



Towards an Ethical Game Design Solution to Loot Boxes: a Commentary on King and Delfabbro

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Abstract

King and Delfabbro (2019b) proposed the adoption of social responsibility measures to combat predatory monetisation in video games, such as loot boxes. This paper rectifies a game example mistakenly used by King and Delfabbro and provides further game examples to illustrate, critique and extend the proposed measures. This paper argues that the proposed measures are unlikely to be widely adopted by the video game industry, given the industry's economic interests in the continued unhindered implementation of predatory monetisation, their preference for continued 'self-regulation' and their past resistance against potential regulation. With reference to South Korean law, this paper explores the possibility of codifying and enforcing the proposed measures as law and argues that overly paternalistic regulations are insensible and impractical. This paper recommends the use of regulatory nudging to encourage video game companies through incentives, such as discretionary grants and tax relief schemes, to adopt the proposed social responsibility measures and develop towards an ethical game design framework.

Keywords Loot boxes · Predatory monetisation · Microtransactions · Ethical game design · Addictive game design · Video game regulation

King and Delfabbro's paper 'Video Game Monetization (e.g. 'Loot Boxes'): a Blueprint for Practical Social Responsibility Measures' (2019b) contributed crucial game design (or ludological) perspectives to the loot box debate which has hitherto been preoccupied with the potentially abusive psychological manipulations caused by the game mechanic (King and Delfabbro 2018), its proximity to problem gambling (Drummond and Sauer 2018; Zendle and Cairns 2018, 2019) and whether or not loot boxes constitute gambling under existing gambling

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regulations of various jurisdictions (Moshirnia 2018; Schwidessen and Karius 2018; Xiao 2018b).

Correction: a Misused Example

King and Delfabbro's paper (2019b), under the section on 'The Requirement of Payment Options that Display Real Currency', stated that: 'For example, in the game *Hearthstone*, the player must purchase the currency known as *arcane dust* using a credit card (or other payment methods) and then use this currency to acquire a loot box' (p. 170).

Unfortunately, this statement is inaccurate. Arcane Dust cannot be directly purchased with real-world currency in *Hearthstone* (Blizzard Entertainment 2014). Loot boxes in *Hearthstone* must be purchased either directly with real-world currency or with another virtual currency that can only be obtained through gameplay. Therefore, Arcane Dust is not used to acquire loot boxes in *Hearthstone*.

This incorrect example does not affect the arguments made in King and Delfabbro's paper, as many games¹ do indeed attempt to deceive players by listing loot box prices in virtual currencies, which holds abnormal exchange rates with real-world currencies, in order to reduce the 'salience' (Taylor and Thompson 1982, p. 175) of the real-world cost of loot box purchases.

Justifying the Correction: *Hearthstone* Is Actually a Model Game

Despite King and Delfabbro's argument not being affected by the misused *Hearthstone* example, it is necessary to highlight and correct this inaccuracy in their paper because *Hearthstone* is a well-known and exemplary game which has already implemented a number of the 'practical social responsibility measures' proposed by their paper, such as the aforementioned 'The Requirement of Payment Options that Display Real Currency' (p. 170).

Hearthstone also implemented the 'Loot Box Items Are Obtainable Through Standard Play' social responsibility measure (pp. 170–171) through providing the player with daily quests, which can be completed only through gameplay, in order to provide the player with adequate amounts of Gold, which can then be used to buy loot boxes and obtain loot box rewards without paying real money.

To a limited extent, *Hearthstone* has implemented the 'Removal of Repeat or Duplicate (i.e. Contextually Worthless) Rewards' social responsibility measure (p. 172) through a system in which duplicate rewards can be exchanged for any loot box rewards desired by the player; however, this is at a considerable loss of value for the player so the measure is only partially implemented.

Considering the aforementioned ethical game features, *Hearthstone* should be recognised for its proactivity in adopting socially responsible game mechanics. King and Delfabbro's mistake in listing *Hearthstone* as an example of unethical game design may confuse and discourage prospective conscientious game designers reading their paper from pursuing similar positive implementations.

