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Avatar Identification in Video Games Motivates Players

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Author Note

The author hereby declares that she has read and fully adhered the *Code for Good Practice in Research of the University of Basel*.

Abstract

Identification with an avatar in Video games fosters a player's motivation to play the game. The aim of this thesis is to review established research on avatar identification in video games focusing on the motivation players derive from it. For this purpose, previous findings that investigated avatar identification, motivation, and video game-playing were considered in this thesis. In the theory section an overview of existing work will be presented. It is followed by a discussion that integrates the previous introduced theories and findings and provides an outlook on future objectives that deal with the issue of avatar identification and motivation within and beyond video games.

Keywords: avatar; identification; motivation; video games

Contents

Introduction

In 2019 over 2.5 billion users worldwide participated in video gaming and spent over $152 billion US dollars on games. Mobile gaming as well as console gaming are more popular than ever (newzoo, 2019). So why do so many people enjoy playing video games and what motivates the players of these games? The answer might be simple; because it is fun. However, in the past few years studies on video gaming and its effects on players have tremendously increased with most of the researchers trying to answer the question stated above in more sophisticated ways. Over the past few decades media entertainment evolved from non-interactive media such as novels or television to an absolute interactive form of entertainment we call video games (Klimmt, Hefner, & Vorderer, 2009). In video games, players are not only observers of the media environment and the characters in it as they are in television settings, but they actively participate in the story unfolding on screen (Spiel & Gerling, 2019).

Besides many other aspects of video gaming, identification with an avatar is argued to be an essential element of game enjoyment and motivation (Hefner, Klimmt, & Vorderer, 2007). Several previous studies have shown the positive effect of avatar identification on motivation (e.g. Birk, Atkins, Bowey, & Mandryk, 2016). The benefits of increased motivation are greater engagement which in turn can translate into improvements of diverse tasks (Birk et al., 2016; Ryan, Rigby, & Przybylski, 2006). For example, greater engagement in exergames leads to an improvement in one's fitness due to increased time spent on physical activity (Macvean & Robertson, 2013). Research on the motivational aspects of video games are therefore of great value for our society. On the other hand, investigating the aspects that motivates players in video games can help developers create and design sophisticated video games (Birk et al., 2016).

This work focuses on the motivation players derive from avatar identification in video games.

Motivation in Video Games

The question of motivation particular in video games has been approached by several researchers. For example, Bartle (1996) postulated that there are four types of players that differ in their underlying motivation to play a video game: killers, socializers, achievers, and explorers (Figure 1). These four types originally evolved from discussions amongst a few experienced players. According to Bartle (1996), the killer-type wishes to act on players and is annoyance oriented, socializers wish to interact with players and thus are social contact oriented, achievers wish to act on the virtual world and are therefore goal oriented, and explorers wish to interact with the virtual word and so they are discovery oriented. A game needs to provide satisfaction of all four player types to be successful (Bartle, 1996).

