Counterplay: Circumventing the Belgian Ban on Loot Boxes by Adolescents

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In 2018, Belgium made the world news for being the first country to ban loot boxes in games for all its inhabitants. As players' freedom to purchase loot boxes was restricted, however, methods of circumventing the ban came into practice. Departing from counterplay theory, we drew from an online survey among Belgian adolescents aged 11-18 with two questions in mind: what counterplay practices are used to circumvent the Belgian ban on loot boxes, and how do counterplayers (N = 124) compare to non-counterplayers (N = 329) in terms of their engagement with loot boxes and games more broadly? Our findings suggest that counterplayers resist current regulatory arrangements in a myriad of ways, delineating the boundaries of a national ban in a global game ecology. Counterplayers appeared to differentiate themselves from non-counterplayers both in terms of depth-characteristics (sense of belonging to an online community, perceived gaming ability, gaming disorder, and risky loot box use) and breadth-characteristics (frequency of skin betting, selling loot box rewards, and (re)watching loot box opening livestreams). Ultimately, our study may tease out debate on how to regulate games successfully in the face of players' technical abilities and motivation to gain access.

CCS Concepts: • **Applied computing~Computers in other domains~Personal computers and PC applications~Computer games** • **Social and professional topics~User characteristics** • General and reference~Document types~Surveys and overviews

Additional Key Words and Phrases: Loot boxes, Counterplay, Belgium, Survey, Adolescents

1 INTRODUCTION

The global games market is estimated to amount to $218.8 billion by 2024 [55], making it the highest-grossing entertainment medium by far. Such growth has drawn attention, however, particularly towards the way games are monetized through microtransactions. In 2017, Star

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Wars: Battlefront 2 sparked controversy for locking some of its most iconic characters in loot boxes. Loot boxes can be defined as virtual containers that may be bought with real money and that – when opened – produce random rewards. Emblematic of a "gambling turn" [25] or "gamblification" dynamics [32] in the game industry, loot boxes have faced increasing criticism and scrutiny.

With criticism and scrutiny culminating in a societal debate on 'what to do about loot boxes', both policymakers and researchers have discussed regulatory responses to the integration of loot boxes in games (e.g., [19,45]). Research has predominantly focused on establishing a relationship between loot box engagement and problem gam(bl)ing, particularly among children and adolescents [29,38,51]. In 2018, Belgium made the world news for being the first country to ban loot boxes for all its inhabitants, its rationale clearly oriented towards the protection of minors and adults who "ought not to be confronted with games of chance when looking for fun in a game" [12].

Even so, the Belgian ban on loot boxes may not be as impeding as initially made out to be. As players' freedom to purchase loot boxes was restricted, methods of circumvention came into practice. If the ban poses the first of said regulatory responses aimed towards protecting particularly vulnerable players from gam(bl)ing-related harms, then examining the what and who of ban circumvention is of utmost importance to delineate its experiential reach for players.

Departing from Apperley's [3] notion of counterplay as derivative player practices in relation to content moderation in games, this study draws from a survey distributed during winter 2021 and early 2022 among 2289 Flemish (i.e., Dutch-speaking Belgian) teenagers aged 11-18. In it, respondents who indicated (1) to play games and (2) to have bought or opened loot boxes at least once in the past 12 months were asked if and how they managed to open loot boxes after the ban. Taken together, 453 open-ended responses to this question were analyzed to identify how counterplay manifests itself (RQ1), and to compare counterplayers (i.e., respondents who know how to circumvent the ban and/or explicitly claim to do so) to non-counterplayers with regard to the depth and breadth of their engagement with loot boxes and games more broadly (RQ2).

2 RELATED WORK

2.1 Counterplay Practices

In 2018, Belgium prohibited the sale of loot boxes (and by extension, the virtual currencies used to buy them) in games for all its inhabitants. The Belgian Gaming Commission, with the support of the then Minister of Justice Koen Geens, argued that loot boxes constitute a game of chance and should be regulated accordingly. While the technicalities of the ban leave room for discussion – that is, it was based on an interpretation of gambling law dating from 1999 and did not restrict the presence of loot boxes as is –, its implications were widely debated and forced game publishers to be in compliance by removing paid-for loot boxes or fear criminal prosecution. The Belgian ban thus theoretically poses the highest degree of protection a state can provide against the potential harm inflicted by loot boxes [48].

Even so, the effectiveness of the Belgian ban on loot boxes has been called into question. Recent evidence provided by Xiao [48] has demonstrated that "paid loot boxes remained widely available among the 100 highest-grossing iPhone games in Belgium" [48:1]. Specifically, it was found that 82 of the 100 highest-grossing games distributed on the Belgian App Store continued

to generate revenue through randomized monetization methods after the ban. While this continued availability is a matter of publisher compliance – or the lack thereof – first and foremost, its potential ramifications are that of Belgian players' continued exposure to loot boxes.

The limited enforcement of the ban – amongst mobile games – is further exacerbated by player practices that circumvent any technical restrictions encountered with relative ease. For instance, players may use a Virtual Private Network (VPN) or may resort to third-party marketplaces to acquire soft currencies (i.e., in-game currencies earned through gameplay), which are then used to purchase loot boxes [31]. These examples attest to the inventive attitude of players, who appropriate game technology for their own purposes in ways unintended by creators. In game studies, scholarly interest in this phenomenon has manifested itself in studies on cheating [15], transgressive play [2], dark play [41], and détournement [8]. In his book *Gaming Rhythms*, Apperley [3] introduces the concept of counterplay [16,33], which opens up "the possibility of an antagonistic relationship between the digital game and the player. An antagonism that […] is directed towards the ludic rules that govern the digital games configurations, processes, rhythms, spaces and structures" [3:102-103]. Using the censorship of particular games in Australia and Venezuela as case studies, Apperley portrays piracy as a response to "currents of control" [3:9] and as a form of counterplay that occurs when "blockages impact on participation in the digital game ecology" [3:117].

Conversely, ban circumvention research in the fields of computer science, science and technology studies, and human-computer interaction has mostly focused on content moderation as a means to curb toxicity and improve user safety. Niverthi et al. [35] examine key behavioral metrics of ban-evading accounts on Wikipedia to aid moderators in "weeding out bad actors" [35:2621]. Similarly, Gillet et al. [21] reveal how Facebook users discuss content moderation and circumvention across platforms, exploiting "platform affordances, policy loopholes and enforcement limitations" to engage in potentially problematic practices. These include creating new 'dummy' accounts, using technical tools such as proxy servers or VPNs, falsifying identity verification, and blocking 'flagging' accounts. Finally, Wade et al. [46] explore recommendations given for circumventing surveillance provided by news, media, activist and commercial outlets during 2020's Black Lives Matter protests, ranging from disabling biometric unlocking, using encrypted messaging and using complicated passwords, towards enabling airplane mode, turning off your location and managing metadata.

It should be noted that the abovementioned studies are not limited to the technicalities of circumvention, as the ethical, social and legal implications of such behavior are equally explored. Generally speaking, content moderation seems to be inspired by a desire to protect *others* from harm inflicted by 'toxic' users/players who are ostensibly disciplined through banning. These "platform rhetorics" [27] – applied proactively in the context of fake news, hate speech and misinformation – appear absent in the case of the Belgian ban on loot boxes, where *all* players are restricted access regardless of behavior and where platforms seem to have largely neglected their protective role.

As appealing – and pragmatic – as it may be to attribute all failings to one, centralized entity, one cannot leave out the actions of the players involved. The ways in which circumvention occurs are at times beyond platforms' capabilities to thwart, and cannot be assessed through empirical evaluations of game publishers' (largely performative) actions to comply with the law. Counterplay not only draws attention to the wider ecology in which games are played and regulated, it also accentuates the players themselves who navigate this

ecosystem with various degrees of conformity to existing regulations and content moderation. For the purpose of this study, counterplay is therefore understood as any deliberate derivative player practice that occurs with regard to the Belgian ban on loot boxes. A first goal of this study therefore is to examine how players may circumvent the Belgian ban on loot boxes. Contrary to the aforementioned assessment of publisher compliance with the Belgian ban on loot boxes, we do not limit our analysis to mobile games, however, as these do not represent the entirety of the Belgian games market [40]. Moreover, focusing on derivative player practices allows us to move beyond focusing on whether the ban is being enforced by analyzing game interfaces, and towards exploring derivative player behaviors as a response to censorship and as a broader cultural practice. Starting from this specific counterplay angle, a first research question (RQ) is put forward:

RQ1. What counterplay practices are used to circumvent the Belgian ban on loot boxes?

