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PLAYING WITH MENTAL ISSUES – ENTERTAINING VIDEO GAMES AS A MEANS FOR MENTAL HEALTH EDUCATION?

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Abstract: *Our qualitative analysis focuses on prosocial depictions of mental health issues in entertaining video games, with the theoretical lens of Critical Disability Studies. The inquiry of four video games in our sample focuses on a. how the depictions of the mental health issues were constructed in the games' production process and b. how these issues are represented in the products' structures. The method of document analysis allowed us to reconstruct how and to which end game designers and mental health experts collaborated during the production process towards implementing the mental health issues. Employing methods of game studies, we analyzed the depiction of the main playable character, the interaction design and the gameplay. In conclusion, the four indie video games can be played with or without a deeper insight into the mental health issue. The way the mental health issues are constructed in the video games shows that they are mainly illustrative for an individualized, medical model of mental health. Gameplay was mostly linear, and there was little room for interactivity in terms of choices or self-guided exploration. This can be traced back to the production process, as the game designers mainly relied on the advice of medical professionals and/or the introspection of individuals with a lived experience of the mental health issue. Although the analyzed video games are commendable for their efforts to engage with mental health issues in a prosocial and playful way, their usefulness for fostering a comprehensive mental health education is limited.*

Keywords: *video games; mental health education; game studies; production analysis; product analysis*

Introduction

Background

Video games are an important part of (popular) international, globalized culture (Freyermuth, 2020, p. 29). Playing video games is a daily activity for many young people, and they engage with them by choice: 63 percent of 12- to 19-year-olds in Germany play digital games daily or several times a week (Medienpädagogischer Forschungsverbund, 2019, p. 44) as well as do 70 percent of Swiss youth (Suter, Waller, Bernath, Külling, Willemse, & Süss, 2018, p. 59).

In exploring the topic of our article, games and mental health issues, it is necessary to look at how the topic of mental health is negotiated in societies. Research shows that the general population is largely ignorant of mental health issues, and fear of the mentally ill remains prevalent (e.g. Rössler, 2016). This calls for a general education towards "mental health literacy" (Dowrick, Spiegel, Lionis,

& Mendive, 2020).[1] As many young people already play video games, why not take advantage of the medium of video games for educating about mental health issues? First, we will review how commercial video games deal with mental health issues, and then look into research about what makes video games suitable for negotiating mental health issues in a prosocial way.

Commercial video games contain frequent and varied portrayals of mental illness (Shapiro & Rotter, 2016; Ferrari, McIlwaine, Jordan, Shah, Lal, & Iyer, 2019). Shapiro and Rotter's review of 96 highest-selling video games from 2011 to 2013 showed that almost all video games in their sample (93 of 96) depicted at least one character with mental illness. Video games most commonly link mental illness to dangerous and violent behaviors of an adversary character (Shapiro & Rotter, 2016, p. 1595). In the same vein, Ferrari et al. (2019) examined the labels used and overall messages about mental illness, especially psychosis, in video games on the game platform Steam from the years 2016-17. The majority of the games they reviewed (97%) associated mental illness with violence, fear, insanity, hopelessness, etc. (Ferrari et al., 2019, p. 9). Thus, commercial video games join the long history of mass media depictions popularizing misleading representations of the mentally ill (e.g. Packer, 2017 and references therein). Representations are images that stand in and point towards a thing (Bérubé, 2015). However, it not clear-cut whether these kinds of representations of video game characters with a mental illness bring about or "originate from stigmatizing and unjust realities" (Bérubé, 2015, p. 153).[2]

In recent years, prosocial entertaining video games were developed in commercial contexts that put a main playable character with a mental health issue in the center (Fordham & Ball, 2019; Ferrari, Bush, Clark, & Archie, 2018). Case studies on these video games show that there was an effort to go beyond superficial treatment of the mental health issue at hand. In "Debris" (2017), co-developed by clinical researchers, the mental health issue – psychosis – is included in the narrative and in the gameplay (Ferrari et al., 2018, p. 2). Symptoms of psychosis can be experienced from the perspective of a person concerned with the issue as the gameplay in a mysterious underwater world unfolds. Teaming up with another player will help reach the game's goal to escape to the surface of the underwater maze while at the same time "meet gamers' desires for adventure, pleasure, challenge, and esthetics" (Ferrari et al., 2019, p. 10). Another video game, from 2017, is "Hellblade: Senua's Sacrifice", which in a similar vein is "an attempt to create a game that allows the player to experience symptoms similar to psychosis" (Fordham & Ball, 2019, p. 5). Players are "active and complicit in the exploration of the avatar's mental state as well as the possibility of recovery" (Edrei, 2017, p. 231).

