Playing Against Radicalization

Why extremists are gaming and how P/CVE can leverage the positive effects of video games to prevent radicalization

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Executive summary

Gaming is one of the most beloved and widespread, yet most controversially discussed leisure activities in the world. Since the livestreamed attack in Christchurch (New Zealand) in 2019 the potential link between gaming and radicalization has become a growing concern. While research efforts on gaming and extremism are still in their infancy, the last years have shown that extremist actors use gaming in various ways, including the production of bespoke games, the modification of existing games, the use of in-game communication features, the presence on gaming (-adjacent) platforms, the use of video game references and aesthetics in propaganda output, and the gamification of digital spaces.

Although a causal link between gaming and radicalization could not be established thus far, the exploitation of gaming by extremist actors has become a growing concern. P/CVE practitioners in particular are devoting an increasing amount of attention to the issue. This report reviews existing literature on the positive effects of gaming in light of the specific needs of the P/CVE field and deduces recommendations for practitioners seeking to develop a bespoke game for the P/CVE context:

***Learning & Education**: Various popular and serious games have been used in educational settings. Decades of research have shown that games can facilitate learning, e.g. because they are more fun, provide immediate feedback, and match the level of difficulty to the players' abilities, which allows a tailored learning experience and the opportunity for each learner to progress at their own pace. P/CVE games could aim to increase players' knowledge about issues surrounding radicalization and extremism or improve their skills in taking action, e.g. against online disinformation or conspiracy theories.*

***Social Outcomes**: Despite concerns over the anti-social effects of playing video games, research has shown that video games can have a range of positive social outcomes, e.g. the development of social skills, the decrease of aggression, an increase in collaboration and empathy, and the development of social connections and friendships. Current P/CVE games do not usually focus on social outcomes, but future games could seek to facilitate positive social outcomes and the building of interpersonal connections, e.g. to facilitate belonging and intercultural communication.*

***Attitudes & Perceptions**: Several studies have illustrated that video games can impact players' perceptions and both implicit and explicit attitudes by encouraging perspective-taking and facilitating prosocial attitudes. The games usually elicit such effects via the narrative that guides the gameplay. Hence, changing attitudes and perceptions via video games is a realistic goal for P/CVE, e.g. in the context of reducing stereotypes.*

***Behavior**: Research has shown that games can support positive behavior change, e.g. in the context of health-related behavioral adjustment or the increase in prosocial behavior and reduction in anti-social behavior. Consequently, there is an opportunity for P/CVE practitioners to use video games to increase prosocial behavior while decreasing anti-social behavior as a primary prevention measure.*

Based on the review of existing literature, the report makes three main recommendations:

- *Even serious games must be enjoyable and entertaining in their own right to elicit persuasive effects. This means that good game design is key and cooperation between P/CVE actors and game designers is crucial. Current P/CVE games are often simple, text-heavy, and offer only binary choices, suggesting that there is room for improvement in this area.*
- *Ideally, P/CVE games should cater to different player types and should allow players to fulfill important psychological needs such as competence, autonomy, and relatedness as well as offer motivational drivers for engagement.*
- *While existing research points to a large variety of positive effects video games may elicit, more research is needed on how games can support the P/CVE-specific outcomes.*

Playing Against Radicalization: Why extremists are gaming and how P/CVE can leverage the positive effects of video games to prevent radicalization

by Linda Schlegel (2022)

The following report was written as part of the 'Gaming for democracy in the context of contemporary forms of extremism – GameD' project funded by Erasmus+.

Gaming is omnipresent in our culture. Far from the niche activity some believe it to be, it has become an integral part of mainstream pop culture across the globe. An estimated 3.2 billion people worldwide are gamers (Statista, 2021a) - an astonishing ⅓ of the world's population and this number is estimated to continue to grow over the next years. Not only children and teenagers are avid video game users, many adults play too and the average gamer is a male in his mid-30s (Yanev, 2022). The numbers of female gamers are continuously increasing as well and have reached up to over 40% depending on the geographical location (Yokoi, 2021). In addition to playing themselves, thousands of people fill eSports arenas to watch professional gamers compete and millions of users log into platforms such as Discord or Twitch to connect with other gamers or watch gaming-related livestreams - a trend, which amounted to a whopping 8.8 billion hours of video game livestreams watched by users in the first quarter of 2021 alone (Statista, 2021b). In short, gaming and gaming-related activities are ubiquitous and one of the most popular leisure activities worldwide.

However, gaming is also one of the most controversially discussed leisure time activities (Kowert & Quandt, 2016). For decades, the discourse on gaming revolved around the alleged negative effects of video games, including addiction, distracting individuals from work, school, and their social lives, anti-social behavior, and even violence (see Hodent, 2021 for an overview). The newest addition to the list of concerns surrounding gaming is its potential link to radicalization and (violent) extremism. In the last years, multiple right-wing extremists made the decision to livestream their attacks in the style of first-person shooter games, different extremist groups have released their own video games, gaming-related elements have featured prominently in the

propaganda output of both jihadist and right-wing extremist actors, and extremist content has appeared on a range of gaming (-adjacent) platforms such as Discord and Steam.

Consequently, the possible connection between gaming and extremism has become a growing concern for researchers, policymakers, international organizations, tech companies, and practitioners working on preventing and countering (violent) extremism (P/CVE). For the last years, the intersection of gaming and extremism has become one of the most widely debated issues in the field and has repeatedly featured on the agenda of GIFCT's Global Network on Extremism and Technology[1], the EU Commission's Radicalization Awareness Network (RAN, 2020; 2021a; 2021b; 2022), the United Nations Office of Counter-Terrorism (Schlegel & Amarasingam, 2022), and even the UN Security Council.[2] It is indeed perceived as such a pressing issue that over 50 individuals and organizations came together to form the international Extremism and Gaming Research Network (EGRN).[3]

Time and time again the question raised by all stakeholders is not merely how and why extremist actors seek to exploit gaming-related content and spaces but how such an exploitation can be countered or prevented. While content moderation, deplatforming, and stricter laws are valuable tools, it is clear they are not sufficient in addressing the issue in its entirety. Active and positive (counter-) measures are necessary to complement such reactive tools to ensure a holistic approach against the exploitation of gaming by extremist actors. Therefore, recent discussions also revolve around the possibilities to use video games, gaming (-adjacent) platforms, and gaming-related content in P/CVE interventions. However, these considerations are still in their infancy and P/CVE interventions with gaming components are rare. The GameD project aims to address the existing knowledge gap on the possibilities to incorporate gaming-related content into P/CVE projects and explore the practical implementation of a video game-driven P/CVE project.

[1] GIFCT is the Global Internet Forum to Counter Terrorism and the Global Network on Extremism and Technology is it's research arm. https://gnet-research.org/tag/gaming/

[2] Open meeting of the Counter-Terrorism Committee on "Countering terrorist narratives and preventing the use of the Internet for terrorist purposes" (2022) https://media.un.org/en/asset/k18/k18xtu7fdl

[3] https://extremismandgaming.org/

GameD

GameD is an Erasmus+ project aimed at contributing to the current debate on the use of gaming-related content and technologies in P/CVE intervention projects by exploring the development and use of a serious game focused on democratic citizenship. It is delivered by an international consortium comprising SCENOR (Austria), modus | Centre for Applied Research on Deradicalisation (Germany), IU International University Erfurt (Germany), Bundesweites Netzwerk Offene Jugendarbeit (Austria), Landesmedienzentrum Baden-Württemberg (Germany), Danish Youth Team (Denmark), Serious Games Interactive (Denmark), and Landesarbeitsgemeinschaft Mobile Jugendarbeit / Streetwork Baden-Württemberg e.V. (Germany).

The project aims to venture into the under-explored area of using video games in the context of P/CVE measures by developing, testing and rolling out an innovative serious game focused on democratic citizenship to counter extremist and polarizing forces. The game not only fulfills educational purposes, but also offers a real and entertaining gaming experience. In addition, it actively involves youth in all stages of the project and the game development. Instead of using a predetermined script, the intended end-users co-create the game and facilitate the story development while playing; making GameD truly participatory in nature.

The following report serves as a basis for subsequent parts of the project, especially the development of the serious game. Part I provides an overview of the state of knowledge on gaming and extremism. Subsequently, Part II examines the literature on the positive effects of video games analyzed in various contexts and suggests how such insights may inform future P/CVE interventions seeking to incorporate games or gaming elements. Lastly, the report provides recommendations to advance research and practice on gaming in P/CVE.

