

# Electronic Supplementary Material

## ESM 1. Risk Characteristics Checklist for Games (RCCG, English language version)

Florian Rehbein<sup>1</sup>, Douglas A. Gentile<sup>2</sup>, Jeroen Lemmens<sup>3</sup>, Hans-Jürgen Rumpf<sup>4</sup>

<sup>1</sup> FH Münster – University of Applied Sciences, Münster, Germany

<sup>2</sup> Iowa State University, Department of Psychology, Ames, USA

<sup>3</sup> University of Amsterdam, Amsterdam School of Communication Research, Amsterdam, Netherlands

<sup>4</sup> University of Lübeck, Department of Psychiatry and Psychotherapy, Lübeck, Germany

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### Application:

The RCCG can be used to capture, describe and evaluate specific structural game characteristics which can be expected to contribute to the overall risk of problematic gaming. The RCCG can be applied to games of different genres, for online and offline games and for mobile games as well as those played on stationary systems.

### A) General information

<b>A1. Game title, Publisher</b>
<b>A2. Test date</b>
<b>A3. Game version (build)</b>

<b>A4. Genre</b>	
<b>Main-Genre</b>	<b>Sub-Genre</b>
<input type="radio"/> <b>Brain and Skill</b>	<input type="radio"/> Card games <input type="radio"/> Puzzle games <input type="radio"/> Board games <input type="radio"/> Quiz games <input type="radio"/> Skill games <input type="radio"/> Fitness games <input type="radio"/> Music games

## Electronic Supplementary Material

	<input type="radio"/> Party games
	<input type="radio"/> Hidden object games <input type="radio"/> Game collections
<input type="radio"/> <b>Sports</b>	<input type="radio"/> Sports games
<input type="radio"/> <b>Racing</b>	<input type="radio"/> Racing games
<input type="radio"/> <b>Simulation</b>	<input type="radio"/> Simulation and construction games <input type="radio"/> Life simulation games <input type="radio"/> Business simulation games <input type="radio"/> Sandbox physics games <input type="radio"/> Flight simulation games
<input type="radio"/> <b>Action and adventure</b>	<input type="radio"/> Action-Adventure games <input type="radio"/> Platform games <input type="radio"/> Adventure games <input type="radio"/> Action games <input type="radio"/> Survival games <input type="radio"/> Arcade games <input type="radio"/> Beat 'em up games
<input type="radio"/> <b>Shooter</b>	<input type="radio"/> First-person shooter games <input type="radio"/> Third-person shooter games <input type="radio"/> Shoot 'em up games <input type="radio"/> MOBA shooter games <input type="radio"/> Battle royale shooter games <input type="radio"/> Survival games
<input type="radio"/> <b>Strategy</b>	<input type="radio"/> Strategy games <input type="radio"/> Real time strategy games <input type="radio"/> MOBA strategy
<input type="radio"/> <b>Role-playing</b>	<input type="radio"/> Role playing games <input type="radio"/> Action role playing games <input type="radio"/> MMORPGs
<input type="radio"/> <b>No clear assignment to genre possible</b>	<b>Please describe the general game content:</b>

## Electronic Supplementary Material

<b>A5. Currently the game can be played on the following platforms (multiple entries possible)</b>					
<i>PlayStation</i>	<i>XBOX</i>	<i>Nintendo</i>	<i>PC/MAC</i>	<i>Mobile</i>	<i>Browser</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<b>A6. Platform(s) used for this test (multiple entries possible)</b>					
<i>PlayStation</i>	<i>XBOX</i>	<i>Nintendo</i>	<i>PC/MAC</i>	<i>Mobile</i>	<i>Browser</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<b>A7. Online content</b>		
<i>Online game with no significant offline game content</i>	<i>Game with online and offline game content</i>	<i>Offline game with no significant online game content</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<b>A8. Age classifications</b>						
<i>USK</i>	<b>0+</b> <input type="radio"/>	<b>6+</b> <input type="radio"/>	<b>12+</b> <input type="radio"/>	<b>16+</b> <input type="radio"/>	<b>18+</b> <input type="radio"/>	<b>Not rated</b> <input type="radio"/>
<i>PEGI</i>	<b>3+</b> <input type="radio"/>	<b>7+</b> <input type="radio"/>	<b>12+</b> <input type="radio"/>	<b>16+</b> <input type="radio"/>	<b>18+</b> <input type="radio"/>	<b>Not rated</b> <input type="radio"/>
<i>ESRB</i>	<b>0+</b> <input type="radio"/>	<b>10+</b> <input type="radio"/>	<b>13+</b> <input type="radio"/>	<b>17+</b> <input type="radio"/>	<b>18+</b> <input type="radio"/>	<b>Not rated</b> <input type="radio"/>