2.2 Counterplayers

Next to knowing how counterplay manifests itself with regard to the Belgian ban on loot boxes, a second goal of this study is to offer a quantitatively evidence-based profile sketch of Belgian counterplayers and their motivations.

Our reasoning for this is twofold. First, this approach has, to our knowledge, been absent in scientific literature, which is predominantly focused on counterplay practices as revealed through qualitative ethnographic observations, interviews and focus groups (e.g., [3,33]). Second, when it comes to the censorship of loot boxes in Belgium specifically, understanding the *who* behind counterplay becomes a salient issue, both in terms of the depth and breadth of counterplayers' engagement with loot boxes and games more broadly.

As the ban restricts players' freedom and window of access to the global game ecology, counterplayers can respond in two ways: by breaking through the restriction through intensified play, or by extending the window over related activities in which restrictions are absent or weaker. In the first case, counterplayers differentiate themselves from non-counterplayers through the *depth* of their loot box consumption. In the second case, through the *breadth* of activities that they associate with that consumption (see Fig. 1).
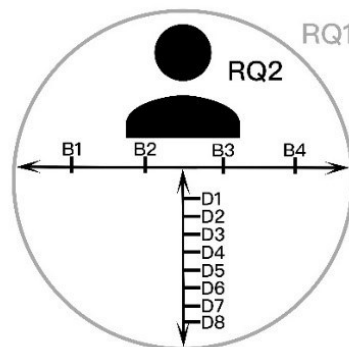

Fig. 1. The *what* and *who* of counterplay, as situated in the global game ecology. Counterplay practices are undertaken by counterplayers, who differentiate themselves through the depth (D) and breadth (B) of their engagement with loot boxes and games in general (D1-8/B1-4 items will be expanded upon throughout the text).

2.2.1 Depth-characteristics. To go deeper than the surface ban on loot boxes, counterplayers must develop relationships and abilities that allow or push them to dig where other players would stop. Such an ability to counterplay ties into previous notions of gaming or ludoliteracy [28,49] and metagaming practices [42]. Apperley's [3] case studies have shown the determining role of online 'knowledge' communities in constructing, sharing and activating such counterplay know-how [24]. The process of relationship-building and self-empowerment, in our view, begins with merely being involved in and feeling connected to these communities that may – with regard to this study's focus – spread information on how to circumvent the Belgian ban on loot boxes. We will therefore assess Belgian counterplayers' sense of belonging to an online community (D1). Belonging is not enough, however: players must also integrate shared knowledge and transform it into personal skills. Therefore, we will also take their perceived gaming ability (D2) into account.

This belonging and ability would allow players to break through the wall of restrictions, but why and to what extent would they put their efforts into this difficult task? As to the *why*, research has distinguished several reasons why players would want to purchase loot boxes, including competitiveness, sociability, wanting to support creators, wanting to complete a collection of virtual items, and nostalgia [14,43,47,51]. Rewards obtained through loot boxes thus serve different goals that are – according to the players purchasing loot boxes – worth paying for. If such goals are unattainable, however, and players cannot spend money to customize or enhance their gameplay experience, this experience is worsened. In Belgium, for instance, recreational players and e-sporters have voiced discontent with how their inability to purchase *FIFA Ultimate Team Packs* (containing footballers and consumables that improve one's performance on the pitch) has made them disadvantaged in the game's competitive scene [52]. While loot boxes that confer mechanical advantages threaten presumptions of equal opportunities and meritocracy, the international context still posits their use a standard. Seen from this viewpoint, it is the Belgian ban that may pose a barrier to "pure and fair competition" [24:153] for Belgian players, one that may lead some of them to circumvent it. Indeed, players that are motivated by something they deem more important than 'obeying the rules' may not be held back by easily circumventable restrictions of their digital play. Next to the drive to perform freely and to use all the available adjuvants to do so, players just want to get the most enjoyable experience from the game they play, and see any restrictions to this gameplay as a threat to this enjoyment. We will therefore assess Belgian counterplayers' fun-seeking behavior (D3) and reward-responsiveness (D4), as well as their motivation to open loot boxes (D5). Because of the many complications counterplayers may be exposed to, their persistency in the pursuit of desired goals (D6) also needs to be measured, in order to evaluate to what extent counterplayers will set their negotiation process forth notwithstanding drawbacks.

Another explanation as to why counterplayers may resist regulatory arrangements may lie in the excessiveness of their dedication. In light of the ban's reason for existence, protecting vulnerable players from harm and the development of problem gam(bl)ing behavior, players circumventing the ban may be the ones who feel compelled to play games and/or to open loot boxes and receive unpredictable rewards. Following the description of problem gam(bl)ing symptomatology as showing signs of disordered (see DSM-5) or compulsive (see ICD-11) behavior that cannot be stopped voluntarily, we will therefore assess Belgian counterplayers' disordered gaming (D7) and risky loot box use (D8).

2.2.2 Breadth-characteristics. Yet going deeper is not the only direction counterplayers may take. They may also engage in other – equally restricted or otherwise – variants of their loot

box consumption. Especially in convergence culture, of which games and gambling-like activities are a form, there are multiple media and practices through which content can be consumed, and consumers can become creators of their own [24]. Indeed, a variety of 'gamblified' activities [50] and third-party platforms co-exist in Belgium's game ecology, which can provide counterplayers with a very similar experience to loot boxes, yet practically or legally more accessible. Watching loot box opening livestreams, betting on eSports and betting skins earned from games on third-party websites are examples of such similar activities [22,50]. Engaging in any of these activities may ultimately fuel loot box consumption, and vice-versa. Moreover, both skin betting and selling loot box rewards may add a financial incentive to opening loot boxes. Rather than treating the consumption of loot boxes as an isolated phenomenon, we will therefore assess Belgian counterplayers' frequency of watching loot box opening livestreams (B1), eSports betting (B2), skin betting (B3), and selling loot box rewards for real money (B4).

In sum, the second goal of this study is to offer a profile sketch of Belgian counterplayers who circumvent the ban on loot boxes. We propose and empirically evaluate a number of depth- and breadth-characteristics. For the purpose of this study, we refer to Belgian players who circumvent the ban on loot boxes as *counterplayers*, and Belgian players who do not circumvent the ban on loot boxes as *non-counterplayers*. From this approach, a second research question is put forward:

RQ2. What are the differences in depth- and breadth-characteristics between counterplayers and non-counterplayers?

3 METHODOLOGY

3.1 Research Design

From November 2021 till March 2022, the first wave of a three-wave survey on games and gambling was distributed via Qualtrics in thirteen Flemish (i.e., Dutch-speaking Belgian) secondary schools. In total, 2289 school-going adolescents aged 11-18 took part in the survey, which consisted of three parts. The first part contained an overview of the research and an informed consent, whereby respondents of 16 years and older were deemed sufficiently competent to understand necessary information without their parents having to be involved in the consent procedure. The second and third part were only shown to respondents who – or whose parents – had agreed to participate in the study. In the second part, respondents were shown questions regarding socio-demographics, personal characteristics and gaming behavior, with particular follow-up questions only shown to respondents who had answered affirmatively before (other questions in the survey dealing with phenomena or variables other than the ones targeted in this study are not addressed here). Specifically, respondents who indicated to play games (N = 1899) *and* to have either bought or opened a loot box at least once in the past 12 months (N = 931) were asked the following open question: "Since a few years it is no longer possible in Belgium to buy loot boxes with real money. Even so, there are ways to get a hold of these loot boxes. If you sometimes open loot boxes, how do you do this?" (own translation). While this may inform previously unaware respondents of the de facto possibility to circumvent the ban on loot boxes, we opted for this particular wording for two reasons. First, because we assumed that players who are thoroughly engaged with a particular game would know regardless. Second, because contrary to an in-depth interview in which an experienced