Serious Game

A serious game is a game that was not developed solely to entertain. Often, serious games are used in educational contexts or to simulate real-life events. Examples include flight, disaster, or medical simulators as well as educational games used in schools or training facilities and games with serious (as opposed to merely entertaining) storylines aimed at influencing the players' knowledge, perception, or behavior.

Part I: Gaming & Extremism

Considering that a possible connection between gaming and extremism only moved to the center of attention of researchers, policymakers, tech companies, and P/CVE practitioners after the livestreamed attacks in Christchurch (New Zealand) and Halle (Germany) in 2019, it is unsurprising that the number of studies on this emerging trend is still relatively small. It is an ongoing development and all stakeholders involved have only a limited understanding of its scope, prevalence, and consequences. Three years (at the time of writing) are simply not enough time to gather a substantial amount of evidence and carry out in-depth empirical studies to understand this phenomenon. Therefore, the state of knowledge and present-day understanding of the issue largely builds on anecdotal evidence and theoretical considerations. Hence, as the Extremism and Gaming Research Network (EGRN; 2021a; 2021b) laments, there is a large gap in the current body of research on gaming and extremism. Consequently, the review below should be read as the preliminary understanding of gaming and extremism, which is in constant flux and will inevitably be extended and refined by future studies.

Overview of extremists' use of gaming

Based on the anecdotal evidence available and the typology of extremists' use of gaming devised by RAN (2020), there are at least six ways, in which extremist actors seek to exploit gaming-related spaces and content:

1. Bespoke video games

Extremist actors are producing their own bespoke video games to relay their ideologies. This is by no means a new trend. Already in the late 1980s, the game *KZ Manager* (Concentration Camp Manager) caught the attention of journalists and policymakers (Huberts, 2022). Throughout the last three decades, extremist actors of various ideological backgrounds have produced their own video games. Hezbollah, for instance, has produced and launched a whole series of first-person shooter video games called *Special Forces* (Rose, 2018). Each version has been adapted to the changing political circumstances, including the rise of ISIS. Similarly, in 2020, the German-speaking branch of the Identitarian Movement generated a high degree of visibility and publicity for

themselves by launching a 'patriotic' video game, *Heimatdefender: Rebellion*, in which players can shoot politicians and fight against antifa and the 'globalists' (Schlegel, 2020b; Hume, 2020).

Why extremists develop and publish bespoke games is the subject of discussion. Some believe that video games are often used to reach those already empathetic to an ideology and reinforce existing beliefs of a group's or movement's followers rather than to radicalize new audiences (Robinson & Whittaker, 2021). Others have argued that such video games could potentially be used to attract individuals to an ideology, e.g. by allowing players to simulate the society an extremist ideology envisions or normalizing extremist narratives through gameplay (Schlegel, 2020a).

2. Existing games

Extremists have also sought to exploit existing video games in multiple ways. The British nationalist group Patriotic Alternative, for instance, has hosted and streamed a number of *Call of Duty* tournaments. According to a blog post by Patriotic Alternative, the declared goal was to connect like-minded individuals and potentially attract new people to their group (Thomas, 2021). Other video games, such as the recently banned *Call of Russia*, in which players control a bare-chested Vladimir Putin in an effort to protect his country from an invasion of 'furries'[4], may organically attract audiences with an affinity towards far-right ideas (Sharpe, 2020).

In addition, individuals and groups have sought to create modifications ('mods') of popular games in accordance with their ideology. Modding "refers to the process of editing or changing the structure, syntax or code of a game. Modification is performed to change the operations of a game in par with the requirements, environment, or end result or experience [and] is performed to allow a gamer to play a game different from its original released version" (Techopedia, 2017). In the context of extremism, the creation of mods has a long tradition and dates back to the early 2000s, when Al Qaeda modified *Quest for Saddam* into *Quest for Bush* (Schlegel, 2018). Since then, a range of mods with extremist content have been found, including modifications of popular games such as *The Sims*, *Doom 2*, or *Minecraft* allowing players to recreate the Christchurch attack, operate a Nazi concentration camp, or perpetrate a genocide (Miller & Silva, 2021; Ebner, 2019; Stevens, 2019). Some of these mods were produced by far-right actors such as the news website Daily Stormer (Ebner, 2019), while others seem to have been produced by individuals without a clear connection to an extremist group.

[4] Furry describes a subculture whose members dress up as animals, sometimes as a sexual fetish.

3. In-game communication features

Empirical evidence on extremists' use of in-game communication features such as voice- or text-based chats is slim – in part because accessing and collecting data in such spaces would require researchers to become players and embed themselves in this particular gaming community for a prolonged period of time. However, there is growing concern that extremist recruiters could use in-game communication features to talk to, build trust with, and potentially groom (young) players (RAN, 2021c). Possibly, such in-game communication features could serve as an entry point and players could be re-directed towards other platforms and digital extremist groups once they have come to trust recruiters through the shared gameplay.

Extremist and fringe actors could also seek to spread their ideologies via open in-game communication features. A recent UNOCT study (Schlegel & Amarasingam, 2022) surveyed over 600 gamers and found that many encounter toxic, hateful, or violent content in in-game communication features, including voice- and text-based chats. Open-ended replies indicated that certain games are more likely to be used to spread such content. According to the survey respondents, features increasing the likelihood of such content being found include:

- "Interacting with others via chat is necessary/useful to coordinate and win
- It is a popular game with a large player base
- The game is highly competitive
- It involves fighting and violence
- It is an online multiplayer game
- It is a PvP game[5]
- Players are assigned into match-based teams with strangers
- Failure can be attributed to individual team members
- There is little moderation/regulation
- There are no real consequences for breaking the rules and using hateful language" (Schlegel & Amarasingam, 2022, p.16).

4. Gaming (-adjacent) platforms

The presence of extremist actors on gaming (-adjacent) platforms is of increasing concern (RAN, 2021b). Gaming (-adjacent) platforms is a term that describes a heterogeneous group of digital platforms, which were either initially developed for gamers or are extensively used by gamers.

[5] In PvP (Player vs Player) games humans play against other humans, whereas in PvE (Player vs Environment) games, opponents are controlled by the game.

This includes livestreaming platforms such as Twitch, DLive, and Odysee, chat applications such as Discord, online gaming stores such as Steam, or game-sharing platforms such as Roblox.

The most well-known links between extremist activity and gaming (-adjacent) platforms are livestreamed attacks such as the right-wing attacks in Christchurch (Macklin, 2019), Halle (Köhler, 2019), and Buffalo (Lamphere-Englund & White, 2022), which were livestreamed via Facebook and Twitch. Other activities linked to such platforms included the January 6th, 2021 storm on the US Capitol, which was livestreamed via DLive, the Unite the Right Rally in Charlottesville 2017, which was planned via Discord, the 2016 attack in Munich, which was linked to Steam, and Roblox apparently hosting racist games, including a game encouraging players to murder PoC (Person of Color) with a car (Miller & Silva, 2021; RAN, 2021b). Right-wing extremist actors in particular seem to be open and vocal on such platforms (Davey, 2021), including on Steam (ADL, 2020; Vaux et al, 2021), DLive (Thomas, 2021), Twitch (O'Connor, 2021), Discord (Gallagher, 2021), and Roblox (Miller & Silva, 2021; D'Anastasio, 2021). However, as the RAN cautions, simply because religious extremists are less easily identified on gaming (-adjacent) platforms does not mean that they are not present in these spaces – "it only means they are less vocal than far-right actors who boldly and overtly display their ideological beliefs in user names, profiles and server names" (RAN, 2021b, p.17).

The exact reasons why extremists are active on these gaming (-adjacent) platforms, is currently still debated. Potential reasons include being able to reach millions of users on popular platforms to spread propaganda, use both private and public chats and forums for internal and external (strategic) communication efforts, plan and execute physical or digital activities such as 'shitstorms', earn money from livestreaming, or to circumvent the harsher content moderation policies on other platforms such as Facebook or Twitter, although the latter heavily depends on the individual platform (RAN, 2021b). It is also possible that extremist actors use of gaming (-adjacent) platforms not only strategically but organically, i.e. it is possible that some radicalized individuals are gamers or feel part of the digital communities on these platforms and share their beliefs in these spaces simply because they feel comfortable to do so rather than with an intention to radicalize others (RAN, 2021b).