¹ For example, 'Orbs' in *Fire Emblem Heroes* (Intelligent Systems 2017), 'Mirian' and 'Gold' in *Middle-earth: Shadow of War* (Monolith Productions 2017) and 'Drachmae' in *Assassin's Creed: Origins* (Ubisoft 2017).

Virtual Currency Pricing Conceals the True Real-World Cost of Loot Boxes

Research on consumption in the virtual world and how it differs from consumption in the real world has been limited. Jung and Pawlowski (2014) suggested that ‘factors impeding consumption in the real world may be relaxed or removed in a virtual world’ (p. 2236).

Loot boxes in video games are often deceptively marketed for purchase using invented in-game virtual currency rather than real-world currency. A cost priced in real-world currency would be sufficiently salient, because it can be associated with the prices and potential loss of other replacement options (see Kahneman and Tversky 1984, p. 342). The same cannot be said for a cost priced in an invented in-game virtual currency, which can be used only within the game’s virtual world for very limited purposes: often either to buy loot boxes or to go unspent. Admittedly, the player would have had to make a decision within the real-world context when they initially chose to purchase virtual currency, but by the time the player decides to purchase a loot box, the decision has been disconnected from real-world circumstances: the player would no longer have sufficient context or enough replacement options to appreciate the real-world cost of the loot box. Accordingly, players can be logically expected to make less rational purchasing decisions when using in-game currency and are therefore more likely to overspend on loot boxes.

It is relevant to note that casinos, rather than asking patrons to spend real money, deceptively require the use of exchanged chips as the ‘in-game currency’ within their establishments for participating in gambling games and for purchasing food, beverages and other services. Lapuz and Griffiths (2010) demonstrated that players ‘gambled significantly more with chips than with real cash’ (p. 34).

Examples of Misleading Loot Box Pricing

AFK Arena (Lilith Games 2019) confuses players by adopting no less than eight different virtual currencies. *Clash Royale* (Supercell 2016) confusingly prices loot boxes sometimes in the game’s premium virtual currency, but at other times in real-world currency. Further confusion is caused by the shifting exchange rate between in-game and real-world currencies. This system is designed to overcomplicate the player’s calculation of the real-world cost of loot boxes and the value of potential rewards, such that most players are not making fully informed loot box purchasing decisions.

A future direct experimental comparison of the consumer behaviour and purchasing decisions of players when the loot boxes are priced in virtual currency vis-à-vis real-world currency would be particularly enlightening and welcomed.

Predatory, Addiction-Inducing Time-Consumption?

King and Delfabbro’s ‘predatory monetization’ definition has been focused on the *financial* harm of potentially abusive psychological manipulations since the term’s original inception (see King and Delfabbro 2018).

However, potentially abusive psychological manipulations are also present in Random Reward Mechanisms (RRMs) in the absence of monetisation and the player’s financial investments (Nielsen and Grabarczyk 2018, pp. 6–7). Nielsen and Grabarczyk (2018) argued that the classic mechanic of killing an in-game enemy for a random in-game reward of no real-

world value constitutes a historical implementation of an RRM (pp. 3–4). Karlsen (2011) identified that excessive use of such classic, non-monetised mechanics, as implemented in *World of Warcraft* (Blizzard Entertainment 2004), may lead to potentially abusive psychological manipulations which impact players' health and social lives (p. 195).

As a precaution against potentially predatory and addiction-inducing time-consumption, King and Delfabbro's proposed measures should be extended beyond addressing only the potential financial harm of RRM to also address the player's potential overinvestment of time into games as a direct result of the games' implementation of RRM.

Proposed Solutions Effective at Addressing Concerns Raised by Prior Research

The solutions proposed by King and Delfabbro are inspired by successful existing anti-gambling addiction measures and are further informed by prior research on the potential psychological abuse caused by loot boxes. Therefore, the proposed solutions can effectively address many of the concerns raised by prior psychology research on loot boxes. However, some would benefit from extension or clarification.

