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Game mechanics and technological mediation: an ethical perspective on the effects of MMORPG's

Christian Klemm[1] · **Wolter Pieters**[2]

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Abstract In the past decades, video games have grown from a niche market to one of the major entertainment media, enticing millions of players worldwide. When ethical aspects of video games are being debated, the discussion oftentimes revolves around effects of their content, such as violence. This paper argues that effects of game mechanics, such as reward mechanisms, should be considered as well, as these are at the core of the appeal of games. We analyze the ethical dimension of behavioral game design present in Massively Multiplayer Online Role Playing Games (MMORPG's). Using the framework of technological mediation, we show how opaque and seductive game mechanics can invite problematic usage patterns, such as excessive use with negative effects on well-being, and how designers can take responsibility for morally acceptable impact of their games. Having a practical focus, the paper concludes with several proposals for better design.

Keywords Behavioral design · Choice architecture · Design ethics · Game mechanics · MMORPG · Technological mediation

✉ Wolter Pieters
w.pieters@tudelft.nl

[1] TH Köln, Steinmüllerallee 1, 51643 Gummersbach, Germany

[2] Delft University of Technology, University of Twente and TH Köln, TU Delft, TBM-3S, P.O. Box 5015, 2600 GA Delft, The Netherlands

Introduction

Problem statement

Currently, a major part of the ethical discussion about video games revolves around their content and its impact on users. Just like with books or music, video games are often being evaluated by the level of violence or sexually explicit character design (e.g., Anderson and Bushman 2001; Anderson and Dill 2000; Copeland 2004; Scott 1995; Sherry 2001). "Morally problematic" games are then the ones with substantial violent or sexual content, and the associated risk is that such content will adversely affect the real-life behavior of players.

However, such a discourse leaves out an important aspect at the core of the appeal of video games. Many effects of video games on users can be attributed to game mechanics rather than content. For example, the design of reward mechanisms may affect the way in which users interact with the game, and the duration of play. This is particularly visible in Massively Multiplayer Online Role Playing Games (MMORPG'S). While all games revolve around the player and share the general "psychology underlying how players learn and react to the game" (Hopson 2001), the oftentimes subscription-based business model of MMORPG's makes it necessary for game designers to keep players enticed for a longer period of time. While this could be achieved by better visuals, story and diverse gameplay, it can also be achieved by limiting the speed of progression and carefully working with reward mechanisms that influence the playing habits without the players being aware of it.

At the same time, MMORPG *content* is very diverse, ranging from hardcore science fiction with ego shooter elements to a persistent Lego Universe for a younger audience

(game service shut down in 2012). You could play some MMORPG's and spend most of the time healing other player's characters or becoming a rich space-merchant without ever harming any virtual characters. While other types of games such as ego-shooters almost always include some form of violence, MMORPG's can hardly be lumped together and evaluated only based on their content.

For these two reasons, the game mechanics are a central theme in an ethical evaluation of MMORPG's. This paper will look at the problem space outlined above from the perspective of computer ethics, in particular focusing on the element of *behavioral design* inherent in such games. Behavioral design is user-centered design beyond simple usability of a product (or game), and encompasses design for behavioral-level responses (Norman and Ortony 2003, p. 4). Video game design is generally quite prescriptive when it comes to the options on how users interact with the game and what choices are available, which may have negative effects on users. Addressing game design ethics from this game mechanics perspective complements the discussion on game contents such as violence. In addition, this perspective is relevant in relation to the broader philosophical question on how technologies co-design behavior. Whereas Sicart (2009) discusses mechanics mostly in relation to specific morally sensitive behaviors in games (again for example violence), we focus on the attention issue, which is essential for MMORPG's. Compared to Yee (2006a), our focus is more on design ethics than on the psychology of adverse effects as such. Our main questions are how this ethical dimension of game mechanics design can be understood, which exemplary problems exist in current designs, and what possible solutions might look like.

To comprehend the interconnected set of issues and possible problem-fields, i.e. influencing behavior and the underlying game mechanisms, this paper will engage with related literature regarding ethics, social sciences, psychology and game design. Given the topic and practical focus, we also use Internet sources as a basis for identifying concerns. Our target audience includes game designers as well as scientists from various disciplines, so the depth of discussion of ethical theories may be less than in papers targeted at a philosophical audience.

After a short introduction to the genre, potentially harmful effects of MMORPG's and usage patterns are introduced. Section "Materials and methods" then provides the theoretical framework and methods applied from the perspective of ethics of technology. The concepts of technological mediation, choice architecture and behavioral design are presented as explanations of the influence of design on user experience and behavior.

In the ensuing evaluation ("Ethical evaluation" section), we will focus on ethics of the good life as a means to evaluate such influences. Mechanics receive strong attention because of the behavior they evoke in a user, but also because of the oftentimes opaque way that they can exert the influence. This provides the backdrop to assess the responsibilities of game designers, who are responsible for the design of mechanics and the way they are implemented. Focusing at design choices with potential for causing negative effects such as addiction, the "Better design" section will investigate how those effects could be engineered out or at least be suppressed. To come up with innovative proposals for better design, we will apply the concepts of technological mediation and choice architecture to the design process of an MMORPG.

Massively multiplayer role playing games (MMORPG's)

MMORPG's are online games in which a large number of players interact in the role of a character in a virtual world. In the past decades, MMORPG's have developed from a niche in the gaming market to a highly successful genre, enticing millions of players around the world. As the business model of many MMORPG's relies on monthly subscriptions, it is paramount for their design to keep a user's attention for a long period of time. In some cases, this can lead to users excessively investing time and money for their hobby. MMORPG players with problematic usage patterns have not been associated with school shootouts, but are confronted with more inward-directed adverse effects. The genre itself and some of its more prominent games are the subject of extensive studies that cover nearly all aspects from demographics and social behavior or even in-game economics (e.g. Taylor 2006; Feng et al. 2007; Papagiannidis et al. 2008).