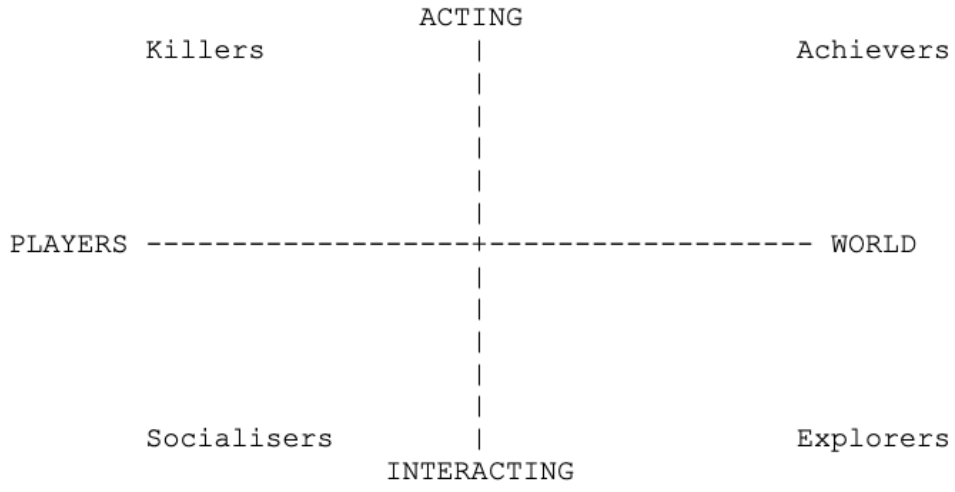

Figure 1. Bartle's taxonomy of player types. The x-axis goes from an emphasis on players (left) to an emphasis on the environment (right); the y-axis goes from acting with (bottom) to acting on (top). The four extreme corners of the graph show the four typical playing preferences associated with each quadrant (Bartle, 1996, p. 6).

Yee (2006) criticized Bartle's theoretical model for its empirical lack of evidence that proves the independence of the four player types. He argued that they may even correlate to a high degree and proposed a more elaborate construct to understand player motivation. Via factor analysis, Yee (2006) identified 10 sub-components that are

grouped into three overarching motivational factors that do not suppress each other. The three factors are: achievement (advancement, mechanics, competition), social contact (socializing, relationship, teamwork), and immersion (discovery, role playing, customization, escapism). With his framework, Yee (2006) tributes to the fact that different people have very different reasons to play games and that there is no such thing as *the one* video game player. Yee's empirical model was used in numerous research. For instance, Ryan et al. (2006) found that the achievement motive was negatively related to mood, suggesting that the desire for competition, power, and mastery in a game can be associated with negative aftereffects due to perceived pressure and stress. Furthermore, Yee (2006) found that social contact and immersion were more important for female players whereas male players focused more on the achievement motive.

Later on, Ryan et al. (2006) established a theory grounded approach to gaming involvement based on the idea that players, regardless of their type, seek to satisfy psychological needs in the context of play. They presented an empirical application of self-determination theory (SDT) to video games (Ryan et al., 2006). The following section focuses on Deci & Ryan's self-determination theory (Deci & Ryan, 1985) since it is the leading theory in the field of motivation research in video games.

Self-Determination Theory

The self-determination theory (SDT; Deci & Ryan, 1985) is a widely investigated concept of motivation. It explains the intrinsic and extrinsic motivation that people have to play games due to having their basic psychological needs satisfied through game interaction. The basic psychological needs theory (BPNT) is a sub-theory within the SDT that describes the three fundamental psychological needs for autonomy, competence, and relatedness. Because video games satisfy the fundamental psychological needs they are motivating and short-term enhance well-being (Przybylski, Rigby, & Ryan, 2010; Ryan et al., 2006). To measure need satisfaction, Ryan et al. (2006) designed an instrument called the *player experience of need satisfaction (PENS)*. The PENS assesses a player's perceived in-game autonomy, in-game competence,

in-game relatedness, presence, and intuitiveness of controls.

The Psychological Needs. Competence within the SDT describes the feeling of mastery and control over the outcome of a challenge and having a distinct goal in a game (Ryan et al., 2006). It is argued to be the first need that was supported in the earliest video games (arcade games; Przybylski et al., 2010). Competence and thus intrinsic motivation in video games can be fostered through rewards and performance feedback (Deci & Ryan, 2000; Przybylski et al., 2010). Ryan et al. (2006) propose that competence in the context of video games is a very important psychological need because by experiencing competence, a player can feel accomplishment and control. Furthermore, Przybylski et al. (2010) have shown that the experience of competence results in greater immersion and increased self-esteem.

Autonomy is defined as "the need to engage in challenge under one's own volition" (Birk et al., 2016, p. 2984). Deci and Ryan (2000) have shown that when activities are done for interest or personal value, perceived autonomy and in turn intrinsic motivation is high. In context of video games, a player's autonomy is usually quite high since the participation in video games is mostly voluntary. Giving players different choices and options over skills, missions, and appearance in a video game greatly increases one's sense of autonomy and therefore positively relates to affect and enjoyment of a game (Kim et al., 2015; Przybylski et al., 2010).