5. Gaming (cultural) references

Extremist actors have employed references to popular video games or gaming culture and have used both gamer 'language' and video game aesthetics in their propaganda output. Particularly

ISIS and other jihadist groups have been at the forefront of the appropriation of gaming (cultural) references in its propaganda, leading some to speak of a 'gaming jihad' (Lakomy, 2019; Al-Rawi, 2018). This includes, for example, the use of HD-helmet cameras in propaganda videos to mirror the visual style of first-person shooter games, in which the player sees only the top of the rifle his or her avatar is holding (Scaife, 2017). Similarly, right-wing extremist perpetrators have livestreamed their attacks via helmet cameras to create the same visual appropriation of first-person shooter games and mirror popular 'Let's Play' videos, in which users watch others play video games (Lakhani & Wiedlitzka, 2022; Lee, 2021).

Sometimes, the propaganda output makes reference to specific popular video games, such as *Call of Duty*, exemplified by the tweet of an ISIS recruiter, stating "You can sit at home and play call of duty or you can come and respond to the real call of duty…the choice is yours" (Schlegel, 2020c). Other pieces of propaganda make more general references, e.g. by using gamer 'language'. ISIS, for instance, published a digital image stating "This is our Call of Duty and we respawn in *jannah*" (Dauber et al, 2019, p.18). Respawn is a term from gamer language and refers to re-starting a level after being killed and *jannah* is the name of paradise in Islam. The combination of both terms suggests that this particular piece of propaganda was aimed at young, Muslim gamers with knowledge of gamer language and Islamic terminology. The widespread use of gaming (cultural) references in propaganda material indicates that extremist actors believe it is a viable strategy to generate attention and benefit from the pop cultural appeal of gaming culture.

6. Gamification

Despite often being used as such, the term gamification does not describe 'anything gaming-related'. Rather, gamification solely refers to the "use of game design elements within non-game contexts" (Deterding et al, 2011, p.1), i.e. the transfer of game components such as points, badges, leaderboards, quests, guilds etc. to contexts not traditionally regarded as games. It is a technique used to encourage behavior change in a variety of contexts (Blohm & Leimeister, 2013).

Gamification has been used by different extremist groups, seemingly for strategic reasons to motivate their followers into taking certain actions (RAN, 2021a). For example, the Identitarian Movement planned to launch the *Patriot Peer* app, which would enable users to collect points for taking part in certain events or visiting designated historical sites as well as to find other like-minded peers via a 'Patriot Radar' similar to *Pokémon Go* (Prinz, 2017) and the far-right Discord

Server Reconquista Germanica employed gamified elements such as badges[6] and raids[7] (Schlegel, 2021a). Similarly, some jihadist forums included gamified elements such as secret areas one could only join after reaching a certain level or a 'radicalization meter' signifying one's commitment (Schegel, 2021a).

In addition, radicalized individuals and even right-wing extremist perpetrators have sought to gamify their own radicalization processes and attacks in a bottom-up manner without guidance from extremist groups or movements (RAN, 2021). For instance, far-right digital communities on platforms such as 8chan (now 8kun) have kept virtual scoreboards of right-wing extremist perpetrator's 'body counts', debated whether a perpetrator's 'body count' was sufficient enough for him to be considered a hero, and expressed desires to 'beat' a perpetrator's 'score' (Evans, 2019; Owen, 2019). Furthermore, gamified elements have appeared in the manifestos of right-wing extremist perpetrators such as the Halle attacker, who listed a number of 'achievements' with 'humorous' names in his manifesto, thereby mirroring a list of quests or missions players need to achieve in some video games (Schlegel, 2021b).

Interrogating the potential (causal) link between gaming and extremism

The research conducted so far clearly shows that extremists are using gaming-related content and spaces in various ways. However, according to the Extremism and Gaming Research Network, beyond such descriptions, there are many unanswered questions regarding gaming and extremism, including the scope and prevalence of the issue, how the use of gaming differs along ideological lines, i.e. whether jihadists are using gaming differently than right-wing extremists, and - most importantly - *why* extremists are seeking to employ gaming in their propaganda and which *consequences* this trend may have for digitally-mediated radicalization or recruitment processes (EGRN, n.d.).

While the link between gaming and extremism needs further investigation, it seems unlikely that there is a causal relationship with gaming and radicalization considering the current evidence. Video games and gaming culture are often discussed solely in relation to their alleged negative effects, including excessive gaming and addiction, distraction, anti-social behavior, and, most prominently, violence (Coulson & Ferguson, 2016; Griffiths, 2016; Kowert, 2016; Kriss, 2019). While a number of studies found correlations between video games and such negative outcomes, claims

[6] A badge is a reward users receive after meeting a certain goal in a game, e.g. collecting 200 coins).
[7] A raid is a type of mission that usually requires a team of players to defeat either another team of players in a different location or a non-playable character in a sudden, coordinated attack.

of a causal relationship are often "exaggerated" (Hodent, 2021, p.90) and based on inconclusive evidence. The link between gaming and violence has been the subject of debate for thirty years, but studies remain inconclusive (Anderson et al, 2010; Hilgard et al, 2017; Calvert et al, 2017; Przybylski & Weinstein, 2019; Kühn, 2019). A recent review by the American Psychological Association (2020) of the gaming literature published since the 'moral panic' regarding violent video games and school shootings in the early 1990s, concluded that "attributing violence to video gaming is not scientifically sound." Hence, a direct causal relationship between gaming and extremism and/or (violent) radicalization processes cannot be deduced from the existing literature and seems unlikely considering the current state of knowledge on gaming.

Considering that a causal link between gaming and extremism could not be established thus far, what could be the reason that extremist actors seek to exploit video games, gaming (-adjacent) platforms, and gaming-related content? There are currently three, not mutually exclusive theories:

- Just like other popular digital platforms such as Instagram or Twitter, gaming spaces are used by extremist actors for strategic reasons. Because extremists could theoretically reach millions of users via gaming (-adjacent) platforms or video game chats, they simply follow their audience to the most popular and widely used spaces. Similar to the use of references to Hollywood movies or music videos, the incorporation of gaming-related references and aesthetics could serve to increase the pop cultural appeal of propaganda content and therefore increase the likelihood that it will resonate with target audiences familiar with video games. An additional strategic benefit of gaming spaces is that some gaming (-adjacent) platforms such as DLive and some video games, e.g. those based on voice chat, employ less strict content moderation standards than other social media platforms, which may deplatform extremist actors (Schlegel & Amarasingam, 2022). Gaming spaces, which offer private group conversations, e.g. on self-moderated Discord servers or within guilds, could offer opportunities for internal communication and are difficult to detect.

- Extremist actors could perceive gaming-related spaces and content as inherently interesting and as a 'fertile ground' for their ideology. Certain parts of the gaming community suffer from toxic, racist, misogynistic, anti-semitic, or anti-LGBTQIA+ sentiments (ADL, 2019; Schlegel & Amarasingam, 2022) - often disguised and framed as 'dark humor' (RAN, 2021d). Such discourses may appear on gaming (-adjacent) platforms or within video game (voice-) chats and may make it possible for extremist actors to blend in, share their narratives without being challenged, and possibly start conversations with users they may deem to be susceptible to their ideology (RAN, 2021b).

- It could also be the case that radicalized individuals and extremist actors are simply part of gaming spaces for non-strategic reasons, i.e. because they enjoy gaming and have been

part of such spaces prior to their radicalization. This may partially explain the use of gaming-related content in propaganda - it is perceived as familiar, 'cool', and appealing and therefore as useful for propaganda efforts. Some radicalized individuals may also feel a sense of belonging in gaming communities, e.g. because racist or antisemitic sentiments are welcome in some parts of gaming communities. Both the Christchurch and the Halle attackers seem to have perceived themselves as part of broader gaming communities and sought to create content that would appeal to their peers. The Halle perpetrator, for instance, used gamer language and gamified elements in his manifesto, which fellow gamers would be able to understand immediately (RAN, 2021b).

So far these are only theoretical considerations and further research is needed to understand why extremists seek to use gaming culture for their ends and what (if any) consequences this may have on digitally mediated radicalization processes. However, P/CVE practice cannot and should not wait for such research to emerge as it is necessary to counter extremists' exploitation of gaming immediately and to explore how gaming can also be used as a force for good.

Part II: Gaming & P/CVE

Not only has it not been established thus far that video games are causally associated with violence or extremism; research has in fact uncovered that games can yield considerable benefits and elicit positive effects. This may include visual, attentional, and cognitive skills, hand-eye coordination, and enhanced spatial awareness, but also social skills, educational benefits, and positive attitude and behavior changes (Hodent, 2021; Sherry, 2016). These positive effects and how P/CVE actors may use gaming to facilitate engagement with their content and promote positive outcomes via gaming-related interventions will be the focus of part II of this report.