<b>A9. Monetization model</b>			
<i>Buy-to-play (no additional in-game purchases)</i>	<i>Buy-to-play (additional in-game purchases)</i>	<i>Pay-to-play (paid subscription)</i>	<i>Free-to-play (Freemium Model)</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Electronic Supplementary Material

## B) Structural similarities to gambling

<p><b>B1. Players can purchase randomly or unpredictably<sup>1</sup> awarded in-game rewards<sup>2</sup> (e.g., loot boxes)...</b></p> <ul style="list-style-type: none"> <li>- in exchange for real-money stakes or</li> <li>- in exchange for virtual value equivalent (e.g., virtual currency), which <u>can</u><sup>3</sup> be bought in exchange for real money.</li> </ul>		
<p><b>This feature is:</b></p>	<input type="radio"/> included	<input type="radio"/> not included
<p><i>Where appropriate, provide further explanation:</i></p>		

## C) Risk-increasing structural game characteristics

<p><b>C1. Please state for each of the reward categories<sup>4</sup> listed below if they are present in the game.</b></p> <p><b>State “yes” if a reward category is at least <u>potentially available</u> to a player in any part or stage of the game. Obtainable rewards must also be regarded as available; for instance, they may be obtainable through purchases or further processing of raw materials, resources or materials.</b></p>		
<b>General</b>		
Points (general score, e.g., high score)	<input type="radio"/> yes	<input type="radio"/> no
Awards (e.g., achievements, trophies, badges, or similar)	<input type="radio"/> yes	<input type="radio"/> no
Placements on a ranking list	<input type="radio"/> yes	<input type="radio"/> no
Collectibles (the objective is usually to find, receive and collect as many of these collectibles as possible)	<input type="radio"/> yes	<input type="radio"/> no
Permanent individual performance/achievement statistics (e.g., number of kills, distance traveled, places discovered / visited, etc.)	<input type="radio"/> yes	<input type="radio"/> no

<sup>1</sup> Explanation of “randomly” or “unpredictably”: the decisive factor here is that players cannot precisely predict which rewards they will receive. The impression of unpredictability does not necessarily have to be based on real mathematical randomness.

<sup>2</sup> Rewards are positively experienced game events in which players usually receive or achieve something in a game (see C1 for reference). Rewards do not necessarily imply an advantage for the player's success.

<sup>3</sup> It's not relevant here, whether the virtual value equivalent can also be acquired without purchases (e.g., through game actions or waiting time).

<sup>4</sup> Reward categories are homogeneous groups of rewards that can be distinguished from one another in terms of their advantages for the players (e.g., different items can be found in the game. With some of these items, such as a stick, knife, axe, and pistol, players can damage other game characters – these are all part of the reward category “weapons”).

## Electronic Supplementary Material

## Electronic Supplementary Material

<b>Experience Points &amp; Levels</b>		
Experience points, or similar (e.g., needed to advance in experience level)	<input type="radio"/> yes	<input type="radio"/> no
Progression in experience level <sup>5</sup> , or similar	<input type="radio"/> yes	<input type="radio"/> no
<b>Improvement of avatar<sup>6</sup> attributes (progression of skills)<sup>7</sup></b>		
Total capacity of life energy, acceleration of its regeneration, or similar	<input type="radio"/> yes	<input type="radio"/> no
Endurance / Condition / Stamina, acceleration of its regeneration, or similar	<input type="radio"/> yes	<input type="radio"/> no
Positive avatar states, or similar (e.g., rested, full, hydrated, happy, awake, in love)	<input type="radio"/> yes	<input type="radio"/> no
Power/ Strength, or similar	<input type="radio"/> yes	<input type="radio"/> no
Dexterity, or similar	<input type="radio"/> yes	<input type="radio"/> no
Intelligence, hacking skills, science skills, or similar	<input type="radio"/> yes	<input type="radio"/> no
Communication, persuasiveness, additional dialogue options, or similar	<input type="radio"/> yes	<input type="radio"/> no
Attack and / or defense, or similar (aim better, more damage per hit, spells, etc.)	<input type="radio"/> yes	<input type="radio"/> no
Armor, damage tolerance, or similar	<input type="radio"/> yes	<input type="radio"/> no
Specific resistance or immunity (e.g., to cold, heat, electricity, radiation, pathogens, or similar)	<input type="radio"/> yes	<input type="radio"/> no
Locomotion skills or similar (running, sneaking, swimming, diving, driving, riding, flying, climbing, jumping, etc.)	<input type="radio"/> yes	<input type="radio"/> no
<b>Objects (Items)</b>		
Raw materials, resources, or similar (often not directly usable, often used for possible further processing)	<input type="radio"/> yes	<input type="radio"/> no
Refined raw materials, resources, or similar (e.g., iron extracted from ore and coal)	<input type="radio"/> yes	<input type="radio"/> no
Weapons	<input type="radio"/> yes	<input type="radio"/> no
Improvements for weapons, or similar (e.g., weapon parts, weapon modifications or upgrades, spells for weapons, etc.)	<input type="radio"/> yes	<input type="radio"/> no