Video games are special in that they surpass the representation and storytelling of traditional audiovisual media due to their inherent interactivity, i.e. the capacity to structure interactions between player and software or between players (e.g. Freyermuth, 2015, p. 98). In order to

[1] Dowrick et al. (2020) propose promoting a culturally-sensitive understanding of the perspectives and needs of people with a lived experience of mental illness. As we will argue below, drawing on work from Critical Disability Studies, it is necessary to "de-center" the discussion from an individualized, medical model of mental health towards a model of interdependence "of 'disabled' and 'nondisabled' persons", (…) "problematizing issues of health, normality, and functioning" (Waldschmidt, 2017, p. 25).

[2] Bérubé concludes that an analysis of representation needs to go beyond "a naively realist theory of mimesis (representations should be accurate reflections of the world) and a naively moralist scale of evaluation (in which "positive" representations are better than "negative" ones)" (2015, p. 153).

determine interactivity in a game it is necessary to take a closer look at the game's structure. Typically, video games alternate between interactive and narrative sequences (Matuszkiewicz, 2018, p. 139). The analysis of the narrative sequences, in which the storytelling can unfold, conveys the backstory of the game. The analysis of the aspect of (ludic) interactivity elucidates the game's (predetermined) goals and can answer the question of what is practiced (i.e., learned) in playing the video game when players follow these pre-set game paths. A useful differentiation for analyzing interactivity in video games is characterizing three variables, "frequency (how often you could interact), range (how many choices were available), and significance (how much the choices really affected matters)" (Laurel, 1993, p. 20). In recent game productions, interactive and narrative sequences are hybridized, e.g. by integrating voice-overs in interactive sequences (Matuszkiewicz, 2018, p. 77). This serves the goal to nudge the player to engage in ludic interactivity and to follow the game's narrative.

Psychological studies show that gameplay that allows for an interactive experience can, depending on the game's subject-matter, indeed foster prosocial behavior (e.g. Steinemann, Iten, Opwis, Forde, Frasseck, & Mekler, 2017) and learning (e.g. Green & Jenkins, 2014) in game users. Interactive experiences with games can lead to a heightened responsibility towards the game character's actions and deeper engagement than just perspective-taking and feelings of empathy that arise from reading (narrative) texts (Green & Jenkins, 2014). However, this crucially depends on the game design, which has to allow for decision-making and to linking the players' actions to different consequences. Thus, it is important to look closely at the interaction design in games that include a main playable character negotiating a mental health issue.

The interaction design is created in the production process of the game and can be studied by analyzing the game's structure (product analysis). In order to identify the sources for the mental health issues that went into the development of the game, one needs to look at the development process of the video game (production analysis). One recommendation is, for example, to involve experts on the subject-matter in the production process (e.g. Eilert, 2020, p. 213; Nakamura, 2017, p. 245).

Video games are media products made by studios in the games industry (e.g. Wimmer & Schmidt, 2015, p. 265). A common distinction in the industry is the one between mainstream games produced by AAA studios and Indie games created by independent developers. Indie studios are known to take creative risks and dare to deal with challenging topics, due to the creative freedom of the individual producers and their typically smaller teams (Birke & Hahn, 2020, p. 240). Funding is an issue for the independent studios, as is producing commercially successful quality content on a relatively small budget. The practices of game design (Freyermuth, 2015, p. 179) are the same for big and small studios. The design process is a succession of three phases: planning – prototyping – implementation in an iterative design. The video games "Debris" and "Hellblade: Senua's Sacrifice", for example, were developed by independent studios in collaborative processes with researchers from University together with people who recovered from or were at-risk for symptoms of psychosis (Ferrari et al., 2018; Fordham & Ball, 2019). This collaboration shaped the games in distinct ways and researchers call for deeper analyses "of not only games that depict mental illness, but also the design process behind them" (Fordham & Ball, 2019, p. 1).