Existing P/CVE approaches

Considering the widespread use of gaming-related content and spaces by extremist actors, it is unsurprising that P/CVE actors are increasingly interested in preventing and countering this trend and exploring how gaming may be incorporated in positive interventions against extremism. Theoretically, P/CVE actors could utilize gaming in a similar manner as extremists do, i.e. mirror the six categories discussed above. However, only a few P/CVE projects have employed gaming-related content or elements so far. This is logical considering that extremism research has only begun to undertake in-depth research on how extremists are seeking to exploit gaming content and spaces since the Christchurch attack in 2019 and gaming has only recently moved to the center of the attention of P/CVE practitioner organizations such as the Radicalization Awareness Network in 2021. A recent RAN (2022) paper reviewed the state of practice on gaming and P/CVE and found that:

- Most existing P/CVE projects with a gaming component developed bespoke video games, including DECOUNT (Pisoiu & Lippe, 2022)[8], Gali Fakta[9], Hidden Codes[10], Leon's Identität[11], ISIS The End[12], the DebunkEU's Bad News Game[13], and Klif[14] (see also Cooley & Cooley, 2020). These games are often text-heavy and employ relatively simple stories and game mechanics. In addition, a handful of police agencies in the Netherlands and the UK have

[8] Decount https://www.extremismus.info/decounten

[9] Report on Gali Fakta: https://moonshotteam.com/resource/advancing-media-literacy-in-indonesia-building-resilience-and-measuring-behavior-change/

[10] Hidden Codes https://hidden-codes.de/ [in German]
[11] Leon's Identität https://leon.nrw.de/ [in German]
[12] ISIS The End https://isistheend.com/#Accueil [in French]

[13] https://www.debunkeu.org/ [The Bad News Game is available in Polish, Russian, Lithuanian, Estonian, and Latvian]
[14] Klif https://www.klif-game.nl/ [in Dutch]

sought to open lines of communication to young audiences by playing popular video games such as *Fifa* with them.[15]

- Gaming (-adjacent) platforms are gaining more prominence as potential avenues to communicate with gamers and employ digital youth work and counter-speech measures. Projects include the Amadeu Antonio Foundations' 'Good Gaming - Well Played Democracy' project[16], which employs digital youth work in gaming spaces, or Gamers for Peace, who host a Discord server, have a Twitch stream, and build an eSports team.[17]

- Gaming (cultural) references and gamification have rarely been used and if they have been included in P/CVE projects, they have only been employed in a very limited fashion, e.g. by alluding to gaming aesthetics in counter- and alternative narrative campaigns (Ali et al, 2020)[18] or seeking to provide a handful of gamified elements to motivate counter-speech efforts.[19]

- Modifications and in-game communication features are currently not used in any P/CVE projects - at least not officially.

Generally speaking, video games, gaming-related content, and gaming (-adjacent) platforms are rarely used in the P/CVE context. If they are used, they usually constitute relatively simple adaptations of gaming elements. This may not only be explained by the short period of time the potential connection between gaming and extremism has been discussed widely, but is also partially due to the challenges P/CVE actors face in the gaming sphere, including a lack of technical and creative expertise in game design, a lack of subcultural knowledge on gaming culture and gaming communities, lack of access, e.g. because in-game chats can only be accessed by those who play the game, and lack of funding to develop sophisticated gaming interventions (RAN, 2022). Consequently, there is much room for improvement and further exploration to improve the use of gaming-related content and spaces in P/CVE. To this end, P/CVE actors will benefit from a more thorough engagement with the research and practice of gaming and game design.

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[15] Gamen met de Politie https://gamenmetdepolitie.nl/ [in Dutch]

Cops vs Kids https://www.youtube.com/watch?v=WIxx9mp8z8M

[16] https://www.amadeu-antonio-stiftung.de/projekte/good-gaming-well-played-democracy/ [in German]

[17] https://www.veteransforpeace.org/take-action/gamers-peace

[18] Jamal al-Khatib https://www.youtube.com/c/JamalalKhatib/videos [in German]

[19] Detect Then Act https://dtct.eu/

Existing P/CVE video games

As discussed above, although the use of video games in P/CVE contexts is a relatively recent phenomenon, several games with P/CVE content have been produced. However, there is room for improvement in both form and content of these games. In the following, two illustrative case studies are briefly discussed (see also RAN, 2022). Subsequently, a general assessment of the drawbacks of current P/CVE video games is provided.

Decount

Content: Decount is designed to educate players on the mechanisms and processes potentially facilitating radicalization as well as opportunities to thwart such processes through an interactive game. Players choose one of four stories (two on right-wing extremist radicalization, two on Islamist radicalizations, two male, and two female story leads) and guide the protagonist through the process of (not) radicalizing.

Form: The game design of the main story is based on social media platforms and (group) chats, occasionally interrupted by mini games (e.g. helping the protagonist find his new classroom) and short videos. This renders the game text-heavy. Players make a series of binary choices on how to respond to the texts they receive, or which actions their character should take next.

Gali Fakta

Content: Gali Fakta is a video game designed to increase media literacy and is aimed at inoculating audiences against misinformation. The main setting is a family group chat, in which players are confronted with various pieces of (dis-)information. Players collect points by replying correctly to the family's posts. If they reply incorrectly, they may lose points and receive guidance form an in-game character.

Form: The game design is based on a group chat and, hence, relatively simple in its graphics and mechanics. The chat setting necessitates a text-heavy gameplay. Players are given binary choices how to respond to any given piece of (dis-) information posed in the chat and receive text-based feedback on their scores and choices.

Generally speaking, most P/CVE video games:

- Are aimed at primary prevention and inoculation;
- Are very text-heavy and often revolve around chats or social media content;

- Afford the players little personal autonomy, i.e. are relatively static with merely one way to play the story from beginning to end, only one way to reach one's goals and 'win', a constrained and limited narrative world, no side quests or choice of missions/modes of playing, and limited (often binary) choices;
- Are single-player games without opportunities to play with or against others;
- Use relatively simple mechanics and controls (e.g. clicking on one of two buttons to make the binary choice), which do not require a learning curve;
- Do not necessitate players to progress in their skills, i.e. stay on the same level of difficulty throughout the game;
- Offer relatively simple, linear and short storylines for players to experience, which do not encourage players to come back and play again after a single setting (e.g. because there is no new content to be explored);
- Prioritize serious topics and 'getting the message across' over fun and engaging gameplay.

This list indicates that there is room for improvement to diversify P/CVE video games and design them in such a way that they are more fun to play. For instance, text-heavy games are not common in commercial games, and it is often recommended to keep text to a minimum as players may perceive it as less immersive or even annoying when presented with a lot of text (Heussner et al, 2015). Hence, future P/CVE video games may employ a more engaging, less static type of game design to increase immersion and engagement; seek to reduce the amount of text players have to read as it may be perceived as boring or unengaging to play such text-heavy games and most popular mainstream games seek to reduce the amount of text displayed; offer more opportunities for personal autonomy and complex decision-making (e.g. by offering more than a binary choice and various ways to play the game) to afford players greater agency in shaping their preferred gameplay; tap into the potential of gaming as a social activity and providing possibilities to connect with others; diversify the storylines to make them less linear and predictable; or employ more elements, which are aimed at increasing the *entertainment value* of the game rather than its educational value. By doing so, future P/CVE games could become more engaging and appeal to the target audiences' entertainment habits.

Existing recommendations for gaming-related P/CVE projects

Due to the lack of practical experiences with gaming-related P/CVE projects, many of the existing recommendations are deductively derived and general rather than specific.

Current recommendations what **not to do** include (RAN, 2021a; 2021b):

- Framing video games, gaming (-adjacent) platforms, or gaming-related content as inherently problematic or gamers as a community 'at risk' or automatically susceptible to radicalization. This is not only factually wrong but could deter crucial allies such as gaming companies and platforms, eSports associations, and gamers themselves from collaborating with P/CVE actors.

- Engaging with gaming-related propaganda solely in relation to right-wing extremism. While, as discussed, right-wing extremists are particularly vocal in gaming spaces, jhadist actors too have sought to incorporate gaming in their communication strategies. Hence, P/CVE projects focusing on countering jihadism may also benefit from engaging with gaming culture and spaces.

- Focusing solely on the production of bespoke video games rather than engaging with all possibilities gaming has to offer, e.g. the use of gaming cultural references in existing narrative campaigns or the use of gamification and treating gaming spaces as fundamentally different from other digital spaces rather than transferring knowledge from other digital P/CVE projects to the gaming sphere.