<sup>5</sup> Experience levels are progress systems in which the player can reach higher levels bit by bit. Level systems can differ in terms of other rewards connected to the level (e.g., reinforcement of attributes, unlocking new game modes, unlocking new equipment, etc.).

<sup>6</sup> The avatar is the main digital representation of the player in the game. It can be human, human-like, an animal, a creature or even an inanimate object (e.g., car, vehicle, etc.). In some games, the player is represented by an “invisible instance” (e.g., commander, god, etc.).

<sup>7</sup> In some games, these improvements are triggered by receiving other rewards (e.g., a special saddle found in a game improves riding skills).

## Electronic Supplementary Material

Ammunition, or similar. (e.g., magazines, cartridges, arrows, bolts, etc.)	<input type="radio"/> yes	<input type="radio"/> no
Improvement for ammunition, or similar (e.g., poison for arrows, higher penetration of bullets)	<input type="radio"/> yes	<input type="radio"/> no
Tools	<input type="radio"/> yes	<input type="radio"/> no
Improvements for tools, or similar (e.g., tool parts, tool modifications or -upgrades, magic spells for tools)	<input type="radio"/> yes	<input type="radio"/> no
Skins (textures, e.g., for weapons, characters or similar)	<input type="radio"/> yes	<input type="radio"/> no
Vehicles / Mounts (e.g., car, truck, motorcycle, aircraft, watercraft, horses, etc.)	<input type="radio"/> yes	<input type="radio"/> no
Improvements for vehicles / mounts (e.g., tuning parts, vehicle modifications, saddles, etc.)	<input type="radio"/> yes	<input type="radio"/> no
Attributes / capabilities of vehicles / mounts can increase (e.g., speed, performance, strength, endurance etc.)	<input type="radio"/> yes	<input type="radio"/> no
Animals, creatures, or similar <sup>8</sup> (e.g., pets or accompanying animals, no mounts)	<input type="radio"/> yes	<input type="radio"/> no
Additional items for animals, creatures, or similar (Collar, leash, clothing, food, etc.)	<input type="radio"/> yes	<input type="radio"/> no
Attributes / abilities of animals, creatures, or similar can increase (e.g., speed, performance, strength, endurance etc.)	<input type="radio"/> yes	<input type="radio"/> no
Buildings, houses, apartments, or similar	<input type="radio"/> yes	<input type="radio"/> no
Remedies e.g., potions, medicine, bandages, medical packs, food, drinks etc. (regenerate, restore, revive health)	<input type="radio"/> yes	<input type="radio"/> no
Clothes	<input type="radio"/> yes	<input type="radio"/> no
Protective equipment / shields (protective shield, armor-plating, body armor, helmet, etc.)	<input type="radio"/> yes	<input type="radio"/> no
Equipment or similar (not clothing, not weapons, not tools; e.g., backpack, telescope, compass, camera, sensor, night vision device)	<input type="radio"/> yes	<input type="radio"/> no
Documents, or similar (e.g., letters, emails, messages, treasure maps, numerical codes)	<input type="radio"/> yes	<input type="radio"/> no
Keycards, keys or similar	<input type="radio"/> yes	<input type="radio"/> no
Machines, production plants, conveyor belts, etc.	<input type="radio"/> yes	<input type="radio"/> no
Building materials and building segments (e.g., cement, wall, door, etc.)	<input type="radio"/> yes	<input type="radio"/> no

<sup>8</sup> If new items or skills become available through the acquisition of animals, creatures etc., these should also be checked in the questionnaire.