MMORPG's evolved from so-called "muds" (massively multiplayer text-based online RPG's), being run on first-generation computers around the 1980s (Koster 2001). With the evolution and popularization of the Internet and video games, the genre ultimately grew above its original community of "nerds" and sported graphical online environments with thousands of simultaneous players (Yee 2006a, p. 3). The general core mechanics that can also be found in classic table-top role playing games are still in place to date, though: "a combination of interactive storytelling and logistical optimizations under the guise of slaying monsters and attaining higher levels and skills" (ibid.). Users can create a virtual character with specific attributes to interact with other players and "achieve structured goals" (ibid., p. 2). Modern MMORPG's include state-of-the-art graphics and include the latest features of game design and (social) interactivity with the vast game world.

The classical business model of MMORPG's is subscription-based (Koster 2001). Users usually have to buy the game or game client and then pay a monthly fee to play

the game. To recover the substantial development and infrastructure costs, it is important for the game publishers that users stay attracted to the game for a longer period of time measured in months rather than days or weeks. Newer business models try to attract a larger player base by offering the game for free, but only sporting a limited experience or slowing progress to a slog, unless the player buys certain boosts or items from a shop. This system is called "free to play" and is financed through so-called micro-transactions.

Effects of MMORPG's on users

Addiction

Probably the most obvious and visible effect that playing an MMORPG can have on a user is the consumption of time. Yee states that MMORPG players spend an average of 22.72 h a week with their game and 70% of his respondents spent, at least once, 10 h straight playing the game (Yee 2006a, p. 10, 22). While 22 h spent on a single activity each week is already quite a lot, 8% of the users even invest 40 h or more each week. More than half of the respondents considered themselves addicted (ibid., p. 23). In the worst cases, they may withdraw from their social contacts, neglect hygiene, diet and ultimately risk their health. In several cases, extended play of MMORPG's has even led to the death of people (Blackburn 2013). Motivation for and importance of playing may vary considerably, making the time spent on gaming not the major factor for addiction (Griffiths 2010).

The complex of addiction, also in regard to technology and the Internet and gaming as well as its comparison and classification within the topic area is the subject of wider research (Shaffer 1996; Ng and Wiemer-Hastings 2005; Ko et al. 2009). Already in 1995, it was estimated that the (offline) gaming behavior of 7.5% of 11–16 year olds might be considered addictive (Phillips et al. 1995). Later, others addressed the relation of gaming addiction with physical and mental health (Mentzoni et al. 2011), similarity to other addictive behaviors (Gentile et al. 2011), and systematic overview studies (Kuss and Griffiths 2012). A major difference between game addiction and some other addictions is the fact that the causes of addiction are due to design activities rather than natural properties. Whereas certain natural phenomena have *inherent* addictive properties, behavioral game design involves *imposed* addictive properties (Blakley 1996).

Addiction is defined by Yee as "a recurring behavior that is unhealthy or self-destructive which the individual has difficulty ending" (2002, p. 2). When comparing Yee's definition of MMORPG addiction to Hyman's definition of drug addiction "as compulsive drug use despite negative consequences" (2005, p. 1414), both definitions share that the addiction is not controllable by the subject and has negative consequences. While not encompassing the component of possible physical dependences like drug use or smoking, psychological dependence and the negative consequences are palpable. Looking at the possible consequences, a paper by Dr. Kimberly Young, clinical director of the Center for Internet Addiction Recovery lists negative visible effects that come with addiction to online games, including hiding or lying about the gaming, withdrawal from family and friends as well as other activities (2009). In extreme cases, players might even neglect their diet and hygiene, putting their health in danger (ibid.). When asked, nearly 20% of players answered that their "playing habits have caused […] academic, health, financial or relationship problems" (Yee 2006a, p. 22) due to the large amount of time spent playing. This paper will use the terms of *problematic usage patterns or behavior* when talking about playing behavior that results in negative consequences for the player, regardless of the actual time spent with the game.

Motivation and attraction

Yee stresses that game mechanics and their design are only partly responsible for problematic usage. The users themselves and their motivations for playing also need to be taken into account. Yee distinguishes between the spheres of attraction addiction and motivation addiction, also listing the resonating attraction factors. Attraction addiction encompasses the sphere of the game itself, its content and mechanics as well as social factions, whereas motivation addiction focuses on the internal human condition that may cause addiction. It is noteworthy that attraction addiction does not need a matching motivation factor, whereas motivation addiction only comes into existence when the game offers a matching attraction factor for compensation. This view is further confirmed by a qualitative analysis by Hussain and Griffiths (2009), showing that addicted gamers play to relieve negative moods and emotions. In Germany, a study found out that gaming addiction is connected to higher anxiety and depression rates, present in up to 3.5% of the younger internet users (Peukert et al. 2010). An interesting study by Ko et al. (2005) looked closer at demographics as well as other factors related to online gaming addiction in Taiwan. One of the key findings was that addiction correlated with lower self-esteem, a latent dissatisfaction with life and mostly with older age. With this kind of motivation addiction, it is rather likely that the user would focus on another thing when games are not available as the main factor is intrinsic to the player. Nevertheless, game designers should be aware of potential misuse or potential in their product.

A user might play an MMORPG not only for entertainment, but to "empower them in ways specific to their

anxieties" (Yee 2006a, p. 23). A shy and introvert person with few social ties for example "can become needed and valued members of groups and guilds" (ibid.). In this example, the motivation factor of missing social interaction finds a match in the attraction factor of possible relationships the game offers. It would be a point for further research to examine the correlation between motivation and attraction addiction further and look closer at users suffering from game addiction to find out to what extent factors for addiction are already present in players and what factor the video game and mechanics play. Ng and Wiemer-Hastings (2005, p. 112) argue that players who "could be labeled as anti-social or introverted by most […] spend their social time and energy in-game rather than socializing in the real world".