Current recommendations on what **to do** include (RAN, 2021a; 2021b; 2022):

- Collaborating with insiders and members of the gaming community, including tech platforms, gaming companies, gamer designers, gaming associations, organizations such as GIFCT or EGRN, and gamers themselves for the development and implementation of P/CVE measures in the gaming sphere

- Acquiring subcultural knowledge on gaming culture, gaming (-adjacent) platforms, and popular video games to ensure that the appropriation of gaming elements in P/CVE projects is perceived as authentic.

- Differentiating between different target audiences rather than targeting *the* gamers as the community surrounding, for example, *Call of Duty* may be very different from the community surrounding the *Fifa* games and those watching livestreams on Twitch may be interested in other topics than those connecting on Discord.

- ‘Starting somewhere’ (RAN, 2021b) and expanding the currently underdeveloped knowledge base on the practical implementation of gaming-related P/CVE projects and report the lessons learned to ensure subsequent projects can benefit from the experiences.

Despite these general recommendations, much of the research on gaming and its positive effects remains unexplored in the context of P/CVE. The following sections examine the literature on the positive effects of gaming and suggest how these insights could inform future P/CVE projects. As GameD is largely concerned with the design of a bespoke video game, the focus of this exploration is placed on video games and gamification in particular. However, further engagement with the promises and challenges of the use of other gaming-related elements, e.g. the use of gaming (cultural) references, gaming (-adjacent) platforms, modifications, or in-game communication features in future studies and projects, is highly encouraged. The review below is focused *solely* on the positive impact video games may elicit and is concerned with player types, using games in learning/education, the social benefits of gaming, as well as the potential for video games to elicit changes in attitude and/or behavior.[20]

Preliminary remarks

Before delineating the positive effects of video games, two factors need to be discussed to set the stage. Firstly, while some postulate that video games have the power to change or even save the world (Burak & Parker, 2017; McGonigal, 2012), others view gaming as inherently problematic and present an extensive list of concerns and allegedly detrimental effects video games elicit on players. Both are likely exaggerated generalizations, simply because video games are not a homogenous category and, therefore, their effects may differ tremendously. *Tetris* is vastly different from *Call of Duty* and *Pokémon* has little in common with *Mario Kart* or *Assassin’s Creed*, yet all are video games. In addition, video games can be played in different modes, e.g. many games allow for a free play/creator/explorer mode, which is distinct from the main story or missions. Aside from modes, players may also choose to play games differently than they were intended, e.g. play *The Sims* solely as an architectural game and merely build houses without actually playing with the characters. This means that the same game can be played in various ways and, consequently, elicit different effects.

[20] This should not suggest that video games or gamification may not have adverse effects (see Hodent, 2021; Kowert & Quandt, 2016).

Because video games are so diverse, the effects of video games are far from uniform (Ivory, 2016) and it is "misleading to talk about the 'impact of video games' as if those games were just a big block" (Hodent, 2021, p.44). For instance, "while some games, played by specific groups under certain conditions (i.e. heavy gamers playing competitive online games in an excessive fashion over long periods of time) may contribute to health problems (e.g. obesity), other games, played by other groups under other conditions (i.e. elderly persons playing exergames with motion controllers on a regular basis) may have opposite effects" (Quandt & Kowert, 2016, p.181). Types of games, types of players, and different types of contexts all matter for the effects of video games. Hence, the following discussion on the positive effects of video games should be read as a review of the effects *some* video games *may* have on *some* people in certain circumstances rather than as a list of effects video games elicit by default.

Secondly, playing video games is usually an autotelic activity, i.e. people play for the sake of playing and having fun (Hodent, 2021). If a video game is not fun but boring and dull, individuals are unlikely to interact positively with it - there is no point in playing if it is not entertaining. Therefore, in order to have even as much as a chance to elicit positive effects, video games must be of high quality, i.e. must be entertaining to play. This not only means that gamers should not become frustrated when playing (e.g. due to bugs, low usability, unintuitive gameplay etc.), but should actually enjoy themselves. This holds true also for educational or serious games, which are developed with the explicit intent to teach or influence players. Like other types of entertainment-education campaigns, video games designed to influence audiences should be "candy with vitamins" and not "chocolate-covered broccoli" (Falzone & Lukomska, 2021, p.331). Good game design and the creation of an enjoyable entertainment experience are the basis for every successful game-based intervention. A frustrating or boring user experience will negatively influence how players perceive the game's content and/or lead them to stop playing altogether. Put simply: If a video game is not fun and is therefore not played, it cannot elicit positive effects. As Banerjee (2018) writes: "We need to stop trying to 'Educate using Games' and start making 'Games which Educate.'" Hence, the following discussion of the positive effects of video games only holds true for games, which are enjoyable to play.

Unfortunately, there is no magic formula on how to create a good game. In fact, even professional game designers working for large international gaming companies regularly fail to produce successful video games. As Hodent (2018) discusses, there are some elements which can contribute to the development of an entertaining video game, including ideally keeping gamers in

a state of flow[21], offering a story and a sense of meaning (e.g. meaningful goals such as not just collecting points for the sake of collecting points but to be able to achieve something with those points), using emotions to guide the players through the game and avoid frustrating emotions (e.g. perceptions of unfairness), minimizing the cognitive load of players by offering intuitive ways of moving the game forward, instant feedback, easy game handling (i.e. high usability), and satisfying basic psychological needs not only by offering extrinsic motivation through rewards (e.g. points) but related to intrinsic motivation (e.g. the need for competence, autonomy, and relatedness detailed by self-determination theory, Przybylski et al, 2010). How this is realized, however, can look very different for different video games, which brings us back to the first point: The category 'video games' encompasses such a wide variety of games and all elements discussed must be judged within the context of a specific game.

Player types

Not only video games differ tremendously, so do their players. There is not *the* gaming community and not *the* gamers. Media consumption and its effects, including the effects of video games, are always contingent upon individual experiences, preferences, and personality traits (Shen & Williams 2010; Wang & Yu, 2017). While individual reception can therefore not be anticipated, a simplified typology may be used during game design to account for different types of players. Just like there are not *the* soccer players, but defenders, strikers, midfielders, and keepers, there are different types of gamers, i.e. player types.

Richard Bartle (1996) developed an early taxonomy to classify different types of players in multi-player games:

- Achievers (motivated by extrinsic rewards such as points, badges or special equipment),
- Explorers (motivated by discovering and immersing themselves in the game's story world, who enjoy playing at their own speed and finding easter eggs)[22],
- Socializers (motivated by interaction and social relatedness),
- and Killers (motivated by competing with others).

In a more recent contribution, Marczewski (2018; see also Chou, 2014) expanded and adjusted this typology in the context of gamification and found the following player types:

- Achievers (motivated by mastery and overcoming challenges)

[21] Flow describes a state of balance between the difficulty of a challenge and a player's ability (Csikszentmihalyi, 1990).

[22] Easter eggs are hidden features or messages.

- Free Spirits (motivated by autonomy, self-expression, creating, and exploring)
- Socializers (motivated by interactions and social relatedness)
- Philanthropists (motivated by purpose and meaning)
- Disruptors (motivated by change and 'playing the system')
- Players (motivated by extrinsic rewards such as points, badges, or equipment)

Regardless of the specifics of the typology one employs, video games should be designed to cater to as many different player types as possible in order to motivate as many people as possible to play. This can be achieved in several ways. Sandbox games such as Minecraft are the most obvious example, because allowing players to create their own mode of playing is inherent in the design of the game. Other games could cater to different player types by offering a variety of possibilities to play, e.g. by designing a game that includes opportunities for different player types to fulfill their needs, by providing multiple routes to winning, by offering side quests, or by allowing players to choose different modes of playing (e.g. playing together versus playing alone or open world exploration versus a mission mode). Another way of engaging different types of players with different preferences is to allow for customization of parts of the game such as the avatar, the name of the base, the colors of a banner etc. to increase the players' perceived personal agency (Hodent, 2018).

Options for P/CVE: Ideally, video games used in P/CVE should cater to different player types as even narrowly defined target audiences will likely be composed of various player types. This could mean, for example, to combine opportunities to collaborate with more individualistic measures of game progression such as points and leaderboards as well as providing outlets for autonomy and self-expression, e.g. by allowing avatar customization or other personalization features.