researcher can quickly detect such foreknowledge by asking a more evasive question (e.g., "Has the ban afflicted your enjoyment of said game?"), our survey question had to be more straightforward to eliminate any doubt. Similarly, we specifically asked whether adolescents had *opened* – rather than *bought* – any loot boxes after the ban, as the former activity does not necessarily lead to the latter (e.g., when someone gifts an unopened loot box to another player), nor does the latter require the former (e.g., when a player receives an unopened loot box through trading). The third and final part of the survey comprised an invitation to take part in future related research as well as a URL to a regional addiction help center in case of further questions. Prior to the study, ethical approval had been obtained by KU Leuven's Social and Societal Ethics Committee (approval number G-2021-3439-R3(AMD)).
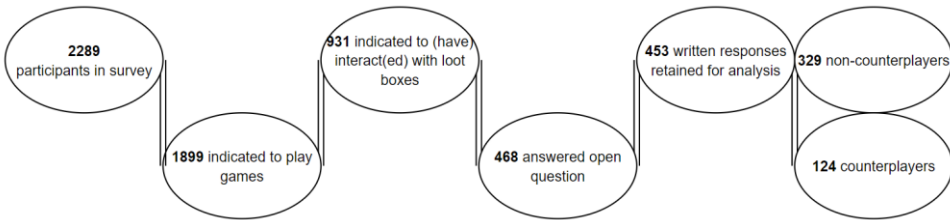

Fig. 2. Research design.

3.2 Sample

468 written entries to the aforementioned open question were collected (i.e., responses that were filled in, as the question could be left blank). Excluding two respondents who listed their age as significantly lower than 11 (e.g., "6.9"), ten who listed their time spent playing games as more than 24 hours a day, and three who identified themselves as non-binary but whose clarifications were deemed non-serious (e.g., "toaster), the final sample for analysis consisted of 453 entries (see Fig. 2). These were ultimately divided into two mutually exclusive groups (see 3.4 Data analysis): non-counterplayers and counterplayers. For more information on age, gender, most-played game genres, platforms used and favorite games, see Table 1.

Table 1. Non-counterplayers versus counterplayers comparison

Non-counterplayers (329)		Counterplayers (124)	
M = 13.9/SD = 1.3	AGE	M = 13.9/SD = 1.2	
Male (220; 66.9%)	GENDER	Male (107; 86.3%)	
Female (101; 30.7%)		Female (15; 12.1%)	
Other (6; 1.8%)		Other (1; 0.8%)	
1. Battle Royale (181; 55.0%)	MOST-PLAYED GAME	1. Survival (86; 69.3%)	
2. Survival (172; 52.3%)	GENRES	2. Battle Royale (84; 67.7%)	
3. Sports (164; 49.8%)		3. Action-Adventure (74; 60.0%)	
4. Racing (163; 49.5%)		4. Shooters (73; 58.9%)	
5. Action-Adventure (153; 46.5%)		5. Sports (69; 55.6%)	
Mobile (226; 68.7%)	PLATFORMS USED	Console (92; 74.2%)	
Console (216; 65.7%)		PC (78; 63.0%)	
PC (141; 42.9%)		Mobile (62; 50%)	
Handheld (51; 15.5%)		Handheld (20; 16.1%)	
1. *FIFA 22* (51; 15.5%)	FAVORITE GAMES	1. *FIFA 22* (19; 15.3%)	
2. *Fortnite* (34; 10.3%)		2. *Fortnite* (14; 11.3%)	
3. *Minecraft* (32; 9.7%)		3. *GTA Online* (13; 10.5%)	
4. *Roblox* (23; 7.0%)		4. *Minecraft* (10; 8.1%)	
5. *Hay Day* (14; 4.3%)		5. *Rocket League* (5; 4.0%)	

3.3 Measures

All existing measures were translated to Dutch (see Appendix). If no previously validated Dutch measures were available, translations of our own were proposed and discussed among the research team. To ensure optimal flow and comprehensibility and to refrain from terminology that is overly complex for the youngest of age in our study, the survey was pilot-tested by age-appropriate participants. Measures used throughout the survey included the following (see Table 2):

SENSE OF BELONGING TO AN ONLINE COMMUNITY (D1) was measured by one item, with possible answers ranging from 0 = "not at all connected" to 10 = "very much connected".

PERCEIVED GAMING ABILITY COMPARED TO PEERS (D2) was measured by one item ("Comparing yourself to the average peer, how do you score in the following areas? [...] Gaming"), with possible answers ranging from 0 = "much worse" to 100 = "much better". In the framework of a questionnaire study, it is difficult, if not impossible, to assess *actual* gaming ability. In line with Bandura's self-efficacy theory [7], we therefore consider perceived ability an important predictor of ability as such.

FUN-SEEKING BEHAVIOR (D3), REWARD-RESPONSIVENESS (D4), AND PERSISTENCE IN THE PURSUIT OF DESIRED GOALS (D6) were all measured by the Behavioral Activation System (BAS) scale [34], consisting of 13 items in total. Respondents were asked to indicate their agreement with the items, using four Likert-scale response options ranging from 0 = "Not true", to 3 = "Very true". This resulted in a total score between 0 and 12 for the fun-seeking and persistency subscales, and between 0 and 15 for the reward-responsiveness subscale. It should be noted that the fun-seeking subscale scored fairly low (Cronbach's α = .65) in terms of internal consistency (although BAS in its entirety scored Cronbach's α = .84, indicating very good reliability).

MOTIVATION TO BUY LOOT BOXES (D5) was measured by a multi-response list of eight motivations. This list was based on an article by Zendle et al. [51], in which the researchers assembled motivations via qualitative analysis of text data.

GAMING DISORDER (D7) was measured by The Gaming Disorder Scale for Adolescents scale (GADIS-A), developed by Paschke et al. [36] and based on the 11th revision of the International

Classification of Diseases. GADIS-A consists of nine items with five Likert-scale response options, four regarding cognitive-behavioral symptoms and five regarding negative consequences. Items are scored using five response options, ranging from 0 = "strongly disagree" to 4 = "strongly agree", resulting in a total score between 0 and 36.

RISKY LOOT BOX USE (D8) was measured by the Risky Lootbox Index (RLI). The RLI, first introduced by Brooks and Clark [11], contains five items. Items are scored using seven response options, ranging from 1 = "completely disagree" to 7 = "completely agree", resulting in a total score between 5 and 35.

FREQUENCY OF WATCHING LOOT BOX OPENING LIVESTREAMS (B1), ESPORTS BETTING (B2), SKIN BETTING (B3), AND SELLING LOOT BOX REWARDS FOR REAL MONEY (B4) were measured by asking respondents how often they had engaged in any of the given activities in the past twelve months, with answer options ranging from 1 = "never" to 7 = "everyday".