## Electronic Supplementary Material

Food and / or drinks (prevent starvation and / or thirst)	<input type="radio"/> yes	<input type="radio"/> no
Consumable items in order to increase skills for a certain period of time (potions, medication, alcohol, drugs, etc.)	<input type="radio"/> yes	<input type="radio"/> no
Consumable items in order to permanently improve/increase skills (e.g., read books to learn skills)	<input type="radio"/> yes	<input type="radio"/> no
Furnishings, or similar (e.g., furniture, decoration, etc.)	<input type="radio"/> yes	<input type="radio"/> no
People, groups of people, soldiers, occupational groups, or similar (may or may not be directly controllable, e.g., companions, soldiers, units)	<input type="radio"/> yes	<input type="radio"/> no
Additional items for people, groups of people, soldiers, occupational group, or similar (e.g., weapon, clothing, equipment etc.)	<input type="radio"/> yes	<input type="radio"/> no
Attributes/ abilities of people, groups of people, soldiers, occupational group, or similar can increase (e.g., damage, speed, performance, strength, endurance)	<input type="radio"/> yes	<input type="radio"/> no
<b>In-game currency</b>		
Virtual money that refers to real currencies (e.g., euros, dollars, ...)	<input type="radio"/> yes	<input type="radio"/> no
Virtual money that refers to fictional or unspecified currencies (e.g., money, coins, bills, etc.)	<input type="radio"/> yes	<input type="radio"/> no
Virtual valuables (e.g., gold, silver, jewels, gemstones, diamonds, pearls, etc.)	<input type="radio"/> yes	<input type="radio"/> no
<b>Progression in the game unlocks additional features</b>		
As the game progresses, additional levels of difficulty can be unlocked (e.g., after the game has been completed, a new level of difficulty is added, or a ranked mode is available as soon as a certain level of experience is reached, etc.)	<input type="radio"/> yes	<input type="radio"/> no
As the game progresses, additional maps, game areas, dungeons, areas, regions, city districts, race tracks, stadium, or arenas can be unlocked	<input type="radio"/> yes	<input type="radio"/> no
As the game progresses, additional areas can be made visible on a game world map (explore new areas in open world format)	<input type="radio"/> yes	<input type="radio"/> no
As the game progresses, additional tasks, game sections, missions, aims, quests, leagues can be unlocked	<input type="radio"/> yes	<input type="radio"/> no
As the game progresses, additional people, animals, creatures, pets, figures, characters, character classes, or similar can be unlocked (e.g., after a different section of the game, a new character is available, unlocking new champions / heroes, etc.)	<input type="radio"/> yes	<input type="radio"/> no

**C2. Describe all other reward categories available in the game, which cannot be clearly assigned to C1 (reward categories already listed in C1 are not listed here again).**

1.

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## Electronic Supplementary Material

3.
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10.

**Total Number of reward categories (as stated in C1 and C2):** \_\_\_\_\_

<b>C3. Looting and loot boxes</b>		
Players can randomly or unpredictably <sup>2</sup> receive rewards by looting (exploiting, searching) objects, bodies, search locations, etc.	<input type="radio"/> yes	<input type="radio"/> no
Players can randomly or unpredictably <sup>2</sup> receive rewards by opening loot boxes, treasure chests, card decks, etc.	<input type="radio"/> yes	<input type="radio"/> no

<b>C4. Rewards can be lost<sup>9</sup> during the game</b>		
Rewards can be lost (e.g., acquired game items, in-game currency, etc.).	<input type="radio"/> yes	<input type="radio"/> no
Players can completely lose at least all rewards of one reward category (e.g., lose all acquired weapons).	<input type="radio"/> yes	<input type="radio"/> no
Players can lose practically all rewards achieved in the game (Permadeath).	<input type="radio"/> yes	<input type="radio"/> no

<b>C5. Rewards can be lost<sup>9</sup> during absence</b>		
During absence, players may miss out on reward opportunities (e.g., daily quest, short-term offers).	<input type="radio"/> yes	<input type="radio"/> no
Rewards can be lost during absence (e.g., acquired game items, in-game currency, etc.).	<input type="radio"/> yes	<input type="radio"/> no
During absence, players can completely lose at least all rewards of one reward category (e.g., losing all acquired weapons).	<input type="radio"/> yes	<input type="radio"/> no
During absence, players can lose practically all rewards achieved in the game (Permadeath).	<input type="radio"/> yes	<input type="radio"/> no

<sup>9</sup> Loss is defined by losing a reward without receiving anything in return. This does not include spending game currency, consumption of game goods or lost ranks.