Relatedness is experienced when a person feels connected with others. In video games, relatedness is achieved especially in multiplayer games since the main aspect of these games is to interact with other players (Ryan et al., 2006). In most of today's massively multiplayer online role-playing games (MMORPGs), such as World of Warcraft, tens of thousands of players from around the world play with and against each other and thus through chats (text-based or acoustical via headphones) are able to create long-term relationships (Przybylski et al., 2010). Yet, Tyack and Wyeth (2017) explored relatedness in single-player games and found that parasocial relationships with virtual characters, culture, or videogames themselves may as well satisfy this need.

In addition to the three needs (competence, autonomy, and relatedness), Ryan et

al. (2006) extended the traditional model to capture the unique characteristics of digital games with presence/immersion and intuitive control.

To be intrinsically motivated in a video game, players need to feel as if they actually operate within the game world and are not just outside the game controlling a character. Thus, a player needs to feel directly embedded into a game. Researchers found that presence is related to autonomy and competence in the sense that someone who has their psychological needs satisfied feels higher presence. They also found a relation between presence and intuitive control (Przybylski et al., 2010; Ryan et al., 2006).

Intuitive control describes the degree to which game controls and mechanics in a virtual environment make sense and are easily mastered. Przybylski et al. (2010) refer to "the learned ability to effortlessly perform intended actions in the game's virtual environment" as mastery of controls (Przybylski et al., 2010, p. 156). A game with higher intuitive control is more intrinsically motivating because it enhances the sense of freedom and competence (Ryan et al., 2006). Today's control interfaces are usually standardized. Thus, once a player acquired a game's mechanics, the learned skills can easily be transferred from one game to another (Przybylski et al., 2010).

Intrinsic Motivation. The SDT distinguishes between intrinsic and extrinsic motivation and in addition highlights the factors that facilitate versus undermine these two types of motivation (see CET and OIT). According to Ryan and Deci (2000), intrinsic motivation is "the doing of an activity for its inherent satisfactions rather than for some separable consequence" (Ryan & Deci, 2000, p. 56). When intrinsically motivated, a person does something for fun and out of pure volition. A person that participates in an activity out of intrinsic motivation perceives more enjoyment, is more creative, and shows more cognitive flexibility (Ryan & Deci, 2000). Researchers used to measure intrinsic motivation with the so called *free choice* measure or with the use of self-reports of interest, what again indicates the inherent origin of an action. In the context of games in general, like sports games, but specifically in video games, intrinsic motivation is quite relevant since most players do not receive any rewards and often

need to pay to participate in a game. Actually, some players even earn disapproval from their environment (Przybylski et al., 2010; Ryan et al., 2006). For instance, adolescents who play an online shooter game are often not praised for their activities but rather told that they should stop playing such violent games.

Deci and Ryan (1985) presented the Cognitive Evaluation Theory (CET) to specify the factors in social contexts that are accountable for the variation in intrinsic motivation. Przybylski et al. (2010) call these factors "specific psychological nourishments" and state that they are essential to experience activities as inherently enjoyable. CET is another sub-theory of SDT and proposes that fostering feelings of competence (or self-efficacy) in social situations (e.g. through feedback) facilitates intrinsic motivation and that these feelings have to be accompanied by a sense of autonomy. Thus, people must feel competent and be self-determined in order to be highly intrinsically motivated. In other words, the basic psychological needs for competence and autonomy must be satisfied. On the other hand, events that negatively influence one's sense of competence and autonomy will diminish intrinsic motivation (Ryan & Deci, 2000).

Extrinsic Motivation. Extrinsic motivation refers to "doing something because it leads to a separable outcome" (Ryan & Deci, 2000, p. 55). A person who is extrinsically motivated does an activity because of its instrumental value. According to Ryan and Deci (2000), extrinsic motivation can vary greatly in the degree to which it is autonomous. For instance, students who do their homework out of fear from sanctions differ from students who do their homework because they think the work is of great value for their education. Thus, these two types of extrinsic motivation vary in their relative autonomy.