The proposal to remove 'Audio-Visual Design of Loot Box "Opening"' (p. 172) would address the concern that the celebratory presentation of all loot box openings, regardless of the value of their content, exposed players to 'near-misses' (Moshimia 2018, p. 87; Xiao 2019b, pp. 13–14; Zendle et al. 2019, p. 4).

The 'embedded disruptions' recommended in the 'Breaks in Play or Cooldowns' proposal (p. 170) should be extended beyond the spending of money to also cover gameplay in general, which would break the flow of the game itself and limit the length of each play-session. Such interference could be used to counter gaming 'addiction' and the overinvestment of time into games, in addition to gambling addiction, by ensuring that vulnerable players are forced to take physical breaks away from the games. However, it must be noted that, in relation to the gambling industry, recent studies have suggested that embedded disruptions can have no effect on or even worsen gambling cravings (See Blaszczyński et al. 2016; Auer et al. 2019). However, these gambling studies do not address the forms of disruption which would be applicable to curbing video gameplay. Blaszczyński et al. (2016) only allowed participants to play for 15 min before interrupting them (p. 794), which is a far shorter period of gameplay than the length of time which people would usually and acceptably spend playing computer games in one sitting. The embedded disruption that should be applied to address predatory video game monetisation ought instead to allow players to play for a significantly longer and more satisfying amount of time before interrupting them. Therefore, Blaszczyński et al.'s research does not realistically represent a video game playing situation and is therefore inapplicable. Auer et al. (2019) was based on a more reasonable and realistic length of play (60 min) but it only interrupted players for 90 s before allowing them to resume play (pp. 523–524). An embedded disruption in the video gaming industry must last for a significantly longer period than 90 s to be effective, such that during which it would not be as easy for players to merely sit and wait for the disruption to expire, in order to force players to engage in another activity in order to break their compulsion to continue playing video games. Therefore, further study on the effect of more realistic forms of embedded disruption applicable to video gaming remains to be conducted.

The proposal entitled ‘Ability to Set Limits on Spending’ (pp. 169–170) suggests two distinct concepts at once. The word ‘ability’ suggests a voluntary feature which allows players to choose a spending limit as they see fit to impose upon themselves. This feature could be highly useful for parents who worry about their children spending money on in-game items. On the other hand, King and Delfabbro also mention ‘a default limit on in-game purchasing’, suggesting the imposition of a separate compulsory maximum spending limit on all players with no adjustments for age or means. These two potential implementations vary greatly: the former is only suggestive, whilst the latter is mandatory and paternalistic. Therefore, the former would be less effective than the latter at combating potentially abusive psychological manipulations and protecting player-consumers, but the former better preserves the players’ and the game companies’ liberty to play and design games as they desire. A combined approach may be the best solution: a notably high maximum spending limit is set for all players,² whilst individual players are allowed to set an even lower spending limit for themselves.

Likelihood of the Industry to Adopt: Anti-game Design Proposals Critiqued

A voluntary solution is only useful and valid if its implementation is likely. By citing game design concerns, game companies have many reasons of varying credibility to avoid adopting many of the measures proposed by King and Delfabbro.

Pricing in Non-fictional Currency Breaks Immersion

From a game design perspective, the proposal ‘Appropriate Terms to Describe Purchasable Items’ (p. 173) would break player immersion in the game world. Although virtual currencies may be manipulative, a well-designed fictional currency system ensures that the monetisation remains within the world-building of the game. This is a clear example of effective game design principles conflicting with consumer protection.

Items May Expire in Effect

The proposal ‘Purchasable Items Do Not Expire and Cannot Be Permanently Expended’ (p. 171) did not consider the implications of game balancing, a process by which existing game mechanics are changed to become stronger or weaker when the designers deem it necessary to ensure fairness, fun or continued profit. Items may not necessarily ‘expire’ and ‘be permanently expended’ by becoming literally unusable but instead become obsolete as comparatively more powerful and newer items are released.³ Extending this proposal to disallow game companies from updating their games with stronger items, which would encourage players to continue playing the game and thereby sustain revenue, is not commercially attractive because

² USD\$50, according to Drummond et al. (2019, p. 935), which is capable of protecting risky gamblers, and beyond which spending would be deemed objectively questionable. Note King and Delfabbro’s response (2019a) that sole reliance on such a measure to address predatory monetisation would be inadequate.