Objective

In order to determine whether entertaining games can contribute to educating youth in terms of "mental health literacy", it is necessary to search for games that make efforts to deal with mental health issues in a prosocial way and to analyze them in detail. Our main research questions were:

Q1: What are examples of commercially successful entertaining video games with a prosocial focus on a mental health issue? What are the development contexts of these games and to which end were sources on the mental health issue at hand employed in the production process of the game?

Q2: How are mental health issues in these video games represented in the game products' structures, i.e. in terms of main playable character, interaction design and gameplay? Do the video games open up spaces for reflection and education?

Methods

Epistemic framework

To focus our research questions, we adopted the theoretical lens of Critical Disability Studies (e.g. Waldschmidt, 2017; Dobusch, 2019) and applied it to the negotiation of mental health in video games. The cultural model of disability "considers disability neither as only an individual fate, as in the individualistic-reductionist model of disability, nor as merely an effect of discrimination and exclusion, as in the social model. Rather, this model (…) investigates how practices of (de-)normalization result in the social category we have come to call 'disability'" (Waldschmidt, 2017, p. 24). What is more, because social practices are not fixed "the historical contingency and cultural relativity of inclusion and exclusion, stigmatization and recognition can come into consideration" (Waldschmidt, 2017, p. 25).

This lens is consequential to our study in two ways: One, in order to determine how video games on mental health issues act as social spaces for "problematizing issues of health, normality, and functioning" (Waldschmidt, 2017, p. 25). Two, in order to identify whether game-specific features like playable character design, interaction design and gameplay were used to support critical reflections.

Search strategy

To vet video games for an in-depth analysis, we put together indicators for a theory-driven selection of video games in our sampling process. As we wanted to identify prosocial, entertaining video games in relation to mental health, we employed the following criteria to narrow down the selection:

a. Mental health should be one focus of the game, i.e. we looked for video games with a main player character with a mental health issue and for games that create an interdependence between the player and a certain mental health issue, respectively. The mental health issue should be acted on in the gameplay in a prosocial way.
b. In producing the game, efforts were made to learn about these mental health issues. Sources, e.g. from academia, mental health care, or people with a lived experience of a

mental health issue, went into producing the video game, and the producers were outspoken on these collaborations.

c. The video games should be entertaining[3] and internationally successful as evidenced by their distribution on public game platforms like Steam, Playstation Store or Oculus Go.

We searched for games that met these criteria on platforms like the online store Steam, we consulted articles in online gaming magazines that review and recommend games, and looked into research papers. Documents from this search were collected and saved and formed the base for our corpus for the document analysis.

From this search, four games emerged for further analysis: the narrative cooperative game from Canada-based Moonray Studios, "Debris" (2017, update 2018), the Action-adventure game "Hellblade: Senua's Sacrifice" (2017) created by Ninja Theory (UK), the story-driven game "Please Knock On My Door" (2017) by Swedish producer Michael Levall and the commissioned mobile game "Sea Hero Quest" (2016) made by UK-based Studio Glitchers.[4]

In our search we build a corpus of documents about these games, and arrived at a total of 43 documents from the years 2016-2019. We selected a subset from this corpus (n = 20) for our document analysis for each game with different perspectives, i.e. journalistic texts, documents from the development process, and self-branding of the game.[5]

Document analysis and video game analysis

We applied the method of document analysis (Bowen, 2009) to the sources on the game's development process, i.e. to articles in online magazines about the production process and reviews of the games (project outline and management), to the descriptions on the game's Steam or Oculus Go websites (promotion aspect), and documents from the development process like posts on development blogs, audiovisual development diaries and press releases (practices aspect) for an evaluation of collaboration during the different phases of the production process.

We organized the data on how the mental health issues were brought into the games into major themes.