In contrast to the Cognitive Evaluation Theory, the Organismic Integration Theory (OIT; another sub-theory of SDT) refers to the different forms of extrinsic motivation (Deci & Ryan, 2000). Figure 2 illustrates the six types of motivation, arranged from left to right in terms of the extent to which they represent self-determination. Thus, they vary in the degree of internalization and integration.

"Internalization is the process of taking in a value or regulation, and integration is the process by which individuals more fully transform the regulation into their own so that it will emanate from their sense of self." (Deci & Ryan, 2000, p. 60).

In the state of *amotivation*, a person completely lacks an intention to act and therefore does not act at all or without any aim. The least autonomous form of extrinsic motivation is called *external regulation*. In this category, a person's actions are driven by externally controlled rewards or punishments. Therefore, the values are not internalized. The next type of external motivation is called *introjection*. A person is still controlled and feels pressure to act in order to avoid guilt or anxiety or to maintain self-esteem. A further type of regulation that is more internalized and autonomous is called *identification*. Here, a person identified with the personal value of a behavior and thus evaluates an action and its outcome as personally important. When identified regulations have been fully assimilated it is called *integration*. *Integration* is the most autonomous form of extrinsic motivation and is quite similar to intrinsic motivation but is still driven by an external reward. Illustrated at the far right of the taxonomy is *intrinsic motivation* where a person acts because of the inherent satisfaction they derive from it (Ryan & Deci, 2000).

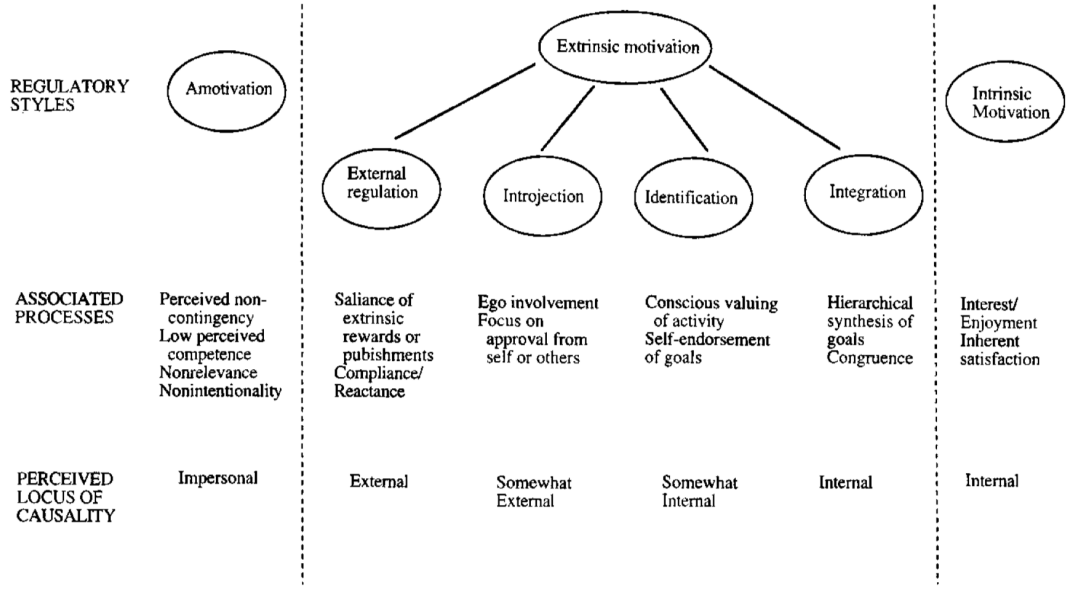

Figure 2. Taxonomy of human motivation (Ryan & Deci, 2000, p. 61).

Avatar Identification

Identifying with an avatar in a video game has been shown to foster intrinsic motivation (Birk et al., 2016). Furthermore, researchers have shown that especially children "quite closely" identify with avatars and that these identifications correlate with a child's well-being and the development of its personality (McDonald & Kim, 2001). The next sections look into the definitions and previous research on avatar identification.

What is an Avatar?