Motivations for Playing

Strongly related to accounting for different player types is the question of what motivates individuals to begin and continue to play a game or engage in a gamified activity. Individuals may perceive different elements as contributing to the fun of playing and be motivated by a combination of a range of different factors. According to Przybylski and colleagues (2010), who build on Deci and Ryan's (2000; Ryan & Deci, 2000) self-determination theory, the appeal of games lies partially in their ability to fulfill important psychological needs. They argue that besides being fun, video games are appealing and engaging over longer periods of time, because they allow players to fulfill their psychological needs of competence, relatedness, and autonomy:

- *Competence* refers to a sense of self-efficacy and master that players feel during gaming. Many games evoke competence by increasing the difficulty of the task as the players' skills increase, i.e. the game becomes progressively more difficult. If players feel underwhelmed, they get bored, but if they are overwhelmed, they get frustrated. Hence, games should stay within the boundaries of what players are capable to achieve in order to preserve perceived competence. Perceived competence can also be supported by personal feedback on performances, e.g. points, badges, progress bars, or other indicators of progress such as numbers of items collected or numbers of missions accomplished. Similarly, game controls such as the buttons a players need to press should either be so intuitive that players feel immediately competent in using them or there should be a learning curve, e.g. by introducing new controls in sequence rather than simultaneously.

- *Autonomy* describes the perceived personal agency players can exercise in a game. There are many ways to increase players' perceived autonomy, especially by offering a range of in-game choices e.g. in affording them flexibility to choose their own goals, make choices about the types of strategies they would like to employ to reach them[23], choose different roles (e.g. healer or fighter in massive multiplayer games), choose missions and side quests, choose their preferred mode of playing (e.g. free play vs. missions vs. main story), allowing players to customize their avatars, personalize their banners etc.

- *Relatedness* refers to the feeling of social connection. Playing games, including video games, is often a social activity and can therefore fulfill the need for social relatedness. Especially online games offer a range of possibilities to connect with others and both collaborate and compete with others. This can take both short-term and long-term forms, e.g. grouping strangers in teams for a single match or allowing long-term groups such as guilds to form and collaborate over extended periods of time.

Chou (2014) has expanded this list of psychological needs in the context of gamification. He too identifies accomplishment (the equivalent of competence), (personal) empowerment (the equivalent of autonomy), and social influence (the equivalent of relatedness) as crucial psychological needs successful gamified applications need to fulfill, but adds meaning, ownership, scarcity, avoidance, and unpredictability as additional motivational drivers, which keep users engaged in gamified applications and video games.

[23] This is also referred to as equifinality, i.e. offering multiple routes to reach an end goal.

- *Meaning* is a core motivational driver to engage in gaming and is fulfilled when the player has the feeling that he or she is engaged in something greater than themselves. Often, this is achieved by the main narrative or storyline of the video game, which requires the player to take on the role of a hero or heroine to fulfill an important (world-saving) mission and take action for the greater good. According to Chou (2014), meaning is best introduced during the onboarding phase at the beginning of the game to set the scene and increase players' excitement to take part in an epic story.

- *Ownership* describes the motivation to improve and protect something a player perceives themselves to have ownership of - such as virtual goods, badges, points or collectables but also creatures (e.g. a Pokémon team a player caught and trained), customized avatars and personalized bases. When a player believes they own something, they place more value on this item and are motivated to continuously engage in the game to keep it or improve it.

- *Scarcity* motivates individuals to take action and obtain something simply because it is rare and exclusive or very difficult to obtain, e.g. shiny Pokémon. As Chou (2014) puts it: "The feeling of abundance does not motivate our brains" (p.254). Rather, players are motivated to take actions to access exclusive content.

- *Unpredictability* refers to the observation that surprising elements and unpredictable events may make games more engaging and fun. According to Chou (2014), it fulfills the natural need for curiosity to explore and diversified experiences. Unpredictability also creates additional motivation as there is only a *chance* of winning, not a (boring) certainty of succeeding. Many games include elements of luck, e.g. a slot machine players can use to gamble for additional items, mystery boxes and random rewards after a mission is completed, or Easter Eggs.

- *Avoidance* describes players' motivation to avoid loss, e.g. losing points or losing items. The relative importance of this motivational driver depends on the overall time and commitment players' have invested into a game, i.e. loss avoidance is stronger when players worked for weeks on getting to a certain level than when they played for a mere half hour.

Generally speaking, video games and gamified applications may be especially enjoyable and keep players engaged not only by being fun to play but by fulfilling their psychological needs and providing additional motivational drivers for continued interaction with the game. Consequently, successful games developed for the P/CVE context should offer similar elements and provide players with opportunities to fulfill their psychological needs and support sustained engagement.

Options for P/CVE: Bespoke P/CVE games should be designed to fulfill as many psychological needs and cater to as many motivational drives as possible. Fulfilling the need for competency, autonomy, relatedness, and meaning may be especially important according to Przybylski et al (2010) and Chou (2014). As shown above, many P/CVE games do not cater to these needs as they offer few opportunities for personal autonomy, social connection to others, and do not require a learning curve (competency). This is an obvious area of improvement for future games.

Learning & Education

It is common knowledge that playing is critical for the cognitive and social development of infants and children. Playing equals learning. Teenagers and adults too may learn through playful activities as the brain retains its plasticity and new neural connections can be built by new experiences (Anderson et al, 2009; Charlier et al, 2012). Hodent (2017) writes "there is no doubt that video games have an important role to play in education, and the main reason is because to play is inherently to learn" (p.222). In fact, entertainment-education - the use of entertainment media such as TV shows, theater plays, or video games for educational purposes aimed at social change - has a long tradition and has shown to elicit educational effects as well as attitude and behavior changes (Frank & Falzone, 2021; Singhal et al, 2004; Wang & Singhal, 2009; Wong et al, 2009; Ritterfeld & Weber, 2006). It is therefore unsurprising that game-based learning, including through video games, is widely discussed as a viable educational approach (Butler, 2019; Blumberg, 2014) and 73% of parents believe that video games can have educational value (Entertainment Software Association, 2020).

Learning through games may take place 'by accident' when playing popular video games for entertainment or 'on purpose' - either when exposed to serious games or when popular video games are used in educational contexts. One of the most popular commercial video games used in education settings is *Minecraft*, a sandbox game, which allows players to build their own world or explore spaces built by other players (Lane & Yi, 2017; Joseph, 2015). The game has been used

to teach a diverse range of subjects, from cultural heritage to geography, science, and math.[24] Other commercial games, which can be used in various educational settings include *Assassin's Creed*, *Anno*, *Tropico*, or *The Sims*.[25] Franceschini and colleagues (2013), for example, found that playing the commercial Wii game *Rayman Raving Rabbids* improved the reading ability of children with dyslexia. At other times, bespoke video games are produced for educational contexts, especially to teach subjects not covered by popular games. This may include a range of school subjects such as (foreign) languages, science, ethics, history, physical education, or music (Young et al, 2012; Martinez et al, 2022; Schrier, 2021) but also simulations and trainings for university-level students or practitioners, e.g. in nursing (Pront et al, 2017)

Over 20 years of research on the use of video games in education has produced a "strong consensus that digital games have the potential to transform education" (Sherry, 2016, p.116). A recent meta-analysis suggests that serious games generally yield a positive impact on learning outcomes (Riopel et al, 2019). There are various reasons why video games are believed to be beneficial to learning, e.g. because learning with video games is more fun, which motivates players to voluntarily commit many hours into mastering a game and nudges them into spending more time on learning; that unlike in a classroom, players receive immediate feedback and can adjust their actions instantly to meet the learning targets; and that games are designed to increase in difficulty proportionally to the increase of skill in players, which allows a tailored learning experience and the opportunity for each learner to progress at their own pace (Sherry, 2016; Hodent, 2017; Hanghøj et al, 2018; McClarty et al, 2012; Chin & Chen, 2021). Learning outcomes may also occur organically, i.e. without employing a game in an educational setting. For example, players report improvements in foreign language communication skills due to the international nature of the gaming community they are engaging with (Mäyrä, 2016).

However, research on the positive effects of video games on learning outcomes currently faces two issues. Firstly, many educational games are not fun to play or entertaining. They are still instructional rather than engaging and "adding cute animations to math exercises (...) is certainly not enough to turn something boring into fun" (Hodent, 2021, p.51). In other words, many educational games are still chocolate-covered broccoli, which makes it difficult to correctly estimate the potential video games may yield on education and learning. Secondly, because research usually tests the games in their entirety, there is little knowledge about exactly which

[24] More information on Minecraft in educational settings: https://education.minecraft.net/

[25] See more at https://www.stiftung-digitale-spielekultur.de/paedagogische-spiele/ [in German]
https://games-im-unterricht.de/ [in German]

game features lead to the desired educational outcomes. It is therefore difficult to deduce specific game elements needed for successful educational video games from the literature (Sherry, 2016; Belotti et al, 2013; but see González-González & Blanco-Izquierdo; 2012).