Our video game analysis has its roots in media sociology (e.g. Wimmer & Schmidt, 2015) and elucidates the structures of the game products with methods developed in Game Studies (e.g. Freyermuth, 2015). Our analysis focuses on the main player characters, gameplay and on the

[3] As opposed to Serious Games in a strict sense (e.g. Boyle et al., 2016; Fleming et al., 2017; Birk, Vanden Abeele, Wadley, & Torous, 2018) or games for therapy/Games for Health (e.g. Baranowski et al., 2016; Lau, Smit, Fleming, & Riper, 2017).

[4] Researchers point out the scarcity of prosocial entertaining games about mental health issues: Serious games like "Depression Quest" (2013) might offer insights into symptoms and choices for action, but lack in entertainment value, and "suffer from mixed reviews and relatively low sales" (Fordham & Ball, 2019, p. 3). Commercially successful video games that include mental health issues in purely entertaining ways face criticism of "trivialization or further propagating stigmatized stereotypes" (Fordham & Ball, 2019, p. 5).

[5] "Debris": Carter, 2017; Bokor, 2018; Ferrari et al., 2018; Ferrari, Bush, Clark, & Archie, 2016; Moonray Studios, 2016. "Hellblade: Senua's Sacrifice": Lam, 2017; Brierley, 2019; Johnson, 2017; Lacina, 2017; Fordham & Ball, 2019; Ninja Theory, 2018; TIGS, 2019. "Please Knock On My Door": Conditt, 2017; Ummadi, 2017; Mills, 2018; the game's Steam website. "Sea Hero Quest": Jordan, 2017; Rigg, 2017; Alzheimer Research UK, 2019; Studio Glitchers, n.d.

interaction design (Schröter, 2018; Beil & Rauscher, 2018; Matuszkiewicz, 2018). The analysis is based on our own logged play experiences and extensive discussions about the games' structures among the two authors. We, the authors, also compared our conclusions e.g. regarding possible alternate endings, with game reviews in our corpus.

Results

The four video games in our sample (see Table 1) are similar in having a main player character with a mental health issue ("Debris", "Hellblade", "Please Knock On My Door") or create a prosocial interdependence between the player and a certain mental health issue at the center ("Sea Hero Quest"). The games differ in their genre and their focus on a specific mental health issue: "Debris" and "Hellblade: Senua's Sacrifice" explore symptoms and causes of psychosis, "Please Knock On My Door" centers on managing depression and social anxiety, and "Sea Hero Quest" is about dementia. All four games in the sample originate from the same production contexts, i.e. independent studios. They meet the criterion of being entertaining and being a (commercial) success, albeit some fare better than others.

Table 1: Selected video games on mental health issues and their development context

Video Game, year of release	Development context
"Debris" (2017, update 2018)	Moonray Studios, Independent Studio (Canada) + Clinicians and Researchers from universities + Youth Advisory Working Group (17- to 19-year-olds) + Non-profit national research foundation (funding)
"Hellblade: Senua's Sacrifice" (2017)	Ninja Theory, Independent Studio (United Kingdom) + Neuroscientist, Psychologist, Historian from universities + Service Users from Recovery College London + Health research foundation (funding, advice)
"Please Knock On My Door" (2017)	Levall Games AB, Independent Producer (Sweden)
"Sea Hero Quest" (2016, VR version 2017)	Studio Glitchers (United Kingdom) + Neuroscientist, Dementia Researcher from universities + Advertising agency (narrative) + Telecommunications company (funding, marketing) + Dementia research charity (funding, advice)

Production process

All four games were created with the help of people with lived experience and/or experts from academia. However, they emerged from different development contexts: One game was developed by the game designer himself, on the basis of his prior experiences with "depression, feelings of loneliness and phobia" and his efforts to deal with this life-crisis situation ("Please Knock On My Door"). This game is best characterized as individual work based on introspection (see Table 2). In the other three games, the game designers sought out researchers or experts by experience during the production process ("Hellblade: Senua's Sacrifice"), or else, academia reached out to game designers ("Debris", "Sea Hero Quest"). These collaborations were supported by external funding from non-profit organizations or companies, to varying overall budgets, and were more or less institutionalized, e.g. for "Debris" in an IKT (Integrated Knowledge Translation, e.g. Kothari & Wathen, 2013) framework.

Thus, the sources on mental health issues were people with expertise, ranging from academia to experts by experience. Across all video game productions, we reconstructed three functions for including this expertise about the mental health issues in the design process, i. Providing information, ii. Legitimating the process and product and, iii. Initiating innovation.

