PlayStation, Microsoft
350 Xbox, and Nintendo Switch) would also be assessed. However, previous research
351 has suggested that the loot box issue is more concerning on mobile platforms than
352 PC and console platforms: this is because there are significantly more content on
353 mobile platforms (which makes compliance and enforcement more difficult), and the
354 prevalence rate of loot boxes is also significantly higher there^[20]. There are also
355 further complications with potentially studying the Android mobile platform
356 specifically. Firstly, games can be installed through many different storefronts (*e.g.*,
357 the Samsung Galaxy Store, HUAWEI AppGallery, etc., which are not covered by the
358 self-regulation, as it applies only to certain explicitly listed platforms). Secondly,
359 games may be easily installed directly with a .apk (Android Package) file that may
360 not be the UK-compliant version. Therefore, a study of only the Google Play Store
361 does not fully reflect the experience of a (child) consumer using Android devices.
362 The present study is intended to focus limited resources on providing a fair
363 perspective on the iOS platforms, where the Apple App Store solely dominates as it
364 is the only permitted app store for the operating system^[see 31]. This would also
365 provide data comparable to those of a previous 2021 study on iPhone probability
366 disclosures in the UK^[19]. Finally, the versions of the game available on the Apple
367 App Store and Google Play Store should, in theory, be substantively identical, and
368 the highest-grossing lists for the two platforms overlap significantly, so the present
369 results should be broadly transferable. For example, if the iPhone version made
370 probability disclosures, then the Google Android version probably would have done
371 as well.

372

373 The following variables will be measured:

374

375 *Apple age rating*

376 This will be copied from the relevant age rating information displayed on the game's
377 UK Apple App Store page. No game will be excluded due to its age rating because
378 Apple's highest age rating is 17+ and the Ukie principles apply to all young people

379 under 18. Therefore, 17-year-olds can play all games available on the Apple App
380 Store but are still supposed to be protected by the self-regulation.

381

382 *Presence of paid loot boxes*

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

390

391 One hour of 'playing' the game will mean that, from downloading and starting the
392 software, I will use my best endeavours for 60 minutes to unlock as many aspects of
393 the game and gain access to as many in-game purchasing offers as possible: for
394 example, I will choose to access the in-game store where loot boxes are presumably
395 sold as soon as able, including by skipping unnecessary story elements. Our
396 previous research using this methodology has acknowledged that the detection rate
397 of loot boxes is not 100% because there are likely games that only begin to sell loot
398 boxes many hours after the player starts playing and because loot boxes might
399 simply be missed by the researcher^[19(p. 12)]. This one-hour time limit is justified on
400 resource constraints on my time. In addition, based on previous research, this
401 method should be sufficient to detect at least 80% games with loot boxes (assuming
402 that every game contains loot boxes, which is most likely untrue, so the true
403 detection rate is higher)^[13]. The percentage rate of games found to contain paid loot
404 boxes within one hour of examination will be referred to as the 'prevalence rate' of
405 loot boxes (as has been done in the past), even though more accurately, it would be
406 the prevalence rate when only one hour has been spent examining the game and the
407 true prevalence rate is therefore likely higher.

408

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

410 When playing each game, if and whenever prompted by the game to answer any
411 questions relating to age (such as 'how old are you?' and 'in which year were you
412 born?'), an answer that would make the user appear to be 17 years old will be
413 provided. This age was chosen because some games on the Apple App Store

414 platform are given the highest age rating of 17+, which should render them
415 unavailable for download by younger users. A 17-year-old can download and play
416 them, but they also remain under 18 for the purposes of the Ukie loot box industry
417 self-regulation, such that their loot box purchasing should be restricted until
418 parental consent is provided. The purchase of paid loot boxes will be attempted to
419 check whether this could be done without parental consent or knowledge on a user
420 account that will purportedly belong to a 17-year-old. A game will be deemed as
421 having complied with Principle 1 if the aforementioned paid loot box purchasing
422 attempt is unsuccessful.