An avatar is a graphical representation of a player that allows them to act within a game environment (Bayliss, 2007). The character that a player customizes and controls in games is called "avatar" or "player character". The characters that players interact with in a game have their given features and are called "non-player characters" (NPCs; Misoch, 2014). Furthermore, the connection and interaction between a real person and an avatar is called player-avatar relationship (PAR) which can vary in perceived agency and emotional intimacy (Banks & Bowman, 2013). In order to measure the PAR respectively the player-avatar interaction (PAX), Banks, Bowman, Lin, Pietschmann, and Wasserman (2019) developed the 15 item *common player-avatar interaction scale (cPAX)*. The cPAX addresses the fact that different cultures differently experience connections with both humans and non-humans. It assesses player-avatar interaction through four dimensions: relational closeness, anthropomorphic autonomy, critical concern, and sense of control.

According to Misoch (2014), an avatar not only serves as the protagonist inside a virtual world but also serves as embodiment of a player and therefore as a medium between the player and the virtual environment. Several previous studies investigated in the player-avatar relationship. For instance, Yee, Bailenson, and Ducheneaut (2009) found that the appearance of an avatar serves as a predictor of a player's performance and affects how players interact with other people. Furthermore, it has been shown that avatars can affect a player's engagement and game enjoyment (e.g. Hauge, Barenbrock,

& Thoben, 2017).

Identification

Many different definitions of identification exist. For instance, Livingstone (1998) referred to identification with a TV character as imagining being in someone else's shoes and seeing the world through their eyes. Cohen (2001) defined identification as "an imaginative experience in which a person surrenders consciousness of his or her own identity and experiences the world through someone else's point of view" (Cohen, 2001, p. 248). He furthermore stated that "identification is an imaginative process through which an audience member assumes the identity, goals, and perspective of a character." (Cohen, 2001, p. 261). Identification is therefore not a process in which one projects their own identity onto someone or something else but rather internalizes a character's point of view and believes (Cohen, 2001). Looy, Courtois, Vocht, and Marez (2012) claim that identification is the degree to which an individual likes, empathizes with, or perceives a character as being similar to themselves.

Livingstone's and Cohen's definitions of identification apply to any media character but do not specifically refer to identification in digital games. The difference between any form of media (e.g. novels, TV) and video games is the fact that in video games a player is given an active role in the fictional world as opposed to just being a witness in more traditional media. Thus, video games are interactive (Looy et al., 2012). Klimmt et al. (2009) refer to this as "structural differences between video games and 'old entertainment media'" (Klimmt et al., 2009, p. 353). These differences lead to a differentiation in dyadic and monadic identification with media characters (Klimmt et al., 2009).

Dyadic and Monadic Identification. The dyadic concept of audience responses to media characters is non-interactive and observation based. According to Klimmt et al. (2009), media users respond in specific emotional ways after observing and evaluating a media character and therefore perceive a social distinction between themselves and the character. A character that is associated with positive attributes

and is therefore evaluated positively receives empathy whereas a character that is evaluated negatively receives no empathy (Zillmann, 1991). In sum, the media user always remains as an “individual distinct from the media character” (Klimmt et al., 2009, p. 353).

In contrast, in the monadic audience-character relationship there is only a vague distinction between a media user and a media character. While the dyadic type of identification is more empathy-driven and observable, the monadic type of identification should particularly apply to interactive entertainment such as video games (Hefner et al., 2007). A characteristic of monadic identification is active participation in a virtual environment and the feeling of *being* a media character (Klimmt et al., 2009; Vorderer, 2000). Thus, players do not just observe and evaluate characters perform, but they actually control characters or even perform themselves (Klimmt et al., 2009). Klimmt et al. (2009) argue that therefore “mere observation of characters or events is not a convincing description of game players’ ‘audience role’” (Klimmt et al., 2009, p. 354). To facilitate a monadic identification, personal appeal to the offered role, good performance, and experience of competence must be given to a certain degree (Hefner et al., 2007).