The first function, providing information, relates to getting detailed insights about the mental health issues from experts, discussing them and getting feedback on specific game design decisions. Collaborations were formed with experts from academia and with people with a lived experience of the mental health issue. The information provided concerned matters relevant to the games' designs, e.g. details of the mental health experience, symptoms, and how to translate these into game structures. All three game studios that collaborated with experts worked together with mental health advisors and clinicians from universities and – in the case of "Hellblade: Senua's Sacrifice" – with a historian. This input was especially sought-after in the first phases of the project, the planning phase of the games. In the game "Sea Hero Quest", clinicians communicated their scientific questions and specifications that had to be implemented in a game structure to the game designers. The information gained from people with a lived experience of the mental health issue at hand were either domain-specific, e.g. whether the game's depictions of visual and auditory hallucinations matched their experiences ("Hellblade: Senua's Sacrifice"), or, in the case of "Debris", involved game mechanisms, as the game was set up to play in cooperation and show in the gameplay how to give support when a main player character experiences symptoms of psychosis. For the depiction of depression in "Please Knock On My Door" personal experience was used holistically. Here, the game designer himself was the one with the lived experience of the mental health issue.

Table 2: Expertise on mental health issues employed in the game development process, and its functions

Production process	i. Providing information	ii. Legitimating the process and product	iii. Initiating innovation
1. Individual	Game designer's introspection	Authenticity	Personal, holistic
2. Collaborative	a. Academic advisors: Facts and contexts, pertaining to their academic specialty	Academic credibility, Quality control	Enriching/challenging concepts for game design
	b. People with lived experience of the mental health issue: first-hand experience, feedback	Representation, Authenticity, Quality control	Enriching/challenging concepts for game design

The second function is legitimating the process and the product by referencing the expertise gained in the collaboration. This is evidenced by the video games being marketed with descriptions like created "by a team of psychiatrists" ("Debris") or "created in collaboration with neuroscientists and people who experience psychosis" ("Hellblade: Senua's Sacrifice"). Mentioning that the game development is rooted in research lends academic credibility to the depictions. Referring to people with a lived experience of the mental health issue is a matter of representation and authenticity which adds to the game's legitimacy. Involving people with a lived experience of a mental health issue in the design process – at least at some point in the process – might be expected [6], hence representation.

The extent and the scope of the commitment of these "experts by experience" is not clearly mapped out in the documents, and evidence points to selective meetings with laypeople in a non-professionalized context – serving as a counterpoint to the "professional" medical advisors. Thus, the intuitive, lived experience of these experts lends these depictions authenticity, and authenticity is what characterizes the solo production of "Please Knock On My Door", too.[7]

[6] E.g. along the lines of the American disability rights slogan: "Nothing about us without us". "Disability studies, as the academic outgrowth of the disability rights movement, tends to emphasize the self-representation of people with disabilities in the aesthetic sense as well as the political" (Bérubé, 2015, p. 151).

[7] Authenticity per se does not make a prosocial game: "Depression – the game" (Deepworks Studios, 2018) is based on the game designer's experiences, according to the game's Steam website. The mental health issue of depression is translated into a "survival game". Throughout the short gameplay the main player character is challenged to take his life with a graphic display of different techniques. While fighting suicidal ideations might be an authentic depiction of the game designer's experiences, these in-game challenges do not add up as prosocial gameplay, but go for shock value and could be – at worst – triggering for players.

The third function of the collaborations between game designers and external experts is the expectation to initiate innovations through co-operative knowledge building. An example for this is "Sea Hero Quest" that set out from a point of division of labor, with a clear scientific goal and the creative work following suit. The main task was to adapt a lab experiment into a game that helps collecting data for dementia research. Collaborating with the researchers, the game designers came up with creative ideas that made the game fun and were at the same time even more conducive to successfully performing the task than the visualizations used in the original lab experiment. In other development contexts, however, innovation in terms of game design did not come about as easily from the collaboration as evidenced by the game designers' quotes about the process: "this collision of industry, medicine and academia is not the easiest way to create a mass-market game", and the advice of "finding areas of mutual interest" with the experts by experience in order to make collaborations work beyond the first function of providing information and feedback.