423

424 Importantly, the operating system-level spending control feature that Apple
425 provides for parents ('Ask to Buy'^[32]) will not be accounted for by the present study.
426 Activating this would blanketly require under-18s to send requests for approval to
427 their parents for *all* in-game purchases (regardless of whether they are loot box
428 purchases), app store purchases, and even app store downloads of 'free' games.
429 Under-18s must wait until these are approved before the transaction can take effect.
430 That feature is undoubtedly valuable for parents and other caretakers wanting to
431 better monitor and manage their child's video game spending and should be used
432 by them, but the present study is concerned with individual game-level compliance
433 and interventions that specifically relate to loot boxes by highlighting that a
434 purchase is potentially problematic because it is a loot box purchase. Broad,
435 platform-wide spending control mechanisms like Apple's Ask to Buy often fail to
436 provide specific information about loot boxes because loot boxes are very rarely
437 directly purchased with real-world money and often must be purchased using
438 (premium) in-game currency (*e.g.*, 'Green Gems') that is in turn bought using real-
439 world money. (Indeed, representatives of the video game industry, including
440 Ukie^[33(p. 9, para 43), see also 34(p. 13)], have previously argued that games that directly sell loot
441 boxes, rather than sell them through an intermediary premium currency, are
442 confusing for the player and arguably in contravention of Principle 4 of the Office of
443 Fair Trading's Principles for online and app-based games.^[11,35]) The payment request
444 to parents would therefore merely appear as a request to purchase in-game currency
445 with real-world money and provide no information on what that currency will then
446 be used for (*e.g.*, purchasing loot boxes). No further notification would be provided
447 by the Ask to Buy system to the parent when those Green Gems are then used in-
448 game to purchase loot boxes. This latter instance is where an in-game intervention

449 asking for parental consent to a loot box purchase (as envisioned by the Ukie self-
450 regulation) is expected to occur.

451

452 To further illustrate, by relying on platform-level controls only, it would require the
453 parent to ask the child what they intend to spend the Green Gems on (when the Ask
454 to Buy request for that transaction appears), before the real-money-to-Green-Gems
455 transaction takes places, for them to find out that loot boxes will be purchased. The
456 child might be undecided as to how they want to spend the Green Gems, and the
457 child might also not understand that, with those Green Gems, they will be buying a
458 gambling-like 'loot box' that is seen as problematic (as many of these products are
459 not advertised as such) or be untruthful. The game company must directly
460 communicate the fact that loot box purchasing by a child is taking place to the
461 parent. Alternatively doing this through the child as an intermediary is not a
462 dependable or acceptable proposal. In short, the platform-level controls (assuming
463 that they are turned on) effectively restrict the first premium currency transaction
464 using real-world money but never the second loot box purchasing transaction using
465 in-game premium currency (which is where the intervention should take place).
466 Platform-level controls may be deemed sufficient for games where the payment
467 request is for loot box-like mechanics directly and that request clearly explains how
468 the mechanic works and any associated concerns. However, given that nearly all
469 games do not offer this, relying solely on this measure would be unwise. For
470 payment requests to purchase premium currency, Apple may consider allowing (but
471 has not yet allowed) games to append information on how that premium currency
472 might then be spent on loot boxes and such mechanics and outline the potential
473 related concerns. However, until that is uniformly and satisfactorily done, a parent
474 cannot trust the Ask to Buy feature alone to protect their child.

475

476 Another point is that platform-wide parental control would also require the parent
477 to activate it. These may be turned on by default in some instances, but regulation
478 must not proceed on the unreasonable assumption that all parents already have this
479 turned on for every child. It would not be right to place that burden on parents. A
480 child may also engage with a game downloaded on a parent's or the family device,
481 in which case platform-level controls are not active. Multiple layers of protection
482 should be provided. Indeed, had robust parental controls already been widely
483 utilised, then no further regulation (including the Ukie self-regulation) would be

484 required. It is precisely because of the potential failings of pre-existing parental
485 control features that the Ukie self-regulation is being newly introduced to directly
486 address the loot box issue. It is therefore reasonable to expect individual games to be
487 taking action and making interventions inside the game. The drafters of the self-
488 regulation surely must not have deemed pre-existing platform-wide parental
489 controls to already be sufficient, as those have already been available for many years
490 and so the self-regulation would then be proposing nothing new.

491

492 *Presence of presence disclosures*

493 For each game found to contain paid loot boxes, its Apple App Store product page
494 will be reviewed to attempt to find a disclosure of loot box presence, such as the
495 PEGI warning label of 'In-game Purchases (Includes Random Items)'^[20,24] or some
496 text describing the availability of paid loot boxes. Any disclosure, however difficult
497 to find and access and however phrased, will be recognised as a disclosure having
498 been made as long as it can reasonably be so interpreted, because the self-regulation
499 merely requires that this be done and not that it be done visually prominently or
500 informatively^[15(p. 5)]. Nonetheless, different methods of disclosure will be categorised.
501 A game will be deemed as having complied with Principle 4 if a loot box presence
502 disclosure can be found.