Table 2. Depth- and breadth-characteristics measured

Label	Item(s)	Cronbach's α	Adapted from
D1	"How strongly do you feel you belong to an online community?"	/	Self-developed
D2	"Comparing yourself to the average peer, how do you score in the following areas? [...] Gaming"	/	Self-developed
D3	"I am always willing to try something new if I think it will be fun"; "I will often do things for no other reason than that they might be fun"; "I often act on the spur of the moment"; "I crave excitement and new sensations"	.65	Muris et al., 2005
D4	"When I am doing well at something I love to keep at it"; "When I get something I want, I feel excited and energized"; "When I see an opportunity for something I like I get excited right away"; "When good things happen to me, it affects me strongly"; "It would excite me to win a contest"	.79	Muris et al., 2005
D5	"Gameplay advantages"; "To gain specific items and characters, and to create a collection"; "The fun, excitement and thrills of opening the box itself"; "Cosmetic reasons"; "Support the developers or pay the game"; "The perception that loot boxes are good value"; "Time advantages"; "Profit"	/	Zendle et al., 2019
D6	"I go out of my way to get things I want"; "When I want something I usually go all-out to get it"; "If I see a chance to get something I want I move on it right away"; "When I go after something I use a 'no holds barred' approach"	.80	Muris et al., 2005
D7	"I often play games more frequently and longer than I planned to or agreed upon with my parents"; "I often cannot stop gaming even though it would be sensible to do so or for example my parents have told me to stop"; "I often do not pursue interests outside the digital world (e.g., meeting friends or partner in real life, attending sports clubs/societies, reading books, making music) because I prefer gaming"; "I neglect daily duties (e.g., grocery shopping, cleaning, tidying up after myself, tidying my room, obligations for school/apprenticeship/job) because I prefer gaming"; "I often continue gaming even though it causes me stress with others (e.g., my parents, siblings, friends, partner, teachers)"; "I continue gaming although it harms my performance at school/apprenticeship/job (e.g., by being late, not participating in class, neglecting homework, worse grades)"; "Due to gaming, I neglect my appearance, my personal hygiene, and/or my health (e.g., sleep, nutrition, exercise)"; "Due to gaming, I risk losing important relationships (friends, family, partner) or have lost them already"; "Due to gaming I have disadvantages at school/apprenticeship/job (e.g., bad [final] grades, inability to continue to the next grade/no graduation, no apprenticeship or university spot, poor reference, warning/dismissal)"	.82	Paschke et al., 2020
D8	"The thrill of opening Loot Boxes has encouraged me to buy more"; "I frequently play games longer than I intend to, so I can earn Loot Boxes"; "I have put off other activities, work, or chores to be able to earn or buy more Loot Boxes"; "Once I open a Loot Box, I often feel compelled to open another"; "I have bought more Loot Boxes after failing to receive valuable items"	.85	Brooks & Clark, 2019
B1	"Indicate how often you have done the following in the past 12 months: [...] Watching loot box opening livestreams"	/.	Self-developed
B2	Indicate how often you have done the following in the past 12 months: [...] eSports betting"	/	Self-developed
B3	Indicate how often you have done the following in the past 12 months: [...] Skin betting"	/	Self-developed
B4	Indicate how often you have done the following in the past 12 months: [...] Selling loot box rewards for real money"	/	Self-developed

3.4 Data analysis

Data analysis was performed using IBM SPSS. With regard to RQ1, written entries were read in detail with the goal of identifying counterplay practices among Belgian players. The process of interpreting said entries involves a degree of subjectivity, as the focus of this study is oriented

towards covert online behaviors that may have been unknown to the authors prior to the analysis and that were occasionally described in a curt (length of responses varied between 1 and 52 words) and – perhaps purposefully – vague manner (e.g., "online with parents' bank card"). In order to attain a bare minimum of respondents that we can assuredly prove are aware of ban circumvention methods, three criteria were used. First, we decided to exclude respondents whose answers were considered too speculative (e.g., "no snitch", "right to remain silent" or "we're not gonna tell ya :)") or who showed knowledge of ban circumvention methods yet explicitly claimed to have never engaged in them or to have stopped doing so. Second, as discussed by Xiao (2023), a substantial part of mobile games available in Belgium still contain paid-for loot boxes. Respondents who stated that they were still buying loot boxes but claimed that they "did not know that this is forbidden" were therefore coded as non-counterplayers, as counterplay in our view encapsulates a *deliberate* practice to circumvent the ban rather than the (potentially unknowing and criminalized) use of loot boxes per se. Contrary to Xiao's [48] experiment, which simulated play strategies for opening loot boxes while staying within the rules of the game (albeit these rules could – unbeknownst to the player – contradict legal requirements), we focused on another group of players, namely those who knowingly bypass or subvert the game's rules. Third, as it was beyond the scope of this study to evaluate the veracity or technical feasibility of each proposed practice, entries that were vaguely worded and thus hard to pin down were classified as 'Ill-described' practices.

Two authors manually coded all data based on the specified criteria, and thematically clustered the identified methods. The degree of inter-coder agreement was measured at Cohen's k = 0.816, indicating strong agreement. Remaining inconsistencies were discussed and clarified, resulting in the final demarcation between counterplayers (N = 124) and non-counterplayers (N = 329), which then formed the basis for our exploratory profile sketch.

With regard to RQ2, independent T-tests were performed at a significance level of $\alpha = 0.05$ to compare population means between counterplayers and non-counterplayers. After an assumptions check, variables that turned out non-normally distributed were analyzed by means of non-parametric Mann-Whitney U tests. From our theorization of counterplay as both a deepening and broadening behavior to regular digital play, we then ran two multiple logistic regression analyses to explore potential predictors of counterplaying behavior after testing for multicollinearity [13,39]. Following [13], calculated odds ratios were additionally expressed as an effect size, following the following formula: d = LN (odds ratio)/1.81. Finally, loot box purchase motivations were ranked from most to least prevalent among our sample of identified counterplayers.

4 RESULTS

4.1 What Counterplay Practices are Used to Circumvent the Belgian Ban on Loot Boxes?

Regarding RQ1, 124 respondents were coded as counterplayers, showing clear knowledge of one or more ways to circumvent the Belgian ban on loot boxes. Conversely, 329 respondents were coded as non-counterplayers. Specifically, 280 respondents showed no knowledge of ban circumvention methods or implicitly admitted to acting within the confines of Belgian gambling legislation (e.g., by stating that they only purchase loot boxes through soft currencies, which is to this day a perfectly legal thing to do). A total of 35 answers were deemed irrelevant or too speculative, whereas 14 respondents showed clear knowledge of ban circumvention methods

yet explicitly claimed to have never engaged in them or to have stopped doing so. Franchises and individual titles mentioned in which counterplay occurred were the following: *FIFA* and specifically *FIFA 22* [G1], *Genshin Impact* [G6], *Roblox* [G4], *Clash Royale* [G7], *Brawl Stars* [G8], and *Apex Legends* [G3]. Counterplayers' (first-, second- or third-placed) favorite games were by far *FIFA 22* (n = 37), *GTA Online* [G5] (n = 37) and *Fortnite* [G2] (n = 33). Notably, *FIFA* publisher Electronic Arts has stopped offering FIFA Points to players in Belgium per 2019 [4].

In sum, nine different counterplay practices were identified: Relocating account (n = 59), Using VPN (n = 32), Resorting to third-party marketplaces (n = 16), Switching platforms (n = 15), Trading (n = 10), Cheating (n = 5), Resorting to physical market (n = 5), and other, Ill-described practices (n = 13). Although the identified methods are presented separately for topical clarity, some were employed in combination.

Relocating account (n = 59). Arguably the most intuitive method of circumvention was changing one's account location to a country beyond the national borders of Belgian gambling legislation. Our findings show that most frequently, respondents said to relocate their account to the Netherlands, a neighboring country which just like Belgium has Dutch as an official language. According to respondents, relocating one's account may be achieved in-game "by switching servers and restarting the game". The effectiveness and appeal of this practice depends on whether games allow progress to be shared across different regions. Many games are nowadays region-free, meaning that they can be played on a console or device purchased in one region and will function properly regardless of the region originally intended for. Restrictions may apply, however, due to various factors such as licensing agreements or localization requirements. This may hold someone back from relocating their account, since they would have to start the game they wanted to purchase loot boxes for all over again.

Alternatively, relocating one's account may be achieved across all inventoried games at once by changing the platform's settings, or by creating a second, 'alt' account dedicated to conducting financial transactions and subsequently transferring loot boxes and/or their contents to one's 'main' account (see *Trading*). The vast majority of clarifications provided by respondents related to the PlayStation Store, an overarching digital marketplace for all purchasable PlayStation content, including microtransactions such as loot boxes. To illustrate: when changing the console's location by pressing the 'Storefront Country' option in the top-right section of the PlayStation Store home page, users are immediately notified that "some content may be restricted" and that "you can only make purchases from your home country storefront". In many cases, creating a second account with another home country – yet technically on the same console in the same country – suffices to circumvent this restriction and make purchases (one example of a high-profile game where this works would be *Genshin Impact*). This is not always the case, however. Virtual currencies bought for any entry in the *FIFA* series, for instance, are not added to one's in-game funds (even though their price is detracted from one's digital wallet). This suggests that some games apply geo-blocking to implement restrictions based on Belgian players' geographic location, where other games do not.