Video game analysis

A structural analysis of the video games (see Table 3) shows that mental health issues are translated into game mechanics, i.e. in setting, ludic goals, gameplay type, and interactivity, in a variety of ways. At first glance, the games are very diverse, however, some design choices represented in the games are very similar.

The games operate in very different settings – in an icy underwater tunnel system, on a mythical island in Viking times, in a city apartment, and in a variety of seascapes. Except for "Sea Hero Quest", which is colorful and cheery, the colors of the game world are typically dark and gloomy, and set the stage for the main player characters' painful fight or ordeal.

The ludic goals are the ones typically found in video games like wayfinding, manual dexterity (e.g. in fights) and solving puzzles. In "Please Knock On My Door", the ludic goal is directly and consistently connected to the mental health issue, i.e. depression and social anxiety. In order to be able to leave the apartment (ludic goal), the player has to guide the main player character in a series of smart choices for everyday actions like eating, sleeping and going to work. Choice options are pre-set and restricted according to the main player character's worsening or improving "mental fortitude" (as it is called by the game). In "Debris" and "Hellblade: Senua's Sacrifice" the mental health issue is more intricately connected to game-typical ludic goals: tasks like navigating a maze, fighting enemies or solving puzzles have to be performed while symptoms of psychosis like visual and auditory hallucinations are depicted in the game world. These symptoms are treated as an obstacle in "Debris" that has to overcome with the help of the partner. In "Hellblade: Senua's Sacrifice" this is not as straightforward as for example auditory hallucinations serve as giving important hints in fights.[8] The ludic goal of "Sea Hero Quest", performing navigation and orientation tasks as a captain of a small boat, is tied to the mental health issue of dementia, but the game mechanisms do not assist players in uncovering aspects of dementia. Users with and without the condition are asked to help fight dementia by playing the game, however, the game is ultimately

[8] The fight's "focus" mode as well as the puzzle-solving task point to pattern recognition and meaning-making that is said to come easily especially to people with psychosis (Ninja Theory, 2018).

designed as a means for data collection for research.[9] Unconnected to the ludic goals, all games specify the mental health issue highlighted at some point in the gameplay. "Sea Hero Quest", "Please Knock On My Door" as well as "Hellblade: Senua's Sacrifice" point to it from the beginning of the game with text inserts and/or links to websites outside of the game. In "Debris" information about the mental health issue – psychosis – is revealed at the end of the playthrough of the video game. Typically, a label for the mental health issue is given as well as links to websites with helplines or local medical service providers.

Table 3: Analysis of the games' structures in terms of ludic goals, gameplay and interactivity

Game, setting	i. Ludic goal(s)	ii. Gameplay type	iii. Interactivity a. perspective	 b. options
"Debris", icy underwater tunnel system	Navigate a maze, fight enemies, connect with partner	Narrative cooperative game (single/two players) with 4 endings	Fully written and voice-acted main playable character (first-person perspective) with a backstory	Hybrid narrative and interactive gameplay Interactivity frequently, little range, significance: in-game death/life
"Hellblade: Senua's Sacrifice", island in Viking times	Navigate to a certain place, fight enemies, solve puzzles, explore Norse mythology (optional)	Narrative action-adventure game (single player) with a single ending	Fully written and voice-acted main playable character (third-person perspective, avatar) with a backstory	Hybrid narrative and interactive gameplay Interactivity frequently, little range, significance: in-game death/life
"Please Knock On My Door", apartment in a city	Leave an apartment by making a series of choices (restricted due to depression)	Narrative strategic game (single player) with 3 endings	Silent main playable character (third-person perspective, avatar, and first-person perspective) with a backstory	Hybrid narrative and interactive gameplay Interactivity frequently, little range, significance: in-game death/life
"Sea Hero Quest", variety of seascapes	Navigation and orientation in consecutive sets of tasks	Mobile casual game (single player) with a single ending	Silent main playable character (third-person perspective, avatar; VR: first-person perspective) with a backstory	Task-and-reward interactive gameplay Interactivity frequently, little range, little significance

[9] According to the researchers involved, the collected data from the game creates a global benchmark of spatial navigation in humans (Alzheimer's Research, 2019).