³ An example game that has successfully relied upon planned *de facto* obsolescence of physical loot box items for over two and half decades (Xiao 2019b, pp. 3–4) is *Magic: The Gathering* (Wizards of the Coast 1993).

designing functional items to be consumable and subject to expiration is very profitable for game companies (Oh and Ryu 2007, p. 655).

Competitive Advantages and Limited Time Offers Are Selling Points

Similarly, the proposal that ‘Loot Box Items Should Not Confer Competitive Advantages’ (p. 171) is likewise not commercially attractive as providing competitive advantages is another major selling point of loot boxes.

The ‘No Limited Time Offers’ proposal (p. 172) is also unlikely to be adopted by game companies, because offering special limited items can drive ‘a large volume of sales in a short period of time’ and therefore can be extremely profitable for game companies at very little operating cost (Oh and Ryu 2007, p. 656).

Self-Exclusion Schemes Appear as an Admission of Guilt

The introduction of a self-exclusion scheme would also be a contentious issue for game companies. By imitating measures taken to combat gambling addiction, gaming companies would be implicitly admitting to the public that their monetisation mechanics, which often target children and adolescents, amount to gambling, at least in terms of potential harm, such that regulatory measures had to be deployed. The game industry has been keen to deny any such accusations (see O’Hara and Hopkins 2019b; see Vance 2018, p. 3). Therefore, it is unlikely that game companies would be willing to adopt this proposal. Significant pressure, likely in the form of a legal requirement, would be needed before the game industry would enable players to protect themselves from harm using self-exclusion schemes.

Player Aversion to Paternalistic Measures

Players themselves may also find King and Delfabbro’s more paternalistic solutions to be controversial and oppose them. If non-customisable spending limits and cooldowns were imposed upon all players, game companies run the risk of putting off players by making them feel patronised and insulted by measures that suggest that the players are incapable of exercising restraint upon their own impulses. Many players would instead prefer the freedom to set limits, or not, as they choose. However, failing to make these limits compulsory would mean that many vulnerable players struggling to control their spending, including children, would slip through the net, drastically reducing the effectiveness of this measure.

A potential compromise could involve spending limits and cooldowns based on demographic or individual player data. Unfortunately, demographic data risks making generalisations which do not accurately reflect the player’s position, causing some players to have inappropriately strong or weak restrictions placed upon them. Further, the collection of the player’s demographic data may infringe upon the privacy and data protection rights of the player. In addition, during the time required to collect individual player data for a new player, if no generic measures are applied during this process, damage to that player’s health or finances may already have been incurred. These problems could be mitigated using a combined approach in which appropriate spending limits or enforced cooldown periods are calculated for new players by an algorithm based on demographic data, which are improved and personalised over time with data about an individual player. Registered patents have demonstrated that video game companies are prepared to collect and use players’ behavioural data to

influence loot box purchases and drive profits (King et al. 2019). The same methodology can and should be redirected to ethically discourage loot box purchases.

Extending the Proposal to Restrict Pity Timer Mechanics

The ‘Loot Box Reward Probabilities Should Not Be Determined by Player Behavior’ proposal should be extended to also apply to mechanics which positively manipulate probabilities in the player’s favour according to that player’s previous behaviour, such as the ‘pity timer’ mechanic in *Hearthstone*, which guarantees that rewards of higher rarities would eventually be found by the player after a certain predetermined number of failed tries (u/briel_hs 2016).