Using VPN (n = 32). When confronted with geo-restrictions, counterplayers may opt to employ a VPN to disguise their country of origin. VPNs are free/paid-for services that secure full anonymity when browsing online by 'hiding' one's IP address and masking one's actual geographic location. By using a VPN, users can thus access different regional versions of games unaffected by Belgian legislation. Although the use of a VPN is rather self-explanatory, as evidenced by the brevity of most responses, one respondent indicated that this practice is much

easier on PC than on console (VPN programs cannot just be downloaded from console storefronts and switched on, for instance, but require a somewhat longer set-up; [54]). Another respondent wrote to "be sure to also use it for Netflix!", hinting at the now common use of VPNs for accessing not just game content but also streaming services and other online media.

Resorting to third-party marketplaces (n = 16). Sixteen respondents admitted to resorting to third-party marketplaces to either acquire loot boxes directly or to acquire the currencies needed to purchase them in-game. With the exception of two respondents explicitly referring to Discord and Amazon, none of them went into detail as to which websites, apps or platforms they used to do this, instead speaking of "American" or "external websites". While the majority of respondents in this subgroup used the term "illegal" to describe these marketplaces, two respondents called them "trustworthy", suggesting their assuredness of the legitimacy of their marketplaces of choice. Third-party marketplaces may also be used in tandem with VPNs. An elaborate example given by one respondent included using a VPN to change one's Steam account regional information to a country other than Belgium, and "then transfer money via PayPal to Steam and use that country's currency to purchase the loot box". This example illustrates how piling different loopholes onto one another may lead to legal ambiguity and regulatory ineffectiveness in holding relevant parties accountable. Put to the test, we made use of these marketplaces on two occasions: once to acquire FIFA Points for PC via *CDKeys*, and once to acquire FIFA Points for PlayStation 5. Both purchases yielded a code, which could then be redeemed in Steam and the PlayStation Store, respectively. On PlayStation 5, no money was added to our wallet. On PC, however, no issues were encountered, even with our account location set to Belgium.

Switching platforms (n = 15). We found 15 references to deliberately switching platforms for access to a particular game with loot boxes (most frequently mentioned *Genshin Impact*). Most frequently, respondents admitted to switching from console to either PC or mobile. Although it does take a degree of commitment to change one's preferred platform to another, recent efforts to expand player bases have seen more and more games implementing cross-play and cross-save features, making switching platforms less daunting. *Genshin Impact*, for instance, allows players to save their game progress across all devices the game is playable on.

Trading (n = 10). Ten respondents indicated to buy loot boxes from "friends" or "contacts overseas" who "still can buy loot boxes" and who are willing to trade them for real money. Two respondents also mentioned making use of "smurf" or "alt" accounts dedicated to receiving and opening loot boxes, the rewards of which are subsequently transferred to their "main" accounts. Trading presupposes the ability to transfer virtual items in-game from one player to another and through mutual agreement. In many popular games, this has fueled the emergence of third-party websites that act as intermediaries for financial transactions by drawing from these games' player-trading affordances (see *Resorting to third-party marketplaces*). As market demand for rare and valuable loot box rewards creates financial opportunities, some players may engage in these practices as a way to earn real money, as hinted at by one respondent who speaks of "online commerce". Games mentioned in our sample that contain such affordances include *FIFA 22, Clash Royale*, *Roblox* and *Brawl Stars*.

Cheating (n = 5). A total of five respondents referred to "hacking", "jailbreaking" their console, or "cheating" to get a hold of loot boxes, albeit leaving out the technicalities of achieving this in their writings. It can be assumed that cheating means either exploiting vulnerabilities in a game's system or employing illicit tools and modifications, both of which are explicitly against a game's terms of service. In one example, a respondent describes a

combination of practices: "I say I am older and I also use other accounts and then give them to my real account and in those other accounts [I] win in those boxes by cheating or crashing the game before anyone wins."

Resorting to physical market (n = 5). Another five respondents referred to acquiring loot boxes via physical vouchers or scratch cards, which they "sneakily" bought in dry stores and supermarkets. The process of redeeming codes received is similar to the practice of resorting to third-party marketplaces. Notably, this is the only practice that required respondents to 'go out there', effectively exiting the digital ecology of games.

Ill-described practices (n = 13). Remaining entries were vaguely worded (e.g., "different accounts" or "via the Netherlands", with many nevertheless alluding to the previously identified methods of circumvention. Notably, one respondent mentioned receiving "Google Play Store codes" from "people on YouTube", attesting to the potential role the video-sharing platform may have in shaping game consumption. Another respondent acknowledged purchasing loot boxes whenever he was "in another country, e.g., in Turkey". While it stands to reason that physical transportation is the ultimate form of circumvention, it should be noted that some games (i.e., games that are not geo-restricted) may enforce restrictions based on the country associated with one's account, regardless of one's actual physical location. Finally, one respondent disclosed "playing games that are not made in Belgium".

4.2 What Are the Differences in Depth- and Breadth-characteristics between Counterplayers and Non-counterplayers?

Regarding RQ2, our independent t-tests showed a significant difference between counterplayers and non-counterplayers regarding sense of belonging (M 6.18 vs 5.62; D1), perceived gaming ability (M 78.10 vs 63.26; D2), skin betting frequency (M 1.76 vs 1.42; B3), selling loot box rewards frequency (M 2.10 vs 1.46; B4), and (re)watching loot box opening livestreams frequency (M 3.56 vs 2.83; B1) (see Table 3). Our non-parametric Mann-Whitney U tests found a significant difference for gaming disorder (M 11.54 vs 8.74; D7) and risky loot box use (M 13.68 vs 9.62; D8) (see Table 4). Concerning persistency (D6), fun-seeking behavior (D3), reward-responsiveness (D4) as well as involvement in eSports betting (B2), however, no significant differences could be observed.

Table 3. Independent t-tests on depth- and breadth-characteristics comparing counterplayers to non-counterplayers

	Counterplayers (124)		Non-counterplayers (329)	
	M	SD	M	SD
PERCEIVED GAMING ABILITY	78.10	21.08	63.26	26.16
$F = 10.411$, $p < .001$, $t(272.832) = 6.233$, $p = < .001^{***}$, $d = -.596$				
SENSE OF BELONGING	6.18	2.44	5.62	2.68
$F = 3.518$, $p = .061$, $t(451) = 2.008$, $p = .045^*$, $d = -.212$				
PERSISTENCY	5.97	2.78	5.92	2.78
$F = 3.203$, $p = .074$, $t(450) = -.151$, $p = .880$, $d = -.016$				
FUN-SEEKING	6.30	2.33	6.21	2.40
$F = .036$, $p = .849$, $t(451) = -.385$, $p = .700$, $d = -.041$				
REWARD-RESPONSIVENESS	10.48	3.01	10.64	2.86
$F = .006$, $p = .939$, $t(451) = .533$, $p = .594$, $d = .056$				
(FREQUENCY OF) ESPORTS BETTING	1.40	1.06	1.26	.99
$F = 4.993$, $p = .026$, $t(209.313) = 1.314$, $p = .190$, $d = -.143$				
(FREQUENCY OF) SKIN BETTING	1.76	1.41	1.42	1
$F = 20.323$, $p < .001$, $t(172.014) = 2.418$, $p = .017^*$, $d = -.296$				
(FREQUENCY OF) SELLING LOOT BOX REWARDS	2.10	1.61	1.46	1.21
$F = 29.722$, $p < .001$, $t(176.427) = 3.963$, $p < .001^{***}$, $d = -.476$				
(FREQUENCY OF) (RE)WATCHING LOOT BOX OPENINGS	3.56	1.75	2.83	1.81
$F = .391$, $p = .532$, $t(450) = 3.868$, $p < .001^{***}$, $d = -.408$				

$^* = p < .05$; $^{**} = p < .01$; $^{***} = p < .001$

Table 4. Mann Whitney U tests on depth-characteristics comparing counterplayers to non-counterplayers

	Counterplayers (124)		Non-counterplayers (329)	
	M	SD	M	SD
GAMING DISORDER	11.54	6.58	8.74	5.73
$U = 15024.500$, $z = -4.221$, $p < .001^{***}$, $r = -.20$				
RISKY LOOT BOX USE	13.68	6.35	9.62	5.62
$U = 11076.500$, $z = -6.568$, $p < .001^{***}$, $r = -.31$				

$^* = p < .05$; $^{**} = p < .01$; $^{***} = p < .001$

All variables revealing significant differences between both groups were included in two logistic regression models: one comprising depth-characteristics, and one comprising breadth-characteristics (see Table 5,6). Gender and age were entered in the first block as control variables, while the other variables were entered in the second block. With regard to depth, the proposed model significantly improved the prediction ($\chi 2$ (6) = 57.968, $p < 0.001$). The Hosmer and Lemeshow Test turned out insignificant ($\chi 2 = 13.469$; $p = .097$), with Nagelkerke R-squared = .183 (as opposed to .051 for the first block including only gender and age). Our findings show that risky loot box use (OR = 1.088, $p < .001$, $d = .0466$; D8) and perceived gaming ability (OR = 1.015, $p < .05$, $d = 0.0082$; D2) predict counterplaying to a small degree (rounded calculated effect size = 5.3%). Higher scores on risky loot box use or perceived gaming ability are therefore potential predictors of counterplaying.