Options for P/CVE: Game-based learning is a viable approach to increase knowledge about an issue or improve skills, which could be beneficial for the P/CVE context. For example, games could aim to increase players' knowledge about issues surrounding radicalization and extremism or improve their skills in taking action, e.g. against online disinformation or conspiracy theories. Video games could also help to inoculate players against Manichean perceptions of the world and educate them by illustrating the moral complexity of many societal and political issues or conflicts.

| Social Outcomes

Despite concerns over the anti-social effects of playing video games, research has shown that video games can have a range of positive social outcomes. Even to non-players, the lockdowns during the Covid-19 pandemic have made it blatantly obvious that for many individuals, video games are not simply a form of entertainment media but social spaces. For instance, the pandemic saw weddings, birthday parties, and talk shows being hosted in the popular Nintendo game *Animal Crossing: New Horizons* (Wiederhold, 2021). However, it does not take a pandemic for video games to unfold their social potential and connect individuals.

Many multiplayer games are deeply social activities, which require collaboration and effective communication with others. In fact, many players report that the social bonds and friendships video games create, e.g. by encouraging players to work in teams or guilds in order to progress in the game, are a crucial motivational driver to engage in gaming and to continuously return to a game (Rapp, 2017; Cole, 2007). Social interactions with others are key to the enjoyment of gaming (Kowert & Oldmeadow, 2013; Caplan et al, 2009; Bowman et al, 2022) and many perceive a sense of community with other players (Fong & Forster, 2009). Playing video games together can contribute to the strengthening of existing bonds when played with friends and family (Wang et al, 2018; Wollersheim et al, 2010), but may also lead to new social bonds. In some cases, the shared activity of playing together "can contribute to the formation of long-lasting, highly intimate friendship bonds with sustainable levels of self-disclosure and intimacy" (Kowert, 2016, p.94). This may be especially true for individuals, who struggle with offline social interactions, e.g. due to shyness or autism spectrum disorder: Connecting to others via video games may be a way to

compensate for a lack of offline social bonds and may improve overall social communication (Finke et al, 2018; Kowert et al, 2014; 2015; Kowert & Oldmeadow, 2013).

Multiplayer video games may not only support the development of friendships and social connections but may also facilitate the development of important social skills and prosocial attitudes (Halbrook et al, 2019). For example, games which require players to work together may contribute to the development of effective communication skills and possibly leadership skills (Barnett & Coulson, 2010; Barr, 2018). Collaborative games may also contribute to a prosocial attitude and make future collaborative approaches more likely (Quwaider et al, 2019), even if the game itself contains violent elements (Shoshani & Krauskopf, 2021; Ewoldsen et al, 2012). Collaborative games can also facilitate greater willingness for teamwork (Badatala et al, 2016; Velez, 2015) and increase trust, which in turn makes further collaboration more likely (Greitemeyer & Cox, 2013). Other studies found that prosocial video games such as *Super Mario* can promote prosocial attitudes, facilitate the development of empathy, and may even decrease aggression (Gentile et al, 2009; Greitemeyer et al, 2010; 2012; Sestir & Bartholow, 2010). Hence, video games and prosocial play in particular can contribute to positive personal development (Shoshani et al, 2021; Adachi & Willoughby, 2012).

Options for P/CVE: As shown, most P/CVE games do not allow players to connect, compete, and collaborate with each other, making social outcomes unlikely. Future P/CVE-related games could draw on the power of games to facilitate positive social outcomes and, for instance, explore opportunities to connect players, facilitate group-based learning, connect individuals who may not feel connected, establish ties between players who may otherwise not communicate with each other (e.g. because they belong to different (out-) groups), encourage online and offline discussions on difficult or controversial topics, facilitate prosocial attitudes and behaviors, or support players in taking action as a group, e.g. by encouraging players to collaborate and flood a social media platform with positive content.

Attitudes & Perceptions

Everything we consume, whether by reading a book, watching a movie, or playing a game, can impact our attitudes and perceptions on a range of personal, social, and political issues (Shrum, 2017). Video games are no exception in this regard and a range of international organizations such as the UN, the Council of Europe, and the World Economic Forum have highlighted video games as tools for social change or to change perceptions on a range of topics such as misinformation,

climate change, bullying, mental health, homelessness, or the fate of refugees around the world.[26] In addition, organizations such as Games for Change are dedicated to bringing about social change through video games and champion the power of video games to shape player's perceptions.[27]

Research, including a recent meta-analysis, has shown that video games can impact players' perceptions and both implicit and explicit attitudes (Kolek et al, 2022). A change in attitudes after playing a video game may occur immediately or, as Ruggiero (2015) found, weeks after the game was played. The games usually elicit such effects via the narrative that guides the gameplay. For instance, video games hold the potential to have a positive emotional impact, e.g. by increasing perceived well-being and emotional stability, providing an opportunity to 'let off steam', and reducing stress (Johnson et al, 2013; Hazel et al, 2022; Russoniello et al, 2009). Some video games have been used as therapy tools, for instance to facilitate a more positive self-perception in patients with depression (Fleming et al, 2016; Rosenberg et al, 2011; Carras et al, 2018). *SPARX*, for example, is a video game designed to decrease feelings of depression. It requires patients to master useful skills such as completing breathing exercises to advance to the next level and has been shown to elicit positive effects on young patients with depression (Merry et al, 2012). Overall, a growing body of research suggests that "playing video games may foster real-world psychosocial benefits" (Granic et al, 2014, p.66) and using games in therapy to change (self-) perceptions is a promising avenue for treatment (Ruiz et al, 2022).

Just like movies, TV shows, and books, video games can also be concerned with (controversial) social and political issues and shape perceptions and attitudes on such topics (Kolek et al, 2021; Ruggiero, 2014; Kaufman et al, 2015; Kolek et al, 2022; Bell-Gawne et al, 2013). In contrast to watching or reading, however, playing video games is a more immersive activity, which requires active engagement rather than passive consumption, and forces players to make (morally-difficult) decisions in line with the story. For example, in *Papers, Please*, players take the role of immigration officers, who need to make morally-challenging decisions about whom to let across the border. The game *Salaam*, developed by a former refugee, puts players in the position of refugees fleeing from a war-torn country (Vaughn, 2019; Johnson, 2021). Both games are aimed at challenging

[26] https://unric.org/en/category/united-nations-digital-engagement-hub/united-nations-video-games/

https://www.weforum.org/agenda/2019/12/video-games-culture-impact-on-society/

https://www.coe.int/en/web/education/-/edutalks-council-of-europe-discover-the-pedagogical-potential-of-video-games-for-developing-digital-citizenship

[27] https://www.gamesforchange.org/games/

preconceived perceptions about and increasing empathy for refugees and immigrants by allowing players to experience the world through their eyes (Hodent, 2021; Chesler, 2022).

There are also a range of video games, which simulate (international) conflicts and enable players to learn about and navigate conflicts and wars (Schulzke, 2014; Cheong et al, 2014; Garcia, 2018; Nicolaidou et al, 2022). *PeaceMaker*, for example, is a game, in which players must navigate and negotiate the conflict between Israel and the Palestinians. Multiple studies have shown that this game elicited positive effects on the players attitudes towards both conflict parties, increased knowledge about the conflict, encouraged perspective-taking, and reduced stereotyping - even in Israeli and Palestinian players (Alhabash & Wiese, 2012; 2015; Cuhadar & Kampf, 2014; Kampf & Cuhadar, 2012; 2015; Gonzalez et al, 2012). Perspective-taking seems to be a crucial factor to improve attitudes about out-groups via video games and increase the players' knowledge on the social complexities of conflicts (Darvasi, 2016). In addition, a range of games attempt to advocate for non-violence and influence perceptions on the impact of violent conflicts by showing the detrimental effects of conflicts. Games may also offer in-game rewards for morally good behavior and peaceful decisions - leading some to advocate for games as a tool for peace education (Banerjee, 2018). Interestingly, some gamers have also tried to challenge attitudes on violence in video games by attempting pacifist play-throughs of popular violent first-person shooter games. One gamer, for instance, completed *Fallout 4* without a single kill (Carolan, 2019).

Options for P/CVE: Considering the research discussed above, changing attitudes and perceptions via video games is a realistic goal for P/CVE. This could include perspective-taking with out-groups to increase empathy or illustrate the negative effects of extremism and radicalization, inoculation against Manichean worldviews through fostering value complexity and ambiguity tolerance in players, or influencing players' attitudes on controversial political issues.