Identification with an avatar in a video game can be described as a monadic process in which users adopt (parts of) the perceived identity of a customized graphical representation (Klimmt et al., 2009). Suh, Kim, and Suh (2011) define avatar identification as the "cognitive connection between an individual and an avatar" (Suh et al., 2011, p. 715). They furthermore argue that a player perceives an avatar as substitute self. Teng (2017) simply defines avatar identification as "the degree to which users regard avatars as themselves" (Teng, 2017, p. 602).

To measure player-avatar identification (PAI) in general, Li, Liau, and Khoo (2013) developed the *PAI-scale*. They argue that player-avatar identification can be conceptualized and reliably measured in terms of four-factors: feelings during play, absorption during play, positive attitudes towards an avatar and importance to identity.

Three Types of Avatar Identification

Three different types of identification have emerged from the research on video game identification (Looy et al., 2012). Similarity identification, wishful identification, and embodied identification. Looy et al. (2012) proposed the *Player Identification Scale (PIS)* to measure these three avatar identification types in online games.

Similarity Identification. Similarity identification is defined as the perceived similarity between an avatar's appearance and a user's physical appearance. Thus, the degree to which the avatar resembles the player. The extent of an avatar's similarity is regarded as "the degree of reflection of one's self-concept" (Suh et al., 2011, p. 715). Hoffner and Buchanan (2005) argue that similarity identification refers to the process whereby individuals put themselves in the place of a character and indirectly participate in their experiences. Suh et al. (2011) showed that similarity with an avatar increases positive attitudes towards that avatar and therefore leads players wanting to interact more with that avatar. Furthermore, they showed that avatar similarity positively correlates with overall avatar identification.

Wishful Identification. Wishful identification refers to the process where an avatar doesn't represent players as they are but as they wish to be (Hoffner & Buchanan, 2005). This type of identification is argued to be a process in which a media user desires to be (more like) the media character (Konijn, Bijvank, & Bushman, 2007). Higgins (1987) states that wishful identification is grounded on the reduction of self-discrepancy for the time of media exposure. Self-discrepancy is the perceived difference between one's actual self-perception and one's ideal, preferred self (Higgins, 1987). Letting players escape the real life and allowing them to be the way they want to be leads to greater game enjoyment (Hefner et al., 2007). Hoffner and Buchanan (2005) found that perceived wishful identification is higher when a character has the same gender, race, attitude, and background as the user. Moreover, people often wishfully identify with media characters who are more successful, more popular, or in other ways rewarding or positive.

Embodied Identification. In addition to wishful and similarity identification, Looy et al. (2012) introduced the identification type of embodied presence to account for the specific nature of avatar identification in digital games and to refer to the emotion of being embodied in the character. Embodied presence is referred to as the feeling of presence and sensory immersion induced by game play. Looy et al. (2012) assumed that a user's experience of the game world is mediated by a mental self-image to the extent that players unconsciously adapt their behavior to the type of avatar they are controlling. Biocca (1997) furthermore describes embodiment as a user's experience of the virtual environment through their body container. The *Player Identification Scale* measures embodied presence with statements such as "I feel like I am inside my character when playing" or "In the game, it is as if I become one with my character".

According to Birk et al. (2016) these three types of identification predict experienced autonomy, immersion, invested effort, enjoyment, and positive affect. Moreover, they showed that greater identification translates into motivated behavior.

Avatar Identification as a Shift of Self-Perception

Hefner et al. (2007) proposed that avatar identification can be described as a partial alteration in one's self-perception. In other words, a player temporarily adopts an avatar's features into their self-perception for the time of media exposure and thus perceives an altered self-experience. Though, after game exposure a player's self-experience quickly returns to the original perception. This definition of identification is specific for video games since it considers the interactivity of such entertainment medias (Klimmt et al., 2009). Important to point out is the fact that a player only adopts parts but never the full identity of a character since it is often not possible for a player to fully identify with a character due to limited media technology. Thus, Klimmt et al. (2009) suggest that identification with a character is more of a symbolic and cognition based rather than a physical process. For instance, a player is not able to sense a character's physical pain but is able to perceive a character's emotions and goals. In that sense, one can even identify with an unrealistic character

by adopting single attributes. Furthermore, Klimmt et al. (2009) argue that identification throughout a game is not stable and differs in it's intensity. For example, a player may temporarily limits identification with a character during a perceived immoral situation to suppress undesired changes in self-perception.