In the context of this paper, we will mainly focus on the domain of the game itself and its design ethics, and therefore on the aspect of attraction addiction and evaluate its consequences from an ethical perspective. We will also discuss ways of how game design could possibly help avoid problematic usage that is being caused by attraction addiction. In order to enable such an evaluation, we first discuss our method.

Materials and methods

Before an ethical evaluation of the problem space outlined in the previous section is conducted in the "Ethical evaluation" section, this part of the paper first provides an overview over concepts and ideas dealing with ethical design of technologies, and assesses the way they apply to the realm of MMORPG's. This serves as the backdrop for the upcoming evaluation.

Technological mediation and choice architecture

Two main theories for discussing effects of technology design on human experience and behavior are technological mediation and choice architecture. In the paper "Materializing Morality", Peter-Paul Verbeek presents the concept of technological mediation (Verbeek 2006). From an ethical perspective, an engineered artifact is not completely neutral of values. The engineer puts a "script" to the artifact, encouraging a certain way of behavior in the user or society itself (a speed bump, for example, forces a driver to drive slower). Such scripts may be the result of conscious design as well as unintentional side effects. Although technology and its design can be used for a variety of purposes that cannot be completely anticipated once it has been released to the public use, a part of responsibility for its use rests with the engineer. He can design a technology to serve as a mediator; encouraging a certain desired behavior and discouraging misuse (see Verbeek 2006, p. 3, 10). As the reward mechanisms constitute a script, this theory applies directly to behavioral game design.

Excluding any specifications that might be set by the publishing company, a developer of a MMORPG is able to modify and script the virtual world he is creating as desired, thereby imposing properties that mediate the behavior of users. The context of use (gaming for entertainment purposes) is very narrow. Taking ethics into account, the game design could incorporate the concept of technological mediation to design its core mechanics, by evaluating the mediating role of the mechanics in the experience and behavior of the gamer.

Acknowledging the mediating role a technology or video game can have, it is necessary to look at the way that "scripts" outlined in the paragraph above can be consciously integrated during the design process. One way of thinking about this is in terms of how choices of users (e.g., in terms of time spent) are influenced by the design. This can happen via deliberate choice architecture, setting a certain environment for the user of an artifact. The person creating this environment is a "choice architect" (Thaler et al. 2010, p. 1), *imposing* the choice architecture on the game. For example, better accessible options are more likely to be chosen, both in supermarkets as well as in online environments. Clever and ethical choice architecture tries to help people to "do the right thing" and avoid any harm for the user without applying force. This could be accomplished by providing sound feedback mechanisms or engineering in incentives that reward desired behavior, such as the pursuit of responsible and moderate playing times. Thus, the problematic effects of the technological scripts could be alleviated by providing better choice architectures in the game design.

Behavioral game design

The effect of design on behavior may occur via emotions. Norman and Ortony point out that design can influence user emotions on three levels: visceral, behavioral and reflective. The first mostly covers style and surface and triggers rudimentary, unconscious emotional reactions, whereas reflective level design affects self-reflection as well as aspects of "pride of ownership" (Norman and Ortony 2003, p. 3–5). In our context, behavioral level design and responses are most crucial, as it focuses on "function and use of a product" (ibid., p. 4) and affects the area where learned subconscious "skills and routine behavior reside and are controlled" (ibid.).

With a few exceptions and varying characteristics, video games are designed to be attractive and entertaining for their users, which is reflected in their choice architectures and mediating effects. There is a continuing evolution in

technology, but the underlying psychology remains constant (Hopson 2001). To better grasp the mechanics at work that evoke problematic usage, this subsection takes a closer look at behavioral game design and psychology. The latter can easily be applied to a variety of fields, including the design of MMORPG's.

Rewards

Part of the cause for problematic playing patterns can certainly be understood as mediating effects of the game mechanics themselves:

> *Goals and rewards in MMORPGs typically use a random-ratio reinforcement schedule based on operant conditioning. Early achievements are quick, almost instantaneous, and gradually take more and more time and effort until progression becomes almost imperceptible*. (Yee 2006a, p. 4)

The operant conditioning is at the heart of behavioral game design we see applied in MMORPG's. The psychologist B. F. Skinner conducted experiments on rats that were rewarded when performing certain tasks in their boxes, for example pressing a lever. After going through the reward circle for some time, the rat would still press the lever, even if not being rewarded every time (Skinner 1938; Yee 2001).

In an article on behavioral game design that builds upon cognitive psychology and applies Skinners research, John Hopson (2001) exhaustively explains the concept of behavioral game design and the various factors that designers can use to influence the "pattern of activity" that they want from the players. While the rat is rewarded with food pellets, the game offers human players other kinds of rewards such as "power-ups" or a level gain for their character. To gain the reward, the player usually has to conduct a set of learned actions. Reward mechanisms can thus be very powerful choice architectures.

In most games, rewards are being provided at a fixed or variable rate and interval. MMORPG's extend these parameters by random elements, for example in random item drops after slaying a monster and elements of chance in crafting success. Aforementioned operant conditioning is most successful when using a random ratio schedule for rewards. MMORPG's actively exploit these mechanics to keep players attracted and adjust ratios and intervals for rewards in a way that maximizes the player's activity in the game and keep him or her attracted over a longer period of time. Working with these mechanisms needs careful balancing, as the application of rewards plays a major role when it comes to addiction, as it is a chronic disease of "brain reward, motivation, memory and related circuitry. […] This is reflected in an individual pathologically pursuing reward and/or relief by substance use and other behaviors." (ASAM 2011).