Repeated loot box purchases may give rise to an entrapment situation (King and Delfabbro 2018, p. 1967). These seemingly player-friendly mechanics actually deceptively present a ‘rational solution’⁴ to the entrapment situation which is for the player to continue investing into the self-escalating conflict until the guaranteed high-rarity reward is finally obtained. Pity timer mechanics are abusive because they not only give rise to entrapment effects, but they also force any rational players to escape from the entrapment by paying up to the game company. Therefore, even mechanics which positively manipulate probabilities in the player’s favour according to that player’s previous behaviour should be disallowed as they may lead to abusive profit-making by game companies.

Extending the Proposal to Non-virtual Loot Boxes: Booster Packs and Gacha

Magic: The Gathering (MTG) is a physical card game which relies on the sale of booster packs of randomised selections of cards to monetise (Xiao 2019a, pp. 12–13, 2019b, pp. 3–4). MTG’s monetisation system inspired loot boxes and are effectively physical, real-world loot boxes. US case law has previously found the system of placing rare ‘chase’ cards in blind packs to constitute a form of illegal gambling, namely, illegal lottery (Xiao 2018a). Unfortunately, no legal action was taken against the monetisation method of MTG and other physical card games at the time.

Physical toys are also sold in real-life loot boxes, in systems such as the Japanese ‘Gacha’, whereby the player is only able to choose and determine from which set of toys their blindly purchased toy would come from; the exact toy that the player will receive is randomised (see Kasahara and Hounslow 2012).

These real-life physical products may also give rise to potentially abusive psychological manipulations. Therefore, King and Delfabbro’s social responsibility measures should be extended to also cover physical toy companies offering such randomised products.

The Expanding Definition of ‘Predatory Monetisation’ and ‘RRMs’

King and Delfabbro viewed loot boxes as only one type of ‘predatory monetization’. This perspective is comparable to that of Nielsen and Grabarczyk (2018), who, from historical and

⁴ ‘Rational’ insofar as the player is assumed to be seeking the maximisation of expected value.

ludological perspectives, suggested that loot boxes are only ‘a particular implementation of a more general phenomenon’, which they coined Random Reward Mechanisms (RRMs) (pp. 2–3). Nielsen and Grabarczyk (2018) categorised RRM into four types depending combinatorially on whether or not the resources required to partake in the RRM must be real-world money and whether or not the reward has real-world value (pp. 12–13).

Expanding the academic debate beyond loot boxes to other predatory monetisation methods is necessary because, if loot boxes become regulated due to increased public scrutiny, game companies may well adopt other game mechanics and monetisation methods such as programming rare items to randomly drop from enemies only when the player has separately paid for the opportunity to fight those enemies.

For example, *Monster Hunter Online* (Capcom and Tencent 2013) was a game which adopted an ‘instance-based’ fatigue system (chaose5 2013), whereby the player is allowed only a limited number of opportunities to complete certain in-game tasks and obtain a chance to gain rare items unless the player pays additional money for more opportunities. Such implementations may well be more deceptive and misleading than loot boxes because such mechanics are presented to the player as a game of skill with a chance element, rather than ostensibly as a pure game of chance (as loot boxes are usually presented).

The definition of ‘predatory monetization’ is still developing; there are currently no set criteria. Potential criteria include the following: (i) whether or not the monetisation has an equitable and justifiable maximum spending limit; (ii) the frequency and degree of psychological manipulation present in the mechanic; (iii) the degree to which the mechanic is integral to gameplay and the ‘core game loop’ (see Sicart 2015, p. 3); and (iv) whether or not the mechanic specially targets more vulnerable players, such as children.

Further research on a concrete test, which can be applied by game companies, academics, regulators and consumers to determine the predatory nature and ethical validity of game mechanics and monetisation methods, would be most welcomed.

Enforcement by Governments?

The numerous practical solutions proposed by King and Delfabbro can be immediately voluntarily applied by conscientious game designers wishing to minimise the potential risk of abusing the player-consumer’s psychology for financial gain. However, widespread adoption would require proactivity from across the industry.