## Electronic Supplementary Material

## Electronic Supplementary Material

<b>C6. Simulated gambling</b>		
Is gambling simulated anywhere in the game (e.g., poker, blackjack, casino games, slot machines, sports betting, or other existing forms of gambling)? Abstract representations without direct reference to real forms of gambling are not to be included.	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Provide clear information about which games of chance are simulated in which way and in what part of the game. Also, consider how strongly gambling is featured in the game compared to non-gambling activities.		
<b>C7. In-game purchases</b>		
In-game purchases in exchange for real money are possible.	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Provide clear information about the maximum costs that can be spent on in-game purchases by a player in the game as a whole (sum of all possible purchases. If purchases can be repeated indefinitely, state "unlimited").		
<b>C8. Detailed assessment of in-game purchases (only to be completed for games with possible in-game purchases)</b>		
<input type="radio"/> Does not apply: In-game purchases are not possible.		
In-game purchases that do not affect game success are possible.	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Provide meaningful and complete information about possible purchases and associated costs, the maximum cost for individual purchases, and the maximum amount that can be spent on purchases by one player as a whole.		
In-game purchases that directly or indirectly increase the player's success are possible (e.g., in-game purchases that facilitate progress in the game or help to win fights in the game).	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Provide clear information about possible purchases and associated costs, the maximum cost for individual purchases, and the maximum amount that can be spent on purchases by one player as a whole.		

## Electronic Supplementary Material

Is it possible to purchase virtual game currency (s) (e.g., euro, dollar, money, coins, gold, silver, jewels, gemstones, diamonds, pearls, etc.)?	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Please provide clear information about possible purchases and associated costs, the maximum cost for individual purchases, and the maximum amount that can be spent on purchases by one player as a whole.		
Other in-game purchases that cannot be allocated to the points outlined above are possible.	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Please provide clear information about possible purchases and associated costs, the maximum cost for individual purchases, and the maximum amount that can be spent on purchases by one player as a whole.		

<b>C9. Reselling of in-game rewards. At least one reward category can be exchanged...</b>		
for virtual game currency or another virtual value equivalent, which can be sold in exchange for real money.	<input type="radio"/> yes	<input type="radio"/> no
for real money (e.g., auction, sell, use as a (game) stake for real monetary gain).	<input type="radio"/> yes	<input type="radio"/> no

<b>C10. Extensive gaming awards</b>		
Do players get awards (achievements, trophies, medals, or similar) that can only be achieved through a particularly long gaming time?	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Please provide clear information about which achievements / awards can be achieved, which conditions have to be met and how much gaming time players are likely to need to achieve these achievements.		

<b>C11. Relevance of cooperative social interactions (only to be specified for games that can be characterized as an online game or that include an online game mode).</b>		
<input type="radio"/> Does not apply: No online game or online game mode.		
Social cooperation is optional. However, all tasks in the game can just as easily be accomplished alone.	<input type="radio"/> yes	<input type="radio"/> no
Social cooperation with other players makes it easier to play or fulfill certain game tasks.	<input type="radio"/> yes	<input type="radio"/> no
Social cooperation is imperative to complete certain tasks, earn rewards or to advance in the game in a reasonable manner.	<input type="radio"/> yes	<input type="radio"/> no

# Electronic Supplementary Material

## D) Harm minimization features

<b>D1. Feedback on gaming time</b>		
Does the game provide feedback on the gaming time or provide warning messages after longer periods of uninterrupted play?	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: provide clear information about when players receive which form of feedback about their gaming time.		

<b>D2. Information about financial expenses (only to be completed for games with possible in-game purchases)</b>		
<input type="radio"/> Does not apply: In-game-purchases are not possible.		
Do players receive full disclosure about <u>all</u> financial expenses associated with the game <u>before</u> participating in the game (individual purchase options and maximum possible cash expenses)?	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Please provide clear information about all information given to the player.		

<b>D3. Education of players about possible risks involved in gaming</b>		
Do players receive information about the possible risk of gaming disorder (loss of control, possible impairments due to excessive spending or neglect of important duties, etc.)?	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Please provide clear information about how players are educated and what information they receive.		