503

504 *Presence of probability disclosures*

505 In relation to each type of loot box found in each game, a corresponding probability
506 disclosure will be searched for in-game. No external searches will be conducted (*e.g.*,
507 through a search engine) for disclosures that are available only on websites and not
508 linked from within the game because the relevant Ukie guidance makes clear that
509 disclosures should be 'easily [accessible]'^[15(p. 5)] and any website-based disclosures
510 (although permitted) should also be sign-posted from within the game itself^[15(p. 15)].
511 All found probability disclosures will be screenshotted, and the process for accessing
512 them from the loot box purchase screen will be documented. Any disclosure
513 formats, regardless of their visual prominence or ease of access, will be recognised as
514 a disclosure having been made, because even though Principle 5 encourages 'easily
515 [accessible]' and 'clear and simple' probability disclosures, those qualities are
516 subjective to a certain degree. Different methods of disclosure will be categorised. A
517 game will be deemed as having complied with Principle 5 only if a corresponding
518 probability disclosure can be found for every identified loot box type.

519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553

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

Date and time of data collection

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

The ‘compliance rate’ with each loot box self-regulatory measure will be calculated as follows:

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

Even though some games might be inaccurately marked as not containing loot boxes even though they do using the present methodology of examining the game for one hour only, the compliance rates with various regulatory measures will not be affected because games assumed to not contain loot boxes will be excluded. The relevant compliance rates will reflect the true situation amongst the games containing loot boxes that were actually tested.

Hypotheses 1 to 3 will each be respectively accepted if at least 95% of games containing loot boxes do comply with the relevant measure (i.e., the compliance rate is $\geq 95\%$). Otherwise, they will be rejected. This 5% of leeway will be permitted as a

554 type 1 error control measure to account for potential false positives. As to the
555 interpretation of different potential results, if the compliance rate for a certain
556 measure is $\geq 95\%$, then it will be interpreted as that measure having been nearly
557 perfectly complied with. A compliance rate that is $\geq 80\%$ but $< 95\%$ will be
558 interpreted as a measure having been mostly complied with but needs some
559 improvements. A compliance rate that is $< 80\%$ will be interpreted as the measure
560 not having been adequately complied with and needs significant improvements to
561 achieve the regulatory aim. These cut-offs were used previously and are based on
562 the author's intuition as to what consumers, policymakers, and independent
563 researchers would likely deem acceptable or not^[20,21]. Stakeholders (specifically, the
564 DCMS and Ukie) will be invited to preregister how they will interpret different
565 potential results that may be found by the present study. If the compliance rate with
566 a specific measure improves from one band into the next (e.g., from $< 80\%$ to $\geq 80\%$)
567 when the 18 January 2024 sample is compared with the 18 July 2024 sample, then I
568 will comment positively on how compliance has improved.

569
570 Hypothesis 4 will be accepted if *all* games amongst the 18 January 2024 sample that
571 were non-compliant with either Principle 4 or 5 will have either complied with both
572 measures, or have been delisted from the UK Apple App Store, by 18 July 2024,
573 otherwise it will be rejected. The only exception would be that a game has since
574 stopped selling loot boxes, which would cause that game to be excluded for the
575 purposes of Hypothesis 4. The expectation that 100% (rather than 95%) of games will
576 either become compliant or be delisted is justified on the basis that a list containing
577 all relevant games will have been provided to the stakeholders to take enforcement
578 actions. Any potential Type 1 error will be eliminated by how the Apple App Store
579 and/or the relevant video game companies will be given the opportunity to provide
580 evidence that the game does not contain loot boxes or have already made the
581 relevant disclosures, so a further 5% of leeway (given to Hypotheses 1–3) is not
582 appropriate for Hypothesis 4. In the event Hypothesis 4 is rejected, relevant
583 stakeholders will be criticised for not strictly enforcing platform rules, advertising
584 regulations, and the Ukie self-regulatory principles. Otherwise, the conclusion will
585 be that the self-regulations are being properly enforced.

586
587 To further address the issue of how the compliance rates amongst the highest-
588 grossing games may have been affected by previous external intervention, the

589 compliance rates for each loot box self-regulatory measure will also be separately
590 reported for games that have previously been studied and those that have not been.