Naturally, reward mechanisms make sure we survive as individuals and species, by reaching "survival-relevant natural goals […] pursued with the anticipation that their consumption (or consummation) will produce desired outcomes (i.e., will "make things better")" (Hyman 2005, p. 1414). A human being would even take some pains like setting out for a hunt or going to work every day to obtain the desired rewards, oftentimes resulting in complex "behavioral sequences" that become automated to achieve the goal and rewards. The same sequences are exploited in games. In order to accomplish new goals, the players need more experience, more money, etc., requiring them to chase all of these at the same time: "You can't keep up with mobs if you level but don't buy new gear. You can't continue blacksmithing if you run out of money. What this means is that you're always close to a goal—a reward. You are seldom far away from all possible rewards." (Yee 2001, p. 71).

When it comes to addiction, the behavioral patterns of (e.g., drug) addicted beings become so strong as "to supplant almost all other goals" (ibid., p. 1415). Gamers who are showing problematic user patterns also show core features of addiction, including symptoms of withdrawal, craving and relapse as well as modifications of mood and the development of tolerance to the subject (Chappell et al. 2006). In a sense, game developers are creating a "Skinner Box [that] is tailored to its host's needs and reinforcement schedule, and where individuals can interact with each other without sacrificing the integrity of their own construct." (Yee 2001, p. 72).

Social interaction

In an MMORPG, social interactions between players make up a huge part of the user experience, and often cooperation with other players is necessary to advance (Yee 2006a, p. 4). The most basic interactions are talking to other players via chat, trading items, fighting each other or forming groups to accomplish quests. Designers further encourage the latter by setting up specific quests that can only be accomplished with a (sometimes large) group of other players. A lot of effort can be put into the design of the quests, making them a rewarding experience, also in terms of experience points and virtual items for the player's character. Oftentimes, this results in the formation of online friends (Yee 2002; Søraker 2012a). More or less fixed playing scheduled together with the need to keep pace with or outpace the peers leads to a higher time investment.

Many modern MMORPG's include another layer of social interaction, binding players more strongly to the game: guilds (Yee 2006b). Guilds are comparable to an association or club, sporting general members and people

in hierarchical functions, e.g., a guild leader. The scale of a guild can vary from several hundred members from all around the world to a small group of friends that know each other personally. In either case, the guild contributes meaning and a sense of belonging to something bigger. Game design can further enhance that feeling by offering features such as special guild emblems, the possibility to acquire virtual real estate or offering special rewards for guilds, which also create choice architectures for players. Oftentimes, guilds would meet at specific times to play the game together. In-game social structures may also emerge in game culture without being specifically designed, but with similar implications (Taylor 2006).

Being engaged in a guild or other in-game social structure does also come with certain responsibilities and could evoke subliminal peer pressure: A quote from a guild leader in Nicholas Yee's Daedalus project, exploring the psychology of MMORPG's is a good example: "[…] after a while you just feel that you have to log on so that you don't let down the other people in the guild, sometimes even if you are not really in the mood to play the game" (Yee 2005). The guild itself can transcend the game and become "a motivation for playing" (ibid.). While the first MMORPG's offered none at all or only very basic mechanics for representing virtual groups, game designers now explicitly engineer in features that make their games appealing to social gamers and guilds.

Summary

The effect of a user playing MMORPG's for a long time, not considering buying or playing other games is a direct consequence of the game mechanics, deliberately engineered into the game. At the same time, the mechanics that evoke the desired behavior also encourage a problematic level of usage in a significant part of the players. Up to this point, we have discussed possible adverse effects of MMORPG design, and the psychological (design) principles underlying such effects, notably conditioning, reward mechanisms and peer pressure. Our focus is on the relation between design ethics and such adverse effects. This relation can be understood in terms of technological mediation and choice architecture, which describe how user behavior is influenced by design decisions. Before discussing the role of the designer, the abovementioned effects require ethical evaluation, to enable discussion of possible alternatives, which we will take up next.

Ethical evaluation

Following the presentation of existing concepts for ethical design of technologies in the previous section, this section provides an ethical analysis of the mechanics leading to potentially harmful usage patterns of MMORPG players. Although technological mediation and choice architecture provide a framework to discuss effects of designs, they do not necessarily provide means to discuss the desirability of such effects. In this section, we assess several approaches that would enable such an evaluation, and then choose ethics of the good life as the most promising one. This approach encompasses not only the results of the behavior the mechanics evoke, but also takes the way they are implemented and transparent to the user into account. The last section will focus on the creators of said mechanics. There, we will discuss the responsibilities of the MMORPG designer and evaluate whether he or she can at least partly be held accountable for the effects that emerge from a user's interaction with the game.

Classical theories

To sketch the ethical issues at hand, we will first look at classical ethical theories. Although classical ethical concepts have been developed without modern IT in mind, they can actually be applied to this paper's problem space, but may be somewhat rigid in their focus.

From a deontological perspective, the theories of German philosopher Samuel Pufendorf (1672) deal with the "foundational principles of obligation", regardless of effects. In the context of this paper, the main question is whether MMORPG's have a negative impact on the fulfillment of duties classified by Pufendorf. Problematic usage patterns and addiction to playing an MMORPG would mean the user is no longer able to completely fulfill the duties of soul (including skill development) and the duties of the body, in particular not harming oneself. Focusing on the duties of soul, it can be argued that the game does actually promote skills and talents in some cases. Someone leading a guild might become more responsible and learn about organization and leadership. Someone who's usually shy might become more outgoing and find it easier to communicate with others, even in the real world.

Also on the positive side, playing an MMORPG brings millions of people pleasure and fun or help people to socialize with others. Long-lasting friendships or even relationships can be sparked. From a utilitarian perspective, these effects have to be balanced against the significant and severe possible negative effects that MMORPG's can have on their users, as they may even threaten their physical well-being (Dodig-Crnkovic and Larsson 2005).