<b>D4. Game time limits</b>		
Are there any game time limits <sup>10</sup> set by the provider?	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Please provide clear information about how players are restricted in their gaming time.		

<sup>10</sup> Examples could be provider-specific upper limits for daily or weekly gaming times or specific times (e.g., at night) at which the game cannot be used.

Electronic Supplementary Material

## Electronic Supplementary Material

<b>D5. Self-limitation means</b>		
Does the game provide options to set time or spending limits <sup>11</sup> ?	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Please provide clear information about which limits can be set.		

<b>D6. Other preventive measures</b>		
Are there any other measures implemented in the game that are not outlined above (C11 to C15) and that might help players to play in a reasonable and healthy manner?	<input type="radio"/> yes	<input type="radio"/> no
<input type="checkbox"/> If yes: Please provide clear information about additional preventive measures.		

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<sup>11</sup> Players can set game time limits or financial limits in advance, which can then no longer be exceeded. Furthermore, self-limits can be enabled that block the use of the game for certain days, times of the day, time periods or payment methods. The limits must be definable by the player himself and should not be changeable for a certain time after the definition (Parental Control Systems of the platforms or via third parties are not included in this definition).

## Evaluation instruction

### I) Recommended age-classification

Games with 1) a structural resemblance to gambling, 2) possible in-game-purchases inappropriately high for minors, 3) a problematic persistent game world structure clearly opposing controlled and healthy gaming behavior, or 4) possible reselling of in-game rewards in exchange for real money have to be regarded as unsuitable for minors (18+).

- 1) A structural resemblance of a game to gambling is fulfilled if criterion B1 is met.
- 2) Inappropriately high in-game purchases is fulfilled if total possible expenditure on one game exceeds 500 Euros or 500 US-Dollars, or is unlimited (C7).
- 3) A persistent game world structure unsuitable for minors is fulfilled if players can lose all rewards in at least one reward category while being absent from the game (C5).
- 4) Possible reselling of in-game-rewards in exchange for real money is fulfilled, if at least one available reward category can be exchanged for real money.

If the game is suitable for minors, it is necessary to check whether other characteristics of the game involve a high risk for specific minor age groups (see table 1, red and yellow markings as well as age recommendations). To derive a recommendation for an age-classification for minors all individual criteria C1 to C11 have to be taken into account. **The strictest single age-recommendation determines the overall age-classification.**

#### Exemplary explanation of spending money for in-game purchases (C7):

- Age groups "0+ years" and "6+ years": In-game purchases, regardless of amount and design are inappropriate.
- Age group "12+ years": total possible expenditure per player and game must not exceed 100 euros.
- Age group "16+ years": total possible expenditure per player and game must not exceed 250 euros.

### II) General risk assessment for harmful and addictive gaming behavior

The ten criteria (C1 to C11) are used to estimate the general risk potential of the game in relation to the development of dysfunctional and problematic gaming behavior in vulnerable players (see Table 1). Based on all ten single assessments (no risk = 0 points, medium risk = 1 point, high risk = 2 points), a sum score is calculated. Since criteria C1 and C2 are collectively assessed and the number of reward categories, as a primary indicator of the complexity of the reward system, is expected to be of particular relevance for the assessment of the risk potential, this information is double weighted, meaning that a maximum of 4 points can be achieved. Thus, the possible total value ranges between 0 and 22 points. **A higher sum score indicates a higher risk of dysfunctional and problematic gaming behavior when vulnerable players use the game. This general risk assessment should also be considered when evaluating the risks involved in a game for a certain age-group or risk-population.**

### III) Harm minimization features

The six criteria (D1 to D&) are included in the table to provide an overview of risk-minimizing features present in the game. They can be used to make professional judgements about the extent to which the given risk potential of a game is addressed by effective risk-minimizing features.