591

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

597

598 **3. Results**

599 **tbd**

600

601 **4. Discussion**

602 **tbd**

603

604 **5. Conclusion**

605 **tbd**

606 **Positionality Statement**

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

610

611 **Data Availability Statement**

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

616

617 **Acknowledgement**

618 Thanks to Laura L. Henderson for helpful comments on earlier drafts of this
619 manuscript.

620

621 **Funding Information**

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

625 **References**

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

- 659 10. Leahy, D. (2022). Rocking the Boat: Loot Boxes in Online Digital Games, the
660 Regulatory Challenge, and the EU's Unfair Commercial Practices Directive.
661 *Journal of Consumer Policy*, 45, 561–592. [https://doi.org/10.1007/s10603-022-](https://doi.org/10.1007/s10603-022-09522-7)
662 09522-7
- 663 11. Xiao, L. Y. (2023). *Loot Box State of Play 2023: Law, Regulation, Policy, and*
664 *Enforcement Around the World*. OSF Preprints.
665 <https://doi.org/10.31219/osf.io/q2yv6>
- 666 12. Belgische Kansspelcommissie [Belgian Gaming Commission]. (2018).
667 *Onderzoeksrapport loot boxen [Research Report on Loot Boxes]*.
668 [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)
669 [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)
670 [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)
- 671 13. Xiao, L. Y. (2023). Breaking Ban: Belgium's Ineffective Gambling Law Regulation
672 of Video Game Loot Boxes. *Collabra: Psychology*, 9(1), Article 57641.
673 <https://doi.org/10.1525/collabra.57641>
- 674 14. Department for Digital, Culture, Media & Sport (UK). (2022, July 17). *Government*
675 *response to the call for evidence on loot boxes in video games*. GOV.UK.
676 [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)
677 [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)
678 [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)
- 679 15. Ukie (UK Interactive Entertainment). (2023, July 18). *New Principles and Guidance*
680 *on Paid Loot Boxes*. <https://ukie.org.uk/loot-boxes>
- 681 16. Department for Culture, Media and Sport (UK). (2023, July 18). *Loot boxes in video*
682 *games: Update on improvements to industry-led protections*. GOV.UK.
683 [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)
684 [improvements-to-industry-led-protections](https://www.gov.uk/guidance/loot-boxes-in-video-games-update-on-improvements-to-industry-led-protections)
- 685 17. 文化部 [Ministry of Culture] (PRC). (2016, December 1). *文化部关于规范网络游戏*
686 *运营加强事中事后监管工作的通知 [Notice of the Ministry of Culture on*
687 *Regulating the Operation of Online Games and Strengthening Concurrent and Ex-*
688 *Post Supervisions]* 文市发 (2016) 32 号.
689 [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)
690 [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)
- 691 18. Xiao, L. Y., Henderson, L. L., Yang, Y., & Newall, P. W. S. (2021). Gaming the
692 system: Suboptimal compliance with loot box probability disclosure

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

- 727 <https://www.asa.org.uk/rulings/hutch-games-ltd-a23-1196862-hutch->
728 [games-ltd.html](https://www.asa.org.uk/rulings/hutch-games-ltd-a23-1196862-hutch-games-ltd.html)
- 729 28. Kuchera, B. (2017, December 21). *Apple adds new rules for loot boxes, requires*
730 *disclosure of probabilities*. Polygon.
731 [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)
732 [apple-app-store](https://www.polygon.com/2017/12/21/16805392/loot-box-odds-rules-apple-app-store)
- 733 29. Gach, E. (2019, May 30). *Google Now Requires App Makers to Disclose Loot Box Odds*.
734 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)
735 [loot-box-odd-1835134642](https://kotaku.com/google-now-requires-app-makers-to-disclose-loot-box-odd-1835134642)
- 736 30. Entertainment Software Association (ESA). (2019, August 7). Video Game
737 Industry Commitments to Further Inform Consumer Purchases. *ESA Official*
738 *Website*. [https://www.theesa.com/perspectives/video-game-industry-](https://www.theesa.com/perspectives/video-game-industry-commitments-to-further-inform-consumer-purchases/)
739 [commitments-to-further-inform-consumer-purchases/](https://www.theesa.com/perspectives/video-game-industry-commitments-to-further-inform-consumer-purchases/)
- 740 31. Gurman, M. (2022, December 13). Apple to Allow Outside App Stores in
741 Overhaul Spurred by EU Laws. *Bloomberg.Com*.
742 [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)
743 [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)
- 744 32. Apple. (2022, December 20). *Approve what kids buy with Ask to Buy*. Apple
745 Support. <https://support.apple.com/en-gb/HT201089>
- 746 33. Ukie (UK Interactive Entertainment), & Scott, T. (2021, January 21). *Response to the*
747 *Committee of Advertising Practice and the Broadcast Committee of Advertising*
748 *Practice consultation on 'Guidance on advertising in-game purchases'*.
749 [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)
750 [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)
751 [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)
- 752 34. Committee of Advertising Practice & Broadcast Committee of Advertising
753 Practice. (2021, September 20). *Guidance on advertising in-game purchases: CAP*
754 *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)
755 [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)
- 756 35. Office of Fair Trading (UK). (2014, January 30). *Principles for online and app-based*
757 *games: OFT1519*. [https://www.gov.uk/government/publications/principles-](https://www.gov.uk/government/publications/principles-for-online-and-app-based-games)
758 [for-online-and-app-based-games](https://www.gov.uk/government/publications/principles-for-online-and-app-based-games)
- 759 36. Ministry of Higher Education and Science (Denmark). (2014). *Danish Code of*
760 *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)
761 [danish-code-of-conduct-for-research-integrity](https://ufm.dk/en/publications/2014/the-danish-code-of-conduct-for-research-integrity)