Recent developments, such as the major hardware providers and software publishers committing to requiring the public disclosure of ‘information on the relative rarity or probability of obtaining randomized virtual items’ (or ‘drop rates’) in paid loot boxes, have been positive and encouraging (See Entertainment Software Association (ESA) 2019). However, regrettably, proponents for continued implementation of loot boxes within the industry have maintained their commonly held belief that loot boxes, as currently implemented, are ‘quite ethical’ (Hopkins 2019a). This belief implies a lack of understanding, if not also a complete lack of concern, for the potentially abusive psychological manipulations of RRM.

Unsurprisingly, the industry is unwilling to admit to it only taking remedial action against potentially abusive psychological manipulations, such as removing loot boxes from games, when specifically legislated against by governments (O’Hara and Hopkins 2019a). However, despite whether or not the industry is willing to admit to regulatory action against them being

legally or morally justified, the fact is that loot boxes in jurisdictions⁵ where a ruling or an interpretation has been made against them have indeed been removed by the industry (see Hopkins 2019b; see Nintendo 2019). Therefore, the player-consumers of those jurisdictions have become better shielded against potentially abusive psychological manipulations than players in unprotected jurisdictions.

The House of Commons of the UK questioned the integrity of the industry by labelling the answers provided by industry members to its inquiry on loot boxes as ‘evasive’ (Efford et al. 2019). Even the aforementioned encouraging commitment by video game industry leaders to require disclosure of drop rates was, at least partially, prompted by the actions of the US Federal Trade Commission (FTC). The commitment was only conveniently announced on the morning of an FTC workshop discussing the potential harm of loot boxes, arguably in order for the industry to appear proactive to the FTC in order to maintain the self-regulation status quo and stave off any potential government regulatory actions (see Entertainment Software Association (ESA) 2019).

Given the industry demonstrated unwillingness to be proactive with the regulation of loot boxes, widespread voluntary adoption of King and Delfabbro’s proposed measures is unfortunately doubtful. Therefore, regulatory responses are required to effectively combat the potentially abusive psychological manipulations of RRM. However, any prospective regulation must consider the interests of every stakeholder, including the protection of player-consumers, the business interests of game companies and the practicality of enforcement.

Avoid Jumping on the Bandwagon: Defending ‘Addictive’ Game Design

It is very tempting, but also very imprudent, to be lured into an overzealous persecution of potentially ‘addictive’ game design, which would somehow seek to ‘protect’ player-consumers from non-existent psychological harms.

For example, one of the ultimate goals of creative game design, which game designers strive towards, is to immerse the player into the ‘flow’ state, whereby the player becomes so captivated by the game’s well-designed appropriate difficulty level, as compared to the player’s own current skill level at the game, that they ‘lose track of time and worries’ (Chen 2007, p. 31).

Such a description of a commonly held game design goal suggests an intention to cause psychological harm and presents a very negative perspective to the uninformed public, as it is akin to describing the game designer’s attempt to induce behavioural addiction in the player. Csikszentmihalyi, who first propounded the concept of ‘flow’ in the context of psychology, argued that ‘enjoyable activities that produce flow ... can become addictive’ (Csikszentmihalyi 1990, p. 62). Therefore, the design of flow may indeed be abused to be psychologically harmful.

However, well-intentioned game designers attempting to achieve flow are not intending to induce addiction; they are merely attempting to create an enjoyable and immersive experience for the player. Therefore, when attempting to create flow, ethical game designers must keep in mind the potential risks of abusing flow and implement safety features, such as ‘embedded disruptions’ on gameplay, which purposefully break immersion and the game’s narrative in order to ensure that the player will take healthy breaks away from the game. Such game design

⁵ Namely, Belgium and the Netherlands.

safety features echo King and Delfabbro's proposed 'Breaks in Play or Cooldowns' social responsibility measure but extend its application beyond predatory monetisation. Flow should never be allowed to mix with and be abused to increase monetisation beyond justifiable limits.

Game design concepts, such as flow, are not unethical, and they should be allowed to develop and flourish without legal intervention because they are the essential fundamental building blocks of effective game design and they do not cause any harm unless abused.