With regard to breadth, the proposed model significantly improved the prediction ($\chi 2$ (5) = 37.237, p < 0.001). The Hosmer and Lemeshow Test turned out insignificant ($\chi 2$ = 4.356; p = 824), with Nagelkerke R-squared = .116 (as opposed to .056 for the first block including only gender and age). Our findings show that selling loot box rewards (OR = 1.231, p < .01, d = 0.115; B4) predicts counterplaying to a moderate-small degree (rounded calculated effect size = 11.5%). A higher score on (the frequency of) selling loot box rewards for real money is therefore a potential predictor of counterplaying.

Table 5. Logistic regression model (depth) on predictors of counterplaying

	B	Wald	p	Odds Ratio
GENDER	-.589	3.480	.062	.555
AGE	-.009	0.009	.923	.991
GAMING DISORDER	.014	.440	.507	1.015
RISKY LOOT BOX USE	.085	17.388	<.001***	1.088
PERCEIVED GAMING ABILITY	.014	6.156	.013*	1.015
SENSE OF BELONGING	.039	.681	.409	1.039

*= p < .05; ** = p < .01; *** = p < .001*

Table 6. Logistic regression model (breadth) on predictors of counterplaying

	B	Wald	p	Odds Ratio
GENDER	-.890	9.447	.002**	.411
AGE	.005	.003	.955	1.005
(FREQUENCY OF) SKIN BETTING	.140	2.053	.152	1.150
(FREQUENCY OF) SELLING LOOT BOX REWARDS	.208	6.551	.010*	1.231
(FREQUENCY OF) (RE)WATCHING LOOT BOX OPENINGS	.104	2.573	.109	1.109

*= p < .05; ** = p < .01; *** = p < .001*

Finally, our findings reveal a prevalence list of loot box purchase motivations (D5) among counterplayers. Nearly half of all counterplayers were motivated by a desire to create a collection of virtual items and characters (n = 52; 41,9%), followed closely by gameplay advantages (n = 45; 36,2%) and the inherent excitement that comes with receiving unpredictable rewards (n = 42; 33,8%). Counterplayers were also motivated to purchase loot boxes to be able to change the look of their items and characters (n = 35; 28,2%). The perception that loot boxes are good value compared to having to buy rewards separately (n = 19; 15,3%), 'speeding up' progress and avoiding excessive time investment (n = 19; 15,3%), and making profit by 'cashing out' rewards in exchange for real money (n = 19; 15,3%) were three other motivations, albeit to a lesser degree. Finally, counterplayers were motivated to purchase loot boxes to financially support the developers behind games (n = 17; 13,7%).

5 DISCUSSION

This study set out to examine what counterplay practices are used to circumvent the Belgian ban on loot boxes (RQ1), and whether the depth and breadth of counterplayers' engagement with loot boxes differs from that of players who do not circumvent the ban (RQ2). Regarding RQ1, various methods of circumvention were identified, including Relocating account, Using VPN, Resorting to third-party marketplaces, Switching platforms, Trading, Cheating, Resorting to physical market, and Ill-described practices. Counterplayers appear to know how to navigate

the global digital game ecology, crossing the boundaries of national jurisdictions to exploit the discontinuity of control caused by "variance between locations" [3:120]. As it stands, few games – whether played on console, PC or mobile – seem to support effective geo-blocking strategies that restrict access to content based upon the user's geographical location. This makes it remarkably easy for counterplayers to purchase loot boxes without even needing to hide their public IP address.

Our findings largely conform to previously identified users' strategies, including the use of VPNs, the creation of 'dummy', 'alt' or 'smurf' accounts, and illicit software modification [21,46]. Our findings add to this body of research in practices unique to the gaming ecosystem such as trading. Trading not only fosters virtual economies but has also seen increasing regulatory scrutiny, particularly with regard to the valuation of in-game items through out-of-game marketplaces [17]. Although firmly planted in in-game player-trading affordances, these websites and platforms more often than not operate beyond game publishers' and developers' direct control. One can, for instance, differentiate between closed, developer-sanctioned, and developer-restricted economies in games [6], as well as consider measures taken such as trade restrictions, monitoring of player accounts, and cease and desist orders to websites and other platforms.

The relative simplicity of particular counterplay practices is further compounded by inconsistencies between platforms. Whereas each console game released in Belgium is subjected to manual review process by PEGI, PC and mobile games are released and updated on a global scale, much more frequently and often digital only via Steam (Valve), Play Store (Google) or the App Store (Apple). Because of this rapid and abundant publication mode, PC and mobile games are subjected to an automated rating and age classification system, or may not even receive a rating at all. National jurisdictions may as such experience difficulties in having centralized and global PC and mobile games comply with their regulations. Regulative hesitancy or incoherence are not only visible in the case of niche indie games, which may go unnoticed amidst the stream of games both Steam and the Google Play Store/App Store are flooded with on a daily basis, but also among gaming juggernauts. *Genshin Impact,* for instance, one of the top-grossing games worldwide, is inaccessible in Belgium to PlayStation owners (as its random reward system called Wishes falls under existing gambling legislation), yet is freely available for anyone to download and make purchases in via Steam and the Belgian App Store. Whether such inconsistencies are due to legal loopholes, regulatory oversights or plain technical matters is unclear, but it is something our respondents were clearly aware of (note: even relocating one's account suffices to circumvent this block on PlayStation).

In line with Xiao's [48] earlier assessment, it would seem that digital distribution platforms such as Steam and Apple in particular make little effort to comply with Belgian gambling legislation. One would expect both tech giants to be able to localize different regional versions of games released on their respective platforms and conform to differences in national jurisdictions worldwide. Following Douek, we argue that the continued availability of loot boxes is "downstream of more consequential choices about institutional and platform design" (cited in [20:13]). Digital distribution platforms as such have a responsibility in governing what content is sold where, especially given the commission they receive on most in-game purchases [48]. One potential solution, as suggested by Xiao [48], could be to impose new laws upon platform providers or to ask them to assist in regulating through stricter processes for uploading new games. Assessing liability, assigning blame and enforcing new regulations may entail player risk, however, as both platforms and major game publishers may opt to simply

remove games altogether rather than have them comply with Belgian gambling legislation (*Genshin Impact* being but one example).

User-generated content creators and related media that promote derivative player practices play another important role. On Twitch, YouTube and TikTok, content creators offer coupons for third-party marketplaces or make ad-filled 'how-to' videos on how to circumvent the ban. More often than not, comment sections under these videos pose communal spaces where players discuss and share their knowledge about 'what works' [53,56]. Similarly, gaming news websites and outlets inform players – who type in "how to play [game] in Belgium" on Google – of how to circumvent the ban in an effort to garner clicks [1,44]. In a clumsy state of affairs, some developers may even do this themselves, as evidenced by Blizzard's statement around the release of Diablo Immortal that "it would be illegal to download the game in another country like France" or that "in similar situations in the past where RNG lootboxes were against the law in certain countries [they] did not ban any players for it" [20]. Several questions thus remain unanswered with regard to the sociability of ban circumvention, and counterplay more broadly. Unless explicitly mentioned by respondents, it was beyond our capabilities to estimate *where* they got their knowledge. As the process of counterplay is localized, counterplayers rely on a specific body of knowledge in an ecology that "affords teaching and learning experiences", including "developing a 'literate' command over new digital, interactive media" [3:125]. Future investigations may explore the determining role of local communities in constructing, sharing and activating such know-how, along with the industry's awareness of this, to develop a full picture of all actors involved. The fact that counterplayers appear to differentiate themselves through their preference for PC and console gaming and AAA games (in which the enforcement of the Belgian ban is generally effective), while non-counterplayers favor smartphone games (in which the ban largely remains unenforced), is another argument for considering them as a subgroup with specific interests and skills, at the high end of game culture.