While identifying with an avatar in a video game, players perceive themselves differently than in a non-gaming situation. For instance, players that identify with and play as an assassin in a video game would perceive themselves as more skilled, hostile, and deceitful during the game than outside of the gaming context (Klimmt, Hefner, Vorderer, Roth, & Blake, 2010). Hefner et al. (2007) argue that identification as a shift of self-perception results in video game enjoyment due to a reduction in one's self-discrepancy and therefore serves as a form of escapism. Escapism can be described as a process of real-life problem avoidance and can serve as a medium to reduce self-discrepancy (Hefner et al., 2007). By escaping real-life circumstances through an avatar in a video game and therefore changing one's self-concept into the direction of one's ideal self, the perceived self-discrepancy is reduced and a player perceives positive feelings and enjoyment during a game (Hefner et al., 2007). This reduction in one's self-discrepancy in video games is argued to be "more profound and sustainable" than in non-interactive media entertainments due to the flexibility and interactivity of video games (Klimmt et al., 2009, p. 364). Though, Klimmt et al. (2010) found that a player's performance within the played role needs to be considered in the sense that a player that shows low performance may not reduce self-discrepancy. Klimmt et al. (2010) argue that these changes of self-perception may occur automatic and therefore are implicit.

Fostering Avatar Identification

Interactivity has been shown to facilitate avatar identification (Hefner et al., 2007). One of the most important processes to achieve avatar identification within this interactivity is avatar customization. Previous studies have found that avatar customization and playing with customized avatars in video games is associated with greater identification, higher enjoyment, and a greater sense of autonomy (Birk et al.,

2016; Kim et al., 2015; Trepte & Reinecke, 2010; Turkay & Kinzer, 2016). Trepte and Reinecke (2010) showed that an avatar that has high similarity to the player as well increases identification and therefore enjoyment. Furthermore, Turkay and Kinzer (2016) found that customizing an avatar close to an ideal self might increase identification and players who were allowed to customize their avatar reported significantly higher embodied presence. Moreover, the time spent on avatar customization positively correlates with the perceived identification. Allowing a player to customize their avatar results in a sense of autonomy and agency what in turn leads to higher identification and moreover facilitates empathy (Turkay & Kinzer, 2016).

While customizing an avatar, different players pursue different goals in different games. Trepte and Reinecke (2010) showed that in competitive games, players created dissimilar avatars in contrast to non-competitive games where players created similar avatars. Furthermore, some players lay their focus on an avatar's appearance (cosmetic customization) while others customize their avatar with a functional goal in mind. Depending on whether a player's goal is to make their avatar look similar to their own physical appearance or the goal is to customize an avatar in a functional way, different levels of identification such as similarity identification or wishful identification can be a result (Turkay & Kinzer, 2016). An avatar's appearance is more strongly related to identification than an avatar's abilities (Turkay & Kinzer, 2016). Moreover, Ducheneaut, Wen, Yee, and Wadley (2009) found that hair style and color were consistently ranked among the most important features customizing an avatar. Ducheneaut et al. (2009) assume that this is because hair is often the most visible feature in many video games and in real life hair style and color control and build an individual's appearance. Furthermore, they found that age and gender impact the way players create and customize their avatars. For instance, older users like to create younger-looking avatars.