Abstaining from Controversial Rhetoric

A significant amount of the public furore against video games can be attributed to the video game industry's 'overuse of the word "addictive" to mean little more than "quite enjoyable"' (Fahey 2019). Not only should game companies be socially responsible and ethical with their game design, but they must also appear to the public to be socially responsible and ethical. An additional social responsibility measure that should be recommended is for game companies to abstain from using potentially controversial vocabulary in its advertising rhetoric, where its use is not only inaccurate but also counter-productive.

Legal Regulation of RRMs

The implication for the industry's unwillingness to act against the potentially abusive psychological manipulations of RRM is that RRM may need to be regulated by law, or interpretations thereof, in order to protect all consumer-players from the potential abuse caused by RRM.

Complete Ban on RRM Is Overly Paternalistic and Causes Economic Harm

However, overarching legislation banning all potentially abusive RRM is impractical and unreasonable because (i) as discussed above, 'predatory monetization' as put forth by King and Delfabbro and aforementioned 'predatory, addiction-inducing time-consumption' cannot yet be defined in order to be effectively applied by regulators, and (ii) a law forbidding all RRM would be overly paternalistic as it would unduly restrict the creative outputs and economic potentials of a rapidly developing industry.

Maximum Spending and Gameplay Time Limits Critiqued

As an example, legally enforced maximum spending and gameplay time limits may be effective at protecting player-consumers because the law insulates them from most potential abuse (Xiao 2019b, pp. 24–25),⁶ but there would be severe social consequences to their enforcement. The imposition of a legal ban on gameplay from midnight to 6AM on minors under the age of 16 in South Korea (Juvenile Protection Act (Law No. 10659, 2011) (S Korea), art. 26(1)) has been argued to infringe upon fundamental human rights, such as the underage players' right to pursue happiness and self-determination, their parents' right to educate their

⁶ See also the debate on setting a loot box spending limit between Drummond, Sauer, and Hall (2019) and King and Delfabbro (2019a).

children and the game companies' freedom of expression (Kim 2018). Further, more pragmatically, market size data from after the ban was implemented has demonstrated that such legal interventions cause unjustifiable and disproportional economic harm to the video game industry (Kim 2018).

Similarly, South Korea recently repealed a maximum spending limit for PC and online games it had previously imposed on adults, citing the unfair economic discrimination against the video game industry caused by the imposed spending limit, as compared to other unregulated entertainment industries (Ministry of Culture, Sports and Tourism (S Korea) (문화체육관광부) 2019).

Most importantly, such measures would not resolve the root of the problem: the potentially abusive RRM's are not removed from the games and continue to be available for sale; instead, only the player-consumers are sometimes removed from the games. Therefore, players will still be exposed to abusive RRM's when they play video games.

Particular Social Responsibility Measures May Be Ineffective When Legislated

A more practical and less invasive legal solution than indiscriminate bans is for the social responsibility measures proposed in King and Delfabbro's paper to be codified and enforced by regulators, keeping in mind the aforementioned potential social and economic harms. However, not all proposed measures, when implemented as law, will necessarily be effective. For example, the People's Republic of China (PRC) has already imposed a legal obligation on game operators to the 'Display of Odds for Random Rewards' (Ministry of Culture (PRC) (文化部) 2016). Yet despite compliance by the video game industry in the PRC, and despite the drop rates having been communicated to players across the world through the internet, up to September 2019, the legal disclosure-based obligation imposed by the PRC has not been demonstrated to have had any impact on loot box sales (Xiao 2019b, pp. 22–23), which again questions the effect and intent of the industry commitment to the disclosure of drop rates announced by the ESA. The disclosure-based obligation cannot single-handedly prevent all potentially abusive psychological manipulations of RRM's, but a regulatory approach combining several of King and Delfabbro's social responsibility measures may well be more effective.