Finally looking at the development of virtues, a player may excel in exploring the vast world of an MMORPG or improving the character he controls. Nevertheless, those achievements can be seen as void of true value as they lack the "physical and mental capabilities of [the] practitioner"

(Briggle n.d., p. 12). Although "achieving excellence in the game world", this achievement does not carry over to the real world. Briggle terms this "artificial arête" (ibid.). The time spent achieving shallow excellence in the MMORPG is ultimately wasted, as it could have also been used to achieve excellence in the real world. The underlying virtues are being devalued, as they are so easy to achieve and people become oblivious to the difference between real and simulated virtue (ibid.)

Impact on the good life

Still, an integrative perspective seems to missing from these theories in terms of the psychological effects. Part of modern ethics looks at technologies and their effects on people from a more applied perspective, namely how they contribute to or hamper a good life. Oftentimes, a good life is measured in a person's happiness and longevity—the first being described as the ultimate goal in human life in Aristotle's Nicomachean ethics. Problematic usage patterns of MMORPG's seem to fit this perspective very well, integrating the separate issues outlined by the classical theories.

With users that show problematic levels of usage, devaluation of life itself in the real world has major impact on the good life (Briggle n.d.). Requiring less effort and providing faster rewards, the MMORPG can seduce users to spend their time in the virtual realm and abandon reality. Resulting problems for example at school, oftentimes lead to people withdrawing even more into the MMORPG. The person gets to value success and rewards in the MMORPG as equal as or even higher than those in the real world, devaluating the latter.

In the paper "Quality of Life in Technological Society", Ruut Veenhoven presents a model to assess quality of life, which "serves as a catchword for different notions of the good life" (Veenhoven 2012, p. 58). Veenhoven's model looks at (a) outer and inner qualities of life and further distinguishes both by (b) the chances they provide for a good life and the ultimate results of life. The combination of the two dimensions leads to four quadrants of qualities. In the following paragraphs, we will examine the four quadrants in regard to a person spending a problematic amount of time playing MMORPG's.

Although *livability of the external environment* focuses mainly on society as a whole as well as external factors such as housing and habitat, the quadrant also encompasses "close networks, strong norms and active voluntary associations" (ibid.: 58). Spending most of the time with the game could lead to the decay of close personal networks outside the virtual world and would keep the player from being an active part of society.

The quadrant *life-ability of the person* compromises a person's physical and mental health. The negative impacts of problematic usage patterns affect both areas. In extreme cases, hygiene and nutrition can be ignored to the point of death. Additionally, there might be severe impacts on "autonomy, reality control, creativity and inner synergy of traits and strivings" (ibid.), when losing oneself in the game world and neglecting the outside world. Addicted users would heavily suffer by addiction through the loss of autonomy, as their playing habits are no longer under their control and even when negative consequences come to the conscious mind, it is hard for them to stop.

Now looking at the results of leading such a life in regard to *utility of life*, the time spent playing a video game would be void of "functionality for the environment" (ibid.), as there would be no contribution to culture or society.

MMORPG's are being played for a person's enjoyment, so one could expect that they would at least contribute to a good life in the *satisfaction* quadrant. For people with conscious and controlled playing behavior, this is certainly the case, as they experience fun, relieve stress or combat boredom without negatively impacting their life. Unfortunately, people (most noticeably those spending a lot of time with the game) also might continue to play an MMORPG, even if they are frustrated with it. Last but not least, the question whether enjoyment from playing or virtual friendships to be experienced in MMORPG's are comparable or inferior to the real world experiences is the topic of some debate and cannot be answered universally, as many individual factors play into the equation.

In his article "Virtually Good?", Johnny Søraker examines virtually versus actually good in the context of six presuppositions ranging from the value of something for the good life to the opportunity costs necessary to achieve it in the real or virtual world. Søraker ultimately recommends choosing the actual thing over the virtual, but makes clear that each case has to be carefully examined and evaluated individually—the claim is ultimately only veritable when all presuppositions hold true (Søraker 2012b). Ultimately, problematic usage patterns, blending into addiction can have noticeable negative impacts on leading a good life, encompassing all four qualities of life, with "life-ability of the person" and "utility of life" being the quadrants most noticeably affected by addiction to a MMORPG. Because not only inner qualities are being affected, but also outer qualities, addressing the issue might not only benefit the affected individuals, but society as a whole.

Evaluation of mechanics

After having evaluated the impact of problematic usage patterns on users, this section will investigate the role of the design. As choice architects, video game developers choose certain mechanics for their games, and choose how these mechanics are implemented. While a seamless

and immersive experience is desirable for the gamer, the mechanics can foster both positive and adverse effects by the way they are apparent to the user and the way they exert their influence through user choices. Using a refined model of technological mediation by Tromp et al. (2011), we will assess the game mechanics from the way they exert their influence on the users.

Tromp et al. state that "a design can exert influence that can vary from weak to strong (force), and a design can exert influence that can vary from an implicit to a more explicit manner (salience)" (ibid., p. 11). Again, the two dimensions can be combined into four quadrants. The four types of influence of the model are coercive (apparent and strong), persuasive (apparent and weak), seductive (hidden and weak) and decisive (hidden and strong). Although the types of influence are subjective and might differ from person to person (someone being aware of behavioral game design might classify the mechanics as persuasive), MMORPG's mechanics are mostly *seductive*. That means that players would be "not aware of the influence and most probably regard the behavior as internally motivated" (Tromp et al. 2011, p. 12). For the sake of immersion, underlying algorithms for item drops or crafting success are not available to the user. The way MMORPG's are designed, developers chose not to make the game mechanics apparent and instead chose to use hidden seductive mechanics.