The gameplay type is a single-player experience in all four video games – "Debris" launched a co-op mode in which two players need to coordinate their actions in order to reach the ludic goal. Two of the games have a single ending, "Debris" has four different endings (assigned by the player's actions encountering different symptom sets of psychosis), and in "Please Knock On My Door" choices really matter as one of the three endings is assigned based on the player's performance.

All games center on the main playable character and allow for acting from their perspective. In "Debris" and "Hellblade: Senua's Sacrifice" the main playable character is fully written and voice-acted, in "Sea Hero Quest" and "Please Knock On My Door" the main playable character is silent throughout the game. The main playable characters are not customizable by the player. They are depicted in game-typical perspectives and styles like first-person and third-person perspectives. In every game there is a backstory of the main player character to uncover, focusing on the main playable character's close relationships (family, friends). In the three video games "Debris", "Hellblade: Senua's Sacrifice" and "Please Knock On My Door" the symptoms of the mental health issue play out in the game world (environment) and affect the main playable character, putting the player in the position of viewing the game world from their perspective. "Sea Hero Quest" is the exception as it puts the main playable character in a position of care for the elderly. This is backed up by the (scant) backstory about a young man helping retrieve the memory of his aging father, a sailor.

In terms of the options for interactivity, the three games "Debris", "Hellblade: Senua's Sacrifice" and "Please Knock On My Door" are examples for hybrid narrative and interactive gameplay. The interactivity is guided by narration throughout the game. In "Please Knock On my Door" a male narrator's voice-over directly addresses the player and nameless, silent, black main playable character. Depending on the player's choices, the narrator's voice gets more benevolent, or increasingly more vicious and berating towards the "bad ending" with deteriorating "mental fortitude". His words are also represented as text inserts. In "Debris" the narration is embedded in the voice-based team communication of the main playable character, the diving videographer Ryan, and his diving team partners Sonya and Chris. The narrative part of the gameplay is hybridized with the interactive gameplay, and the voice-over is performed by voice actors (also represented as text chat). "Hellblade: Senua's Sacrifice" is an interesting variation as the player's actions are guided by a multitude of voices commenting every situation, giving hints or setting the player on the wrong track, cheering and berating the progress of the main playable character, Senua. This binaurally recorded voice-over track is designed as part of the aural hallucinations that accompany the main playable character – as do her visual hallucinations which are represented in the game world. "Sea Hero Quest" has no strong narration, and no narrator's voice, just a simple task-and-reward interactive gameplay with a level system typical for casual games, making it easy to start and stop engaging with the game in shorter periods of time. All in all, the interaction design in all four video games is that opportunities for interactivity are frequently, there is little range in terms of choice options, and the significance of the interactivity in in-game life or death, i.e. progress or returning to the last save point.

Thus, in three of the four video games in our sample, the mental health issue is integrated at the level of the gameplay, with a strong emphasis on the main playable character's perspective with

the mental health issue. The player can experience symptoms of the mental health issue in the design of the game world and has to act under these circumstances. Looking at the structures of the video games with the lens of Critical Disability Studies, do these video games open up spaces for reflection and education?

In "Please Knock On My Door" every decision how to progress in-game is designed to be a conscious choice, thus creating space for reflecting on the actions. Most of the time, the player is in the position of an observer – as evidenced by the bird's eye perspective on the main player character – and can watch how these choices affect the main playable character's mental health. The video game centers everyday life with a mental health issue and treats everyday routines like eating, sleeping, showering, and showing up to work as strategic, conscious moves. In playing the game, users gain awareness about choices an individual can make on a day-to-day basis in creating healthy routines. A second educational take-away is how choices are limited due to worsening mental states, making the gameplay an uphill battle against a variety of symptoms like sleeplessness, ruminations, and excessive media use. In conclusion, the game's treatment of the mental health issue follows an individualized, medical model of mental illness.