With regard to RQ2, we found that counterplayers experienced greater sense of belonging to an online community, perceived gaming ability, gaming disorder and risky loot box use than non-counterplayers. Counterplayers also engaged in skin betting, selling loot box rewards and (re)watching loot box opening livestreams more frequently. Counterplayers as such appear to differentiate themselves from non-counterplayers both in terms of the depth and the breadth of their engagement with loot boxes and games more broadly.

Perceived gaming ability, risky loot box use and the frequency with which one sells loot box rewards for real money were identified as relevant predictors in two multiple logistic regression models (comprising depth- and breadth-characteristics respectively) discriminating counterplayers from non-counterplayers, albeit to a small degree. One potential explanation for the limited magnitude of our calculated effect sizes could be our study design. Our results rest on the axiom that the 124 counterplayers and 329 non-counterplayers meaningfully represent their respective groups. The demarcation between counterplayers and non-counterplayers we opted for was strict because it resulted in a bare minimum of counterplayers that had *proven* themselves. While such an approach yields greater certainty and eliminates interpretation of overly speculative written responses, it may also 'flatten' any statistical comparisons made as less forthcoming counterplayers were likely grouped in our comparison group.

In terms of counterplayers' intensified play, not all depth-characteristics turned out decisive. Surprisingly, none of the BAS subscales – fun-seeking, reward-responsiveness and persistency in the pursuit of desired goals – differed significantly between counterplayers and non-counterplayers. Given the role such personality traits have been attributed in media and

pediatric studies in making what is forbidden more desirable among youths (also called the 'forbidden fruit' effect; [9]), this can be indicated as remarkable. Future research may opt to include extra personality traits, including impulsivity and sensation-seeking.

Both age and gender, used as control variables in our logistic regression models, have ambiguous roles at best. It is difficult to establish reliable relationships with the outcome variable of counterplaying given the limited variability – in gender representation in particular – within our sample. Identifying and including additional variables may uncover different levels of significance and gender-related associations, although this is preferably done out of theoretical considerations. We may speculate, for instance, about why there are proportionally fewer women among counterplayers than non-counterplayers. Depending on the content that is being restricted, female gamers may be more or less likely to resist government restrictions perhaps [30]. Future research could therefore focus on creating broader and more diverse samples to investigate potential age- or gender-related associations, as well as pursue contextualized accounts of ban circumvention in particular games and communities of players.

Another finding is the – albeit limited – role of risky loot box use. Brooks and Clark [11] found that risky loot box use – as measured by the Risky Loot Box Index through items that assess inability to stop and tendency to chase losses among others – positively correlates with gambling-related cognitions as well as problem gambling symptomatology. Several studies have also distinguished a link between risky loot box use and purchasing behavior [18,23,26]. Given the relative smallness of the calculated effect size, two possible explanations for the association found in this study are – cautiously – put forward: players who always knew how to circumvent the ban now show signs of risky behavior due to continued exposure, or players showing signs of risky behavior have started looking for and have found ways to circumvent the ban. Both explanations are impossible to ascertain given the cross-sectional nature of our study, however, and are likely to be compounded by the interplay of confounding variables that may explain both risky loot box and counterplaying among the most dedicated of players. Future longitudinal follow-up studies need to delve deeper into this aspect, as there is abundant room for further progress in determining which variables are at play here.

In terms of the breadth of activities associated with counterplaying, we discovered that the likelihood of selling loot box rewards for real money is somewhat linked to players' inclination to bypass the Belgian ban on loot boxes. It is important to note that only a limited number of games permit the exchange of in-game items for actual currency, and that this is typically facilitated by largely unregulated third-party marketplaces. To some degree amongst some counterplayers, therefore, the promise of financial gain may be what leads them to circumvent any technical restriction they encounter. Theoretically, this relativizes Apperley's romanticization of counterplay as a politically-motivated fight for inclusion. In reality, third-party marketplaces may have made a virtual item's financial worth a key driver for some counterplayers.

Part of what may drive counterplayers was explored by assessing their motivations to buy loot boxes. Our results reveal a clear prevalence of reoccurring motivations, the most dominant being completing a collection of virtual items, followed closely by receiving gameplay advantages. The ability to make profit by 'cashing out' also appeared more dominant than in earlier motivational studies [14,37,51]. For players who know how to circumvent the ban, it is fair to say that the fulfilment of such motivations has remained unchanged between 2018 and now. For players who do not, however, particular games – especially the 'grindy' ones designed to alleviate excessive time-investment through financial expenditure – seem to have become

even 'grindier'. The 'need' to grind may therefore become even more salient and indirectly force competitive players in particular to spend more time in a game than before the ban. Even so, it is important to distinguish motivation to buy loot boxes from motivation to circumvent the ban, the latter which this study did not *explicitly* measure. Although the excitement of opening loot boxes turned out to be an important motive, counterplayers may not circumvent the ban with the sole purpose of buying loot boxes. In specific cases, for instance, they may circumvent the ban to be able to play particular games that have been banned in their entirety (such as *Genshin Impact*, as discussed above), and only start buying loot boxes in the process of playing them. Research on the *what* and *who* of loot box ban circumvention would therefore benefit from further, deeper inquiries into the *why* to ascertain the psychological and social profile of counterplayers. Future work may depart from the evidence we sought to provide.

Coincidentally, exploring what is essentially a covert, derivative and oftentimes oppositional behavior by means of self-reported survey-based research poses limitations of its own next to social desirability. Through sheer playfulness, the counterplayers we sought to examine may not be held back by Belgian legislation, nor our survey rules. Perhaps there were more counterplayers such as the ones 'counterplaying' the survey by stating that they identified as a "toaster", the ones answering "no snitch", or the ones who simply skipped the question altogether because they did not feel like filling out "this fucking thing". This makes it hard to reliably estimate the prevalence of loot box ban circumvention in Belgium – or any covert online behavior for that matter. Future research may therefore opt to build on these insights by accessing digital trace data through industry collaboration, tracking tools or APIs [5]. While counterplay is arguably a niche activity, its social significance ought not to be understated given the pervasive nature of a technical limitation that affects *all* players in Belgium and that is oriented towards protecting an even smaller, vulnerable segment of players.

'Countering' counterplay is a multi-faceted undertaking that involves many actors and is largely dependent on the ease with which counterplayers may circumvent the Belgian ban on loot boxes. Researchers across HCI and related fields may therefore conduct player studies to better understand players' motivations, develop design guidelines that discourage ban circumvention, increase player awareness by providing educational resources, and explore the use of technology-assisted detection methods through machine-learning [35]. Game developers and publishers may consider mechanisms that prevent any of the identified practices such as functional geo-restrictions, checks for VPN use or IP addresses of known VPN providers, robust monitoring of unauthorized trading [57:23], and closer collaborations with regulatory bodies in Belgium – aside from developing consumer-friendly and ethical monetization practices [10]. Digital distribution platforms, meanwhile, have a duty to adhere to local law, something which they have so far neglected to do [48]. Not all solutions can be derived from a game's interface, underlying system and overarching regulations, however. The ecosystem in which contemporary gaming takes place also calls for ancillary media and user-generated content producers to refrain from advertising unregulated marketplaces and promoting illegal practices. Players fulfill a final role in this, of course. Adding to the recognition of counterplay as "something many players conduct and experience", players who knowingly circumvent the Belgian ban on loot boxes likely do so because they have "chosen to play with rules for reasons, and with awareness of the stakes and penalties" [33].