Seductive mechanics are not bad in themselves, as they can also help to encourage positive behavior through choice architecture. For example there is a minor incentive built into the newer MMORPG's to encourage shorter playing sessions: resting from play for several hours provides a boost to the earned experience points when logging in next time. The boost has a cap, so that it does not last very long. The other side of the coin is that the mechanic encourages players to log in daily to exploit the experience bonus—the cap is not extended when resting for a longer period of time (a week will provide the same bonus as a day of rest).

Ethical responsibilities of game designers

Given that (a) games contain imposed scripts and choice architectures, (b) these may have undesirable effects on the good life, and (c) there are clear ethical problems with specific aspects of the current scripts and architectures, the question of the responsibility of designers comes to mind. At least part of the responsibility for the way a certain technology is used by a person rests with the designer; "when technologies fulfill their functions, they also help to shape the actions of their users" (Verbeek 2006, p. 4). "Engineers design a new technology with specific functionalities in mind, without explicitly aiming to influence the actions and behavior of users" (Verbeek 2006, p. 14). The latter is not always the case, as technologies such as speed bumps actively aim at influencing the behavior of people. Likewise, the design of video games aims straight at the experience and behavior of a user, creating a whole environment with specific mechanisms and rules with which the user can interact (also with other users). It is the designer who acts as a conscious choice architect and ultimately sets the script for the artifact, evoking a certain way of behavior and discouraging misuse.

The game developer takes a mediating role between the publishers and the players who ultimately interact with the game. While the game publishers like Blizzard Entertainment CEO Mike Morhaime say that they just offer "the best entertainment values available today" (Reilley 2010), there are business objectives that the company aims at. "The fact that most games are for-profit endeavors opens the door to accusers who say that games profit at the expense of others' misery" (Takahashi 2004). It is not just important to entertain the user for some time, it is important to keep a user's attention for as long as possible to ensure the revenue flow. For the game to be commercially successful, the developer has to create a game that is appealing to a large audience and sets itself apart from the competition. Taking ethical responsibilities into account that were discussed in the "Behavioral game design" section, the designer also needs to take the impact on his product on a user into account.

MMORPG's core mechanics revolve around making the player play over a long period of time and keeping him or her busy so that the player won't consider other games or forms of entertainment. This intention is ethically questionable, taking Putendorf's duty ethics "promote the good of others" and Kant's categorical imperative into account:

> *By merely focusing on sales and profit, game developers fall into the trap of treating the players as mere means (to an end), thereby violating the categorical imperative to treat humanity "as an end in itself, and never simply as a means."* (Dodig-Crnkovic and Larsson 2005, p. 4)

Following an ethical code of conduct, game designers are thus challenged "to assess whether the product they are designing has undesirable mediating capacities" (Verbeek 2006, p. 14). Ethical choice architecture in a game can go beyond the presentation of ethical concepts via the game's content. It can encompass the game mechanics, namely feedback mechanisms, the provision of incentives or making the usually opaque and seductive playing mechanics more transparent and thus empower the player to pursue the "options that will make them better off" (Thaler et al. 2010, p. 10). For an MMORPG, that could mean that it encourages moderate playing times and keeping mechanics transparent. In the following section, we will outline in detail how design could change for the better.

Better design

In this section, we will outline a process for coming up with a better design, before looking at possible ways to engineer out undesirable effects and facilitate positive ones through choice architecture and technological mediation. In the last subsection, we discuss the possible implications and check the feasibility of changing existing games. The proposed solutions are not meant to be comprehensive, and should be understood as initial ideas and proposals based on the framework outlined above. The main focus is to bring the subject to attention with involved parties and hopefully making it the focus of additional research or a consideration within the game development process.

To assess possible changes in MMORPG design that could also be applied to running games it is important to discern to what extent the games can be classified as product or service. While the latter would result in a more static game that would only see minor adjustments after launch, games with characteristics of a service could also be easily changed after launch. As it is, MMORPG's are a hybrid between the two: after finishing the game's development, it sports characteristics of a product: its consumption is separated from the production and the game is usually sold to the customers with a fixed price—regardless if it is bought on a physical medium or from a download shop. The service part consists of the hosting of the game, regular content updates as well as fixing bugs and improving the game balance. These services are produced and consumed (near) simultaneously and covered by the monthly subscription fee of an online roleplaying game (Niessink and Van Vliet 2000; Pieters 2013). When a game is delivered as a service, this makes it easier for designers to change features on the fly.

Design process

To come up with ethically better design, developers of seductive media such as MMORPG's should, in a first step, become aware of possible implications of their design decisions. This encompasses both the game's content as well as its mechanics. A better understanding of the issue and discussing mechanics with the team, not only based on the expected attractiveness to a user, but also from an ethical perspective could be a good starting point (Fleuriot 2012, p. 3).

For assessing the possible impact of design choices, developers can apply a couple of techniques. Comprehending an "informed prediction", they could assess the impact of game mechanics from an ethical point of view and analyze their influence on human behavior (Verbeek 2006, p. 22). MMORPG's have been on the market for nearly two decades and developers can draw on a wealth of research and case studies covering MMORPG's from technological to social aspects, enabling the developers to come up with an accurate prediction (e.g., Taylor 2006; Feng et al. 2007).

The second approach could consist in using the augmented constructive technology assessment (CTA), involving "all relevant stakeholders in the design" (Verbeek 2006, p. 22). Currently, closed and public beta testing mainly serves to optimize the netcode of a game, fine-tune the balancing or minimize bugs. It could also be used to actively monitor how people play the MMORPG, how much time they spend on performing certain tasks and how they make progress around the game. Following the philosophy of CTA, feedback of the various player groups should also be incorporated to assess the game in the various use contexts, e.g. hardcore gamers vs. more social gamers that mainly focus on their guild. This would also make the game deployment more responsible as a social experiment (Van de Poel 2011). Coming back to the hybrid characteristics of product and service outlined in this section's introduction, there is ample opportunity for changing existing MMORPG's. While core mechanics are unlikely to be drastically altered in the course of continued support, service-based games could also be adjusted after launch when it becomes clear that certain mechanics lead to players spending a problematic amount of time in the game.