Behavior

Gaming-related activities may not only influence attitudes and perceptions, but also hold the power to influence behavior. In fact, the explicit goal of gamification is to facilitate behavior change and motivate users to take a 'desired action' by offering gamified rewards such as points or badges (Robson et al, 2015; Sailer et al, 2017). For instance, competing against one's friends on a fitness app, collecting points or likes for workouts, and receiving badges for certain milestones, may motivate users to take more desired actions, i.e. work out more often or for longer periods of time (Hamari & Koivisto, 2015). Gamification can also include other motivational drivers, e.g. the app

Zombies, Run! plays a story about Zombies trying to catch healthy individuals through the headphones of a runner in order to nudge him/her into running faster and completing a higher intensity workout. A recent meta-analysis by Johnson and colleagues (2016) suggests that gamification is generally a promising tool to influence health-related behavior choices.[28]

However, gamification is also successfully applied to behavior changes in a variety of other areas, including education, work, sustainability, or the public sector (Chou, 2014; Blohm & Leimeister, 2013; van Roy & Zaman, 2019; Robson et al, 2016; Gonzalez et al, 2016; King et al, 2013). For instance, Swedish drivers were nudged into abiding the speed limit by the installation of a lottery, in which all drivers who complied with the regulations were entered and could win prizes financed by the fines collected from those who did not comply (Blohm & Leimeister, 2013). Others have examined how gamification could support sustainability efforts and found that gamified applications can motivate users to behave more sustainably, e.g. by saving water and energy (Douglas & Brauer, 2021; Mazur-Stommen & Farley, 2016; Albertarelli et al, 2018; Ouariachi et al, 2020).

Not only gamified applications may facilitate behavior changes, but video games may also be able to do so. A range of games have been tested in the context of health improvements to encourage patients to make appropriate health-related behavioral adjustments (Baranowski et al, 2008; Xu et al, 2020), e.g. when managing chronic diseases such as diabetes (Lieberman, 2012; Thompson, 2012; Thompson et al, 2007; DeShazo et al, 2010). For example, the game *Re-Mission* is used in the treatment of cancer patients and requires players to take various actions against their cancer such as shooting at cancer cells. It has been shown that playing the game improves the patients' adherence to the treatment protocol (Kato et al, 2008; Cole et al, 2012). Generally speaking, video games are increasingly used as treatment tools and the game *EndeavorRX* recently became the first video game to be approved by the US Food and Drug Administration (FDA) as a promising element of the treatment of ADHD in children (Hodent, 2021). Importantly, games have also been used to *prevent* certain behaviors such as unhealthy eating habits (Thompson et al, 2010).

Video games can also help to facilitate behavior changes in other areas such as increasing the likelihood that players display prosocial behavior (Passmore & Holder, 2014; Li & Zhang, 2022; Arjoranta et al, 2020). Greitemeyer and Osswald (2010), for example, showed that even as little as 10 minutes of playing a video game with prosocial content (as opposed to playing a neutral game

[28] See more examples for gamification in healthcare https://medicalfuturist.com/top-examples-of-gamification-in-healthcare/

such as *Tetris*), can increase both low-cost prosocial behavior - such as helping someone pick up an item they dropped - and high-cost prosocial behavior - such as helping someone who is being harassed. Gentile and colleagues (2009) found that this correlation between prosocial video games and prosocial behavior occurs across different cultures, age groups, and research methodologies - suggesting that such video games are a promising avenue to influence social behavior in target audiences. In addition, video games with prosocial content may not only increase prosocial behavior and willingness to help others, but it may also decrease anti-social behavior (Saleem et al, 2012; Whitaker & Bushman, 2011).

This effect may be partially explained by the fact that prosocial video games seem to increase the accessibility of prosocial thoughts, which then guide the behavior (Greitemeyer & Osswald, 2011). Other psychological mechanisms, which may contribute to a behavior change after playing a video game, include the conscious motivation to change behaviors, the personalization of experiences and agency afforded by first-person gameplay, but also unconscious factors such as the Proteus effect (Mccain et al, 2018). The Proteus effect describes a player's identification with the avatar and the wish to conform to the avatar's digital behavior in real life. This wish may then contribute to behavior change (Yee & Bailenson, 2007; Jeremy et al, 2009; Ratan et al, 2020; Stavropoulos et al, 2020; Li et al, 2014).

Options for P/CVE: Considering that most P/CVE games fall within primary prevention, the review above suggests that there is an opportunity to use video games to increase prosocial behavior while decreasing anti-social behavior as a primary prevention measure. This would necessitate, however, a move from the current approach of using video games to educate players on radicalization processes or related issues towards developing games emphasizing desired prosocial attitudes and behaviors, which may decrease susceptibility to radicalization in the long run.

Conclusion & Recommendations

Judging from the current state of knowledge, it is clear that extremist actors of different ideological backgrounds are seeking to utilize video games, gaming (-adjacent) platforms, and gaming-related content in various ways. While much of the present understanding of the connection between gaming and extremism is based on anecdotal evidence and more research is needed to judge the prevalence, scope, reasons, and consequences of this new trend, it is evident that the topic deserves attention from all stakeholders involved in P/CVE. This explicitly includes P/CVE practitioners. Although many unknowns remain about gaming and extremism, it is apparent that engaging with gaming and incorporating gaming-related elements in P/CVE measures is critical to respond to extremists' exploitation of gaming spaces and content.

So far, gaming elements have rarely been included in the design and implementation of P/CVE projects. This not only prevents P/CVE actors from contesting extremist actors' presence in gaming culture but hampers the ability of P/CVE projects to reap the social, psychological, educational, and behavioral benefits of gaming. These positive effects of gaming include, as we have seen, opportunities to make educational content more engaging, to build on the prosocial outcomes of multiplayer gaming, to influence attitudes and perceptions on personal, social, and political issues, e.g. by putting players in the shoes of the out-group, and even to facilitate positive (prosocial) behavior changes. The review above clearly demonstrates that video games can elicit a range of positive effects in various areas, including learning, social skills, prosocial behavior, and attitude change. P/CVE projects could benefit from an engagement with these insights on the positive effects of gaming and from implementing and testing gaming elements in their (digital) interventions to broaden our understanding of the positive impact video games can have in the P/CVE context. For P/CVE projects with a focus on the development of a bespoke (serious) video game, the following recommendations can be deduced from existing research on the positive effects of gaming:

- Even serious games must be enjoyable and entertaining *in their own right*. Offering "chocolate-covered broccoli" or simply adding cute animations to boring content is unlikely to be perceived as engaging by the players and, therefore, unlikely to elicit positive effects.

- This means that good game design is key. Even if the content is excellent, a poorly designed game with low usability and 'engageability' is unlikely to elicit the desired effects. P/CVE projects using video games have so far mainly used relatively simple narratives, visuals, and mechanics (RAN, 2022), which suggests that there is room for improvement to make more entertaining video games in the P/CVE context. Hence, for P/CVE interventions seeking to develop new, bespoke games, a collaboration with experienced game designers should be the basis of the project.

- Not every video game may be suitable for every type of intervention, topic of discussion, target audience, or setting. As we have seen, there are not *the* effects of video games. Rather, effects are always context-specific and games are often tested in their entirety rather than in terms of which elements contributed to the positive outcomes or persuasion. It is therefore necessary to discuss different game design approaches within the individual context of the project and then to choose the type of game, genre, setting etc. in such a way that it matches the specific goals and circumstances of the P/CVE project in question.

- Ideally, video games used in P/CVE should cater to different player types as even narrowly defined target audiences will likely be composed of individuals with different motivations to play. This could mean, for example, to combine opportunities to collaborate with more individualistic measures of game progression such as points and leaderboards.

- Similarly, video games in P/CVE should allow players to fulfill important psychological needs such as competence, autonomy, and relatedness as well as offer motivational drivers for engagement, e.g. by employing a narrative that provides meaning to the gaming activity and the game's content.

- The review above provided an overview on the positive effects games have been shown to elicit in various contexts. More in-depth research and practical experience on serious games in the P/CVE context is needed and how positive effects such as knowledge gain or attitude and behavior change can be transferred to P/CVE projects. This will require a trial-and-error approach by practitioners collaborating with game developers on bespoke video games for the P/CVE context and necessitates that P/CVE projects are clear in the goals they seek to achieve with the bespoke game, e.g. whether the game should influence attitudes, behaviors, or increase knowledge on a given issue.

Recommended further reading

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