In the video game "Debris", the ludic goal, collaborating to escape an underwater tunnel system, is the same whether the main player character is played with or without symptoms of psychosis. However, the symptoms can be easily overlooked as they present in an already fantastic underwater world full of luminous fish and glowing lava rocks. Only in the ending, when the text inserts reveal which set of symptoms were encountered, the gaming experience can be re-evaluated in light of the new information, making space for reflection. Two, the mental health issue is positioned as an additional obstacle to overcome the emergency situation underwater, which indicates education in terms of an individualized, medical model of mental illness. The educational take-away from the situation is that orientation is difficult, everything is potentially irreal (i.e., nothing can be trusted) and, communication is a lifeline, because the player has to follow the hints from the voice conversation in order to make his/her way out. Pursuing the ludic goal under these conditions gets repetitive and takes away from the fun, because of the limited possibility of exploration or interactivity.

"Hellblade: Senua's Sacrifice" has multiple layers: On the one hand it is a story in a mythical world, a larger-than-life love story in which a warrior goes on a journey to a far-away place to claim the soul of her deceased lover from the gods (Illger, 2020). On the other hand, symptoms of psychosis accompany the main player character's journey and shape the game-world and the interactive parts. In the narrative parts of the game, a backstory unfolds that slowly peels back layers of childhood trauma and exclusion from society. As psychiatrists like Edrei (2017) point out, this is done in the way of an accurate modern clinical etiology and depiction of states of psychosis. What is more, the story is set in a historical era, 8th century Britain, and the main player character is modeled after historical evidence of the Picts, their culture and their battles with the Norsemen, with the help of a historian (Ninja Theory, 2018). In the game, the individual cause of her mental health issue is revealed as well as the social exclusion from family and community. The historical backdrop – whether factually true or not – can potentially serve as a space for a reflection through comparing the social actions of this community to how people with psychosis are treated in today's societies. Thus, the individual, medical model of mental illness is represented in the game as well as the

social model of mental illness, showing effects of discrimination and exclusion as well as their historical contingency (Waldschmidt, 2017, p. 25).

Conclusions

The result of our analyses in the production study is that game designers relied on expertise from experts on the subject-matter when designing video games that engage with mental health issues in a prosocial way. The three functions of this expertise are providing information about the mental health issue, legitimating the process and the product and initiating innovation through collaboration. Innovation pertained to enriching and challenging concepts for game design. This expertise was especially sought-after in the planning stages of the production process. In three of the four games, collaborations with researchers from university were formed, mainly with clinicians with medical views of the mental health issue at hand. In three of the four games, experts by experience, i.e. people with a lived experience of the mental health issue supported the production with their input and feedback. Collaboration with clinicians and laypeople with the mental health issue was not always fruitful, pointing towards a need for professionalization.

The experts were asked for their feedback on the depictions of the mental health issues in terms of representation or even interaction design, however, this did not always yield innovative, viable concepts for game design.

The product analyses show that the mental health issue needs to be integrated in the game's structures in order to constitute an entertaining video game and to be prosocial, i.e. provide spaces for reflection and education. In the two games "Hellblade: Senua's Sacrifice" and "Please Knock On My Door" this worked very well. However, the model of the mental illness reconstructed from the video game was rather limited, as most games employed a medical, individualized model of the mental illness, focusing on symptoms and experiences of persons concerned. The main player character is alone, shown struggling or fighting with his/her mental health issue and controlled by players in single-player gameplays with limited interactivity. Interestingly, the depictions of life with a mental health issue and the settings in the prosocial video games mirrored typical depictions in video games: dark, gloomy game worlds set the stage for the main player characters' painful fight or ordeal. Thus, theories of interdependence and collaboration – as put forward by Critical Disability Studies – are not yet successfully translated into entertaining video games about mental health issues.

An empirical question that we are not able to answer by our analyses is what are video game players' take-away from playing these games? Are they able to access and use the game's spaces that allow for reflection? Reception studies with different groups of players could be next steps in order to determine how they engage with these depictions.

From analyzing the structures and production contexts, we can conclude that these prosocial video games have limitations in terms of fostering a comprehensive mental health education. In formal educational contexts like schools, teaching about mental health issues might indeed include using commercial entertaining video games as many young people engage with them (e.g. Arnseth, Hanghøj, & Silseth, 2019). Equally important is teaching and learning from persons concerned

(e.g. Lacina, 2017) in which ways current games (mis-)represent mental illness in terms of de-normalization practices.

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