Of course, it is not only the game developers making choices, but also the publishing company that has its own targets in terms of copies sold, monthly subscriber base and revenue. It's a balancing act the developers have to accomplish—developing a game that is commercially successful, while minimizing possible problematic usage by its players. The game must attract players without trapping them. This should become an integral part of the industry code of conduct, not only for the developers, but also for the management of developers and publishing companies. The last two groups can be said to have the meta-task responsibility to create an environment in which the developers have the freedom to design their games in a responsible way, not only maximizing for sales (Ahmed and van den Hoven 2010, p. 6).

Engineering out undesirable effects

Reverse engineering the choice architecture of MMORPG's, one could look into the design choices leading to undesirable effects on choices made by users, and find alternative void of or with less adverse effects. Limiting the effect of the random reward ratio in operant conditioning described under "Effects of MMORPG's on users" would be a major factor in designing a more ethical MMORPG. The oftentimes random reward ratio could change towards a more transparent, fixed ratio. The player would be able to estimate exactly how long it would take to collect a certain

amount of gold or gain the next level, changing the effect of the choice architecture from seductive to persuasive.

Hopson argues that fixed ratios are producing quite a problematic pattern for games, though: replacing randomness with a fixed ratio reward scheme can have direct influence on a player's behavior. With a random scheme, each click could bear the next reward, enticing the player to keep up a high level of activity. With a fixed ratio, this would be different: After having received a reward by logging wood (e.g., by clicking 10 times on a tree trunk), the player would know that the next nine clicks will bear no direct reward and usually pause for a longer period of time. Combined with the non-linear progress of MMORPG's, players might no longer find the reward worth their time. To forego this effect, progress could be engineered in a way as to be more linear. It would then take around the same amount of time to gain the character levels 1–10 as the levels 40–50. Of course, that would take away some of the prestige and reward of reaching higher levels, but the "grind" could be replaced with more sophisticated and challenging gameplay for example. In further research, it would be interesting to empirically examine the impacts of changing reward schemes for gamers and their influence on playing times and enjoyment of the game.

A second mechanism that could effectively help to encourage more modest playing times, while enticing the player to stay attracted over a longer period of time, would be the implementation of fixed interval schedules for rewards. Hopson notes that the usual reaction to fixed intervals is "pausing for a while after a reward" before picking up more frequent activities before the next reward. Carefully scheduling those rewards, a designer could influence the style of play in a persuasive fashion. Quests with high rewards could be designed in a way that they have to be completed over a period of several days or even weeks with fixed breaks in between the single tasks.

To reduce the need for players to spend a lot of time on simple mindless tasks like gaining experience points through killing monsters at the same spot over and over again or collecting crafting materials, the game could offer to perform one of the tasks while the player is actually offline. (Some MMORPG's like "Star Wars: The Old Republic" already have features that go into that direction.) This could help minimize the player's feeling of falling behind when not being online and add a possibly interesting layer of management to the game. This would make the mechanics less coercive, and leave more choice to the player.

Facilitating desirable effects

Technologies can exert their influence and mediating role in a variety of ways, outlined under "Impact on the good life". Next to engineering out undesirable effects, desirable effects could therefore be engineered in. An MMORPG client could be programmed to not allow a player to play more than 20 h a week, forcefully shutting itself down after the time has been filled up. This would most likely be viewed as very coercive by most players and not necessarily result in positive feedback. A clever design, on the other hand, could seduce the player not to play longer than 20 h per week by rewarding him, with experience points or special items and virtual badges. A mixture between seduction and coercion could be a change in design that lessens a character's effectiveness during combat or reduces the amount of experience points received when playing more than 8 h straight. Already, there are boosts in some games that apply when a character is "rested". A certain amount of experience points is earned faster when the game was not played for several hours, thereby changing the choice architecture of resting choices.

With motivation addiction in the gamer being a factor not controllable by the designer, he or she could possibly work on creating an environment that makes the player aware of his or her playing habits. As a choice architect, the game designer could implement feedback mechanisms for gamers that pull their attention towards potential problematic usage. This could happen by making the time spent in the game more transparent via displaying it on the graphical user-interface of the game (the figure changing color or consuming more space on the GUI over time) or subtle, by showing signs of fatigue on the played character. Those signs would also be visible to other players, who in turn, could encourage their peer to stop playing for a while. Again, this delegation of responsibility to other users is part of the new possibilities that online services offer in terms of mediation.

The designer could further draw upon the strong social aspects that an MMORPG has. One possible example would be to (voluntarily) provide the statistics of weekly playing time to guild leaders, who in turn, could talk to members with problematic usage patterns and encourage them to reduce the pace a little. Such designs make use of the gamers' own responsibility and social mechanism as part of the choice architecture. Not only the game mechanics themselves provide seduction and persuasion here, but part of the behavioral incentives are looped via the user's own values (by viewing time statistics oneself) or via others (when other players or guild leaders view them).

Putting even more responsibility on the user, the designer could provide the user with settings to set off warnings after a certain amount of time or when a certain threshold is reached per week. Making that a mandatory part of the installation process or the creation of a new character would force the player to deal with the general issue and bring it to attention. In this case, the values to

be protected are (partly) chosen by the player rather than the designer, although the general mechanism and choice architecture are part of the design.