# Electronic Supplementary Material

**Table 1.** Risk assessment of the game

Risk parameters	No risks	Medium risks	High risks
<b>Number of reward categories (sum of C1 and C2)</b>	up to 9 ○ <b>(0 points)</b>	10 to 19 ○ <b>(2 points)</b>	20 or more ○ <b>(4 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years
<b>Looting, Lootboxes (C3)</b>	Looting is not possible and no loot boxes are available.  ○ <b>(0 points)</b>	Looting is possible <u>or</u> Lootboxes are available. <sup>12</sup>  ○ <b>(1 point)</b>	Looting is possible <u>and</u> Lootboxes are available. <sup>7</sup>  ○ <b>(2 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years
<b>Losses of rewards during the game (C4)</b>	No losses or only losses of individual rewards are possible.  ○ <b>(0 points)</b>	Loss of all rewards of at least one reward category is possible.  ○ <b>(1 point)</b>	Permadeath is possible.  ○ <b>(2 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years
<b>Losses of rewards in absence of the player (C5)</b>	No losses or only missed reward opportunities are possible.  ○ <b>(0 points)</b>	Loss of individual rewards is possible.  ○ <b>(1 point)</b>	Loss of all rewards of at least one reward category or permadeath are possible.  ○ <b>(2 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years

<sup>12</sup> This differs from the loot boxes assessed in the B criteria.

# Electronic Supplementary Material

Risk parameters	No risks	Medium risks	High risks
<b>Simulated gambling (C6)</b>	No simulated gambling.  <input type="radio"/> <b>(0 points)</b>	Gambling is a marginal feature of the game plot (e.g., in the course of the game history, you can take part in a poker game for virtual money).  <input type="radio"/> <b>(1 point)</b>	Gambling is the main feature or exclusive content in the game (e.g., simulated poker games in exchange for virtual money).  <input type="radio"/> <b>(2 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years
<b>In-game purchases (C7)</b>	No in-game purchases.  <input type="radio"/> <b>(0 points)</b>	Total expenditure per player does not exceed 100 €/€ (12+), does not exceed 250 €/€ (16+), does not exceed 500 €/€ (18+).  <input type="radio"/> <b>(1 point)</b>	Total expenditure per player exceeds 500 €/€ or is unlimited.  <input type="radio"/> <b>(2 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years
<b>Detailed assessment of in-game purchases (C8)</b>	In-game purchases are not possible.  <input type="radio"/> <b>(0 points)</b>	In-game purchases are possible, not affecting game progression/ success.  <input type="radio"/> <b>(1 point)</b>	In game purchases are possible affecting game progression/success.  <u>or</u> Purchase of a virtual game currency or another virtual value equivalent are possible.  <input type="radio"/> <b>(2 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years

# Electronic Supplementary Material


Risk parameters	No risks	Medium risks	High risks
<b>Reselling of in-game rewards (C9)</b>	No reselling of in-game rewards possible.  <input type="radio"/> <b>(0 points)</b>	At least one available reward category can be exchanged for virtual value equivalent, which can be sold in exchange for real money.  <input type="radio"/> <b>(1 point)</b>	At least one available reward category can be exchanged for real money.  <input type="radio"/> <b>(2 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years
<b>Extensive gaming awards (C10)</b>	Not available.  <input type="radio"/> <b>(0 points)</b>	Achievements for a high amount of repeated player actions are available.  <input type="radio"/> <b>(1 point)</b>	Achievements for particular long gaming times are available.  <input type="radio"/> <b>(2 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years
<b>Relevance of cooperative social interactions (C11)</b>	Not possible. <u>or</u> Only optional, in which all tasks in the game can be mastered just as easy alone.  <input type="radio"/> <b>(0 points)</b>	Social interactions with other players make it easier to play or fulfill certain game tasks.  <input type="radio"/> <b>(1 point)</b>	Social interactions are imperative to complete certain tasks, earn certain rewards, or for faster progress in the game.  <input type="radio"/> <b>(2 points)</b>
	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years	0+ years 6+ years 12+ years 16+ years 18+ years

**Note.** Red marking = Based on this individual determination, not suitable for this age group. Yellow marking = Based on this individual determination, possibly not suitable for this age group.

## Electronic Supplementary Material

### Overall results

I) Recommended age-classification				
0+ years	6+ years	12+ years	16+ years	18+ years
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



II) General risk assessment for dysfunctional and problematic gaming behavior (0 = very low risk to 22 = very high risk)																						
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22

III) Harm minimization features	Yes	No
D1) Feedback on gaming time	<input type="radio"/>	<input type="radio"/>
D2) Information about financial expenses	<input type="radio"/>	<input type="radio"/>
D3) Education of players about possible risks involved in gaming	<input type="radio"/>	<input type="radio"/>
D4) Game time limits	<input type="radio"/>	<input type="radio"/>
D5) Self-limitation means	<input type="radio"/>	<input type="radio"/>
D6) Other preventive measures	<input type="radio"/>	<input type="radio"/>