6 CONCLUSIONS

Drawing from the concept of counterplay, the objective of this study was to examine the *what* and *who* of loot box ban circumvention. It was found that counterplayers resist regulatory arrangements in a myriad of ways – from rather straightforward solutions such as relocating one's account to illicit software modification –, crossing the boundaries of national jurisdictions as they see fit. The question of how impeding a national ban on loot boxes truly is, as such cannot be disentangled from the global ecology in which games are nowadays played and governed.

Counterplayers appeared to differentiate themselves from non-counterplayers both in terms of the depth and breadth of their engagement with loot boxes and games more broadly, endorsing particular motivations for purchasing loot boxes. Specifically, our findings suggest that counterplayers experience greater sense of belonging to an online community, perceived gaming ability, gaming disorder and risky loot box use. Counterplayers also appeared to engage in skin betting, selling loot box rewards, and (re)watching loot box opening livestreams more frequently. Within these diverging depth- and breadth-characteristics, risky loot box use and perceived gaming ability were shown to be predictors of counterplaying. These results emphasize the potential for mixed-methods research on covert, online player behavior: on the one hand, counterplay allows for considering loot box use in broad spectrum of practices, thereby contributing to its conception as a complex, cultural issue. On the other hand, exploring culturally-oriented concepts through quantitative research may add to their operationalization and inspire further empirical work.

It is our hope that our results may add to the debate on the (self-)regulatory treatment of loot boxes and the protection of (underage) players from harm. Returning to our proposed explanations as discussed above, we find that both could imply that the ban does not apply to those who would benefit most from it. Our findings may thus inform the regulatory treatment of loot boxes, e.g., with regard to the technicalities of content moderation and whom regulation and prevention endeavors should target in the first place. Another avenue would be to explore regulatory action departing from a thematically broader and transnational consumer protection paradigm, as opposed to a blanket ban rooted in nationally-fragmented gambling legislation. Counterplay ultimately calls into question the effectiveness and enforceability of a national ban in global game ecology, adding further complexity to the societal debate on 'what to do about loot boxes'.

A APPENDIX

Table 7. Depth-characteristics D3,4,6, translated in Dutch

	Niet waar	Een beetje waar	Waar	Helemaal waar
D3				
Ik ben altijd bereid om iets nieuws te proberen, als ik denk dat het leuk zal zijn.	☐	☐	☐	☐
Ik doe dingen vaak om geen andere reden dan dat ze leuk zouden kunnen zijn.	☐	☐	☐	☐
Ik doe dingen vaak in een opwelling (= impulsief, zonder na te denken).	☐	☐	☐	☐
Ik verlang naar spanning en nieuwe ervaringen.	☐	☐	☐	☐
D4				
Als ik ergens goed in ben, blijf ik dit graag doen.	☐	☐	☐	☐
Ik voel me vol energie als ik iets krijg dat ik wil.	☐	☐	☐	☐
Ik word heel enthousiast als ik een kans zie om iets te krijgen dat ik leuk vind.	☐	☐	☐	☐
Ik vind het spannend als er goede dingen met me gebeuren.	☐	☐	☐	☐
Ik zou heel enthousiast zijn als ik een wedstrijd zou winnen.	☐	☐	☐	☐
D6				
Ik doe er alles aan om de dingen te krijgen die ik wil.	☐	☐	☐	☐
Als ik iets wil, ga ik er meestal helemaal voor.	☐	☐	☐	☐
Als ik een kans zie om iets te krijgen dat ik wil, ga ik er meteen voor.	☐	☐	☐	☐
Niemand kan me tegenhouden als ik iets wil.	☐	☐	☐	☐

Adapted from: Peter Muris, Cor Meesters, Elske de Kanter, and Petra Eek Timmerman. 2005. Behavioural inhibition and behavioural activation system scales for children: relationships with Eysenck's personality traits and psychopathological symptoms. *Personality and individual Differences*. 38, 4 (March 2005), 831–841. https://doi.org/10.1016/j.paid.2004.06.007

D5   Waarom koop je lootboxes? Je mag hier meerdere antwoorden aanduiden.

☐ Gameplayvoordelen (bv om beter worden in het spel, om even goed of beter te spelen dan andere spelers).

☐ Om specifieke items en/of personages te verkrijgen en/of om een verzameling te vervolledigen.

☐ Voor het plezier en/of de spanning van het openen van de lootbox zelf.

☐ Omwille van uiterlijk vertoon (bv om de look van je karakters aan te passen, om erbij te horen of net om uniek te zijn ten opzichte van andere spelers).

☐ Om de ontwikkelaars van de game en/of de game zelf te steunen.

☐ Omdat ik zo waar voor mijn geld krijg (je maakt bijvoorbeeld kans op betere items voor een lagere prijs, dan wanneer je ze los koopt).

☐ Omwille van de tijd (je geraakt bijvoorbeeld sneller vooruit in het spel).

☐ Om winst te maken (bv door de items uit de lootbox door te verkopen).

Adapted from: David Zendle, Rachel Meyer, and Harriet Over. 2019. Adolescents and loot boxes: links with problem gambling and motivations for purchase. *Royal Society Open Science*. 6, 6 (June 2019), 1-18. https://doi.org/10.1098/rsos.190049

Table 8. Depth-characteristic D7, translated in Dutch

	Helemaal niet akkoord	Niet akkoord	Niet oneens, noch eens	Akkoord	Helemaal akkoord
D7					
Ik game vaak meer en langer dan ik van plan was of met mijn ouders had afgesproken.	☐	☐	☐	☐	☐
Ik kan vaak niet stoppen met gamen, ook al zou het verstandig zijn om dat te doen of hebben mijn ouders gezegd dat ik moet stoppen.	☐	☐	☐	☐	☐
Ik heb vaak geen interesses buiten de digitale wereld (bv. afspreken met vrienden in het echte leven, naar (sport)clubs gaan, boeken lezen, muziek maken) omdat ik liever game.	☐	☐	☐	☐	☐
Ik verwaarloos dagelijkse taken (bv. boodschappen doen, schoonmaken, opruimen, verplichtingen voor school/stage/job) omdat ik liever game.	☐	☐	☐	☐	☐
Ik ga vaak door met gamen, ook al veroorzaakt het stress bij anderen (bv. bij mijn ouders, broers en zussen, vrienden, partner, leraren).	☐	☐	☐	☐	☐
Ik ga door met gamen, hoewel het mijn prestaties op school/stage/job beïnvloedt (bv. door te laat te komen, niet deel te nemen aan de les, huiswerk te verwaarlozen, slechtere cijfers).	☐	☐	☐	☐	☐
Door het gamen verwaarloos ik mijn uiterlijk, mijn persoonlijke hygiëne en/of mijn gezondheid (bv. met betrekking tot slaap, voeding, lichaamsbeweging).	☐	☐	☐	☐	☐
Door het gamen loop ik het risico belangrijke relaties (vrienden, familie, partner) te verliezen of ben ik ze al kwijt.	☐	☐	☐	☐	☐
Vanwege het gamen ondervind ik nadelen op mijn school/stage/job (bv. slechte punten, blijven zitten, waarschuwing/ontslag).	☐	☐	☐	☐	☐

Table 9. Depth-characteristic D8, translated in Dutch

	1 Helemaal niet akkoord	2	3	4	5	6	7 Helemaal akkoord
D8							
De sensatie van het openen van loot boxes heeft me aangemoedigd om meer te kopen.	☐	☐	☐	☐	☐	☐	☐
Ik speel games vaak langer dan ik van plan ben, zodat ik loot boxes kan verdienen.	☐	☐	☐	☐	☐	☐	☐
Ik heb andere activiteiten, werk of klusjes uitgesteld om meer loot boxes te kunnen verdienen of kopen.	☐	☐	☐	☐	☐	☐	☐
Als ik eenmaal een loot box open, voel ik me vaak gedwongen om er nog een te openen.	☐	☐	☐	☐	☐	☐	☐
Ik heb meer loot boxes gekocht nadat ik geen waardevolle items had ontvangen.	☐	☐	☐	☐	☐	☐	☐

Adapted from: Gabriel A. Brooks and Luke Clark. 2019. Associations between loot box use, problematic gaming and gambling, and gambling-related cognitions. *Addictive behaviors.* 96, (September 2019), 26–34. https://doi.org/10.1016/j.addbeh.2019.04.009

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