Last, but not least, the design could help users to become more aware of the underlying mechanics and make the game overall more transparent and persuasive instead of seductive. Fleuriot stresses that designers of pervasive media "have a responsibility to make the implications of their actions clear to the user" (2012, p. 3). This could be supported by bringing transparency to the hidden mechanics and algorithms that govern the game through a database that is directly accessible from within the game. A user could look at the time that others on average spent on certain quests or to gain the next level. The database could also list the explicit drop rates of rare items and the various algorithms that govern the game. There is little threat regarding theft of intellectual property by other studios, as drop rates are finely balanced with the overall game and cannot simply be applied to other titles.

Possible implications for users and publishers

Acknowledging their mediating role and developing games that deliberately tackle problematic user behavior with a combination of new mechanics or adjusting current games without appalling users is something that can be done, but can also pose a risk for a game's (continued) commercial success: Hopson warns that any changes in that area of reward mechanisms would have to be done "carefully and gradually" as to avoid that the player is no longer attracted at all to the game or would even quit playing altogether. Also, changing the mechanics must not lead to a ruination of the overall business models of MMORPG publishers.

Still, making the mechanics more transparent and providing strong feedback mechanisms together with certain measures to address already existing problematic usage patterns as discussed in the previous sections is something that could be included without requiring a drastic change of the games. Better design is not limited to the range of MMORPG's currently in development, as the genre incorporates aspects of a service, for example continued support through regular enhancements to the game's content and design via patches. It is not feasible to completely change the core mechanics, because that could alienate existing users, but small and more subtle features like displaying fatigue on a player's character or the inclusion of rewards could be introduced over time to already running games.

Discussion

In the course of this paper, we have shown that the ethical dimension of games goes beyond their content. Problematic investment of time into an MMORPG that might otherwise be void of explicit sexual or violent content can have consequences for the good life of a person. Seductive game mechanics and exploiting behavioral game design claim a user's attention well past the initial interest in a game's story or visual presentation.

MMORPG's differ in a way from most other games. They do not really have a true ending. There is always a new quest to fulfill or a dungeon to explore. Even if someone would run out of content, he or she could start anew with a totally different class. The virtual worlds are continuously expanding and social components further bind people to the game. "Normal" single player video games usually offer entertainment for a finite time only and have a limited "replayability". Once the game's story has been completed, the game usually ends with the credits, just like after watching a movie. Players might play through the game for multiple times, but there is little incentive to do so.

It is rather unlikely that developers of video games are consciously set to make players addicted to their games and possibly create negative consequences for them. Their main goal is to create an enjoyable and enduring experience for players so that they would keep up playing the game and pay a subscription fee over a longer period of time. Most developers would be proud when their MMORPG excels at maximizing the attention it gets from a user for a long period of time and seduces players to stick with the game. Still, looking at the effects holistically, developers also need to consider how their games influence users in a negative way: some users play the games even past the point of enjoyment. The consequences can be dire, including death in the most extreme case. Although some governments in Asia restrict playing times (Blackburn 2013), developers are not yet fully addressing the issues stemming from their games' mechanics, possibly because they are not looking at the impacts of their design choices from all angles.

Contributing to personal enjoyment for many people, MMORPG's are not inherently "bad", nor are the mechanics—they just have to be designed and used responsibly. The possible negative impacts resulting from problematic usage patterns cannot solely be attributed to MMORPG game mechanics, and the scope of this work did not include comprehensive research on motivational factors or the player's environment. It is likely that a number of people would not lead a more satisfactory life were they playing no MMORPG's at all. For them, the game is just an outlet for problems in other areas of life. While said underlying causes of motivation addiction cannot be addressed by a game developer, game mechanics could still play a mediating role to reduce problematic usage adversely affecting the good life. This could either happen by mitigating negative effects, such as uncontrolled playing times through

hard contingencies or make the players themselves aware of their problematic usage patterns. By ethically evaluating the impact of game mechanics on a user and taking the necessary steps to influence behavior for the better, developers have the possibility and responsibility to help contribute to a good life for millions of users. Future research could further explore the ethical implications of the business models of MMORPG's, especially the controversially discussed microtransactions (Hamari and Lehdonvirta 2010), and assess their impact on user behavior.

More generally, the discussion of ethical MMORPG design links up with broader questions on technology and autonomy. Autonomy is "[…] commonly viewed as a key component of human well-being" and "[…] referenced as a fundamental principle of ethics in Kantian deontology" (Piper n.d.). The autonomy issue is especially prominent in the privacy domain (Van den Hoven et al. 2014), where one of the main questions is how leakage of personal data affects our ability to make choices, for example because we are refused certain services based on what is known about us. This autonomy dimension is very prevalent in game design as well, albeit through a different mechanism. In this case, autonomy is not lost because technology enables others to make decisions for us based on what they know about us, but rather because our ability to make our own choices is affected by the mechanisms in the technology, impacting self-control. Gamers may be seduced into spending (excessive) time on the game, presumably without conscious choice, and with negative effects on the good life. In this sense, MMORPG's can be considered persuasive technologies (Lockton et al. 2008; Versteeg 2013).

One can discuss whether the effects of (excessive) gaming on autonomy may be considered morally problematic even if the gamers are happy with it themselves. A positive psychology approach (Søraker 2012a) would focus on subjective well-being and therefore evaluate the effect of the technology based on self-reported happiness. However, in a democratic society, we will typically not accept systems limiting our autonomy, such as dictatorship, even if people would be happier under such a regime. Similarly, the fact that people are happier or have more fun when playing a game does not imply that the design is therefore good. In particular, game design may inhibit the ability of users to behave responsibly themselves, therefore failing to meet the criterion of meta-task responsibility (Van den Hoven 1998). In this sense, MMORPG's are just an example of a wider technological development, and the broader application of the suggested solutions may provide inspiration for further study.

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