Particular Social Responsibility Measures May Be Indefinable for Legislation

Another difficulty with legislating the social responsibility measures is that not all proposed measures can be quantified and assessed on a binary scale. Some social responsibility measures can be easily legislated and regulated: for example, 'The Requirement of Payment Options that Display Real Currency' can be easily checked by regulators to determine whether or not the requirement has been met. But other measures, such as the 'Breaks in Play or Cooldowns', require more consideration from regulators, such as the minimum length of the imposed disruptions, and whether or not such disruptions must be breaks in play completely or if cooldowns on purchases would suffice. King and Delfabbro did not elaborate on the requirements of this proposal. Reasonably, different genres of games must be allowed to be played for different amounts of time, and adults must be allowed to play for longer than children. Therefore, given the vast variety and number of considerations that must be taken into account to render a fair and comprehensive decision, it would be necessary for regulators to carefully examine each game and pass judgement individually.

The Impossible, Subjective Workload of the ‘Game Ethics’ Regulator

The work required of the ‘game ethics’ regulator is similar to what an age rating board does to determine the appropriate audience for an individual game, but more content intensive as it may be necessary to test for the existence of potentially abusive psychological manipulations. In order to facilitate the release of games in a timely manner, age rating boards already rely heavily on self-reporting by game companies to reduce the workload on the rating boards (see Entertainment Software Rating Board (ESRB), [n.d.](#); see Pan European Game Information (PEGI) [n.d.](#)). The proposition that the independent ‘game ethics’ regulator would also have to rely heavily on the self-reporting of an industry whose members have demonstrated a lack of knowledge, and concern for game ethics is untenable.

In addition, the work required of the ethical game content regulator would be significantly more subjective than that of age content regulators, such that rendering fair judgements for each game on a uniform measuring scale would be impossible. For example, the measure of restricting the ‘Audio-Visual Design of Loot Box “Opening”’ cannot be quantified or qualified, and is completely subjective as different elements would attract different people in varying degrees and, therefore, is simply impossible to enforce effectively.

Towards a Comprehensive Determination of Social Responsibility

It is important to recognise that socially responsible and ethical game design is not necessarily evidenced by whether or not each and every single socially responsible game design measure has been adopted. In fact, it is not even possible to come up with a complete list of all socially responsible game design measures as video gaming is a rapidly developing creative industry.

In determining whether or not a game is socially responsible and ethically designed, the totality of the game must be considered: amongst others, each and every one of the game mechanics that the game includes, the aesthetics that the game evokes in the player (see Hunicke et al. 2004, pp. 2–3) and the emotions which motivate the player to play the game (see Lazzaro 2009).

No legislation can ever be designed to encompass all these facets and be sufficiently comprehensive as to allow regulators to be able to determine whether or not a game is socially responsible and ethically designed.

Towards an Ethical Game Design Framework Aided by Regulatory Nudging

A ‘nudge’, which influences behaviour with delicate, suggestive and benevolent interventions rather than with indiscriminately imposed mandates may be sufficiently effective at encouraging certain behaviours (Thaler and Sunstein 2008, p. 6), such as the removal of potentially abusive RRM. Therefore, instead of attempting the impossible task of codifying and enforcing King and Delfabbro’s proposed social responsibility measures as law, governments can instead incentivise their adoption by game companies through discretionary funding, tax relief and other benefits.

Many governments already invest public money in the video game industry (e.g. the UK Games Fund; the UK Video Games Tax Relief scheme; and the Canada Media Fund). The grant and redirection of such existing funds, and the withholding of tax relief from current projects, based on a determination of whether or not the game has strived towards being socially responsible and ethically designed, is justified, as doing so would contribute to the public good. Setting ethical

game design as the new quality standard would forcefully motivate game companies towards not only choosing to adopt existing ethical game design principles so as to qualify for financial benefits but also investing talent and creative effort into developing more and better ethical game design principles in order to stay ahead of their competition, demonstrate the social value of their projects and attract funding.

Conclusion: a Call to Action

The ethical game design framework should continue to emphasise voluntary adoption. Publicity of the potential harm of RRM and of the existence of ethical game design frameworks would lead to consumer pressure on game companies to adopt socially responsible and ethical game design measures. Therefore, those who are informed and knowledgeable are obliged to reach out to every player-consumer who may encounter RRM and to explain to them the potential psychological, financial and social harms of RRM.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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