Another way to foster avatar identification in video games is through the game design and its game system. Every game provides its own avatar system to create and customize the avatars. Thus, this affects how users construct their online identity (Ducheneaut et al., 2009). Furthermore, operating in a realistic game world and feelings

of accomplishment increases players' identification with their avatars (Turkay & Kinzer, 2016). Games that provide rich narrative content, sophisticated interaction possibilities, intelligent agents and rich audiovisual representations are linked to video game enjoyment. Thus, more advanced game technology can be argued to facilitate the adoption of character attributes and therefore results in more intensive forms of identification with the game protagonist (Hefner et al., 2007; Klimmt et al., 2009). The way a game is designed also impacts the satisfaction of the psychological needs. For example, autonomy within a video game can be manipulated through the game design. That is, games that provide choices and flexibility enhance autonomy whereas games that control a player's behavior to an extend where the player can't really make his own choices impair the perceived autonomy (Ryan et al., 2006).

Discussion

This review provides an overview of the current state of research on motivation and avatar identification in video games. Previous literature has shown that games are motivating because they satisfy the basic psychological needs for autonomy, competence, and relatedness (Ryan et al., 2006). Researchers therefore conclude that identification with an avatar as an important aspect of a game as well satisfies the needs and thus results in motivation (Birk et al., 2016). Moreover, avatar identification has been shown to increase motivation since it reduces one's self discrepancy and as a result alters one's self-perception in the direction of an ideal self (Hefner et al., 2007).

The following sections provide a critical view on the previously described theories and a short outlook on the possible implications of increased motivation in video games.

Comparing the Motivational Approaches

At the beginning of this review three approaches to motivation in video games were presented. There seems to be a connection between Bartle's four player types (Bartle, 1996), Yee's three motivational factors (Yee, 2006) and the psychological needs proposed by the self-determination theory (Ryan et al., 2006).

A relationship between Bartle's four player types and Yee's three motivational factors seems quite obvious since Yee partly based his 40 survey questions on Bartle's player types. Through factor analysis Yee empirically supported Bartle's taxonomy that actually merely presents a theoretical classification of player types. It therefore can be assumed that Yee's achievement motive evolved from Bartle's achievers, the social motive represents the sozializers, and the immersion motive can be compared to the explorers. Bartle's fourth player type, the killer, is best represented by the achievement motive since imposition upon others can be understood as the desire to challenge and compete with others what Yee summarized in the competition subcomponent within the achievement motive.

The basic psychological needs for perceived autonomy, competence, and relatedness are independent across all potential players and game types and rather

represent a player's fundamental and underlying motives and satisfactions. Nonetheless, it could be suggested that autonomy is achieved through Yee's immersion motive with subcomponents such as customization and role-playing. Especially, customizing an avatar has been shown to foster a player's perceived autonomy (Birk et al., 2016). The same applies for competence which can be achieved through the subcomponents of the achievement motive, namely the mechanics, advancement, and competition and relatedness which can be achieved through the social motive.

The fact that these three approaches to game motivation relatively well merge together shows that current researchers seem to agree on a player's underlying motives to play a game.

Identification and the Psychological Needs

Creating an avatar that a player identifies with has been shown to increase game enjoyment (e.g. Trepte & Reinecke, 2010). Though Deci & Ryan's self-determination theory is one way to explain this assumption (Ryan et al., 2006). Increased motivation may therefore be the result of a satisfaction of the psychological needs through similarity-, embodied-, and wishful avatar identification. However, in their study on fostering intrinsic motivation through avatar identification in digital games Birk et al. (2016) could only show the impact of identification on perceived autonomy, whereas identification could not significantly predict competence and relatedness. This could be due to the fact that the infinite runner game used in the study mostly focused on a player's autonomy since the avatar customization played an important part in the game. A manipulated leader board and being told that the participants are connected with other players may not be sufficient experimental manipulations to measure the impact of the psychological needs for competence and relatedness.

Moreover, Looy et al. (2012) found that avatar identification primarily correlates with aspects of Yee's immersion component such as customization, role-playing, and escapism, which in turn can be seen as aspects that satisfy the need for autonomy.

In other words, avatar identification is probably mainly motivating because the

psychological need for autonomy is satisfied. Whether or not and to what extent the satisfaction of the other two needs (competence and relatedness) through avatar identification results in intrinsic motivation needs to be further investigated in future studies. For example, in addition to the infinite runner game, the participants could play several different multiplayer online games with the previously customized avatar to more effectively explore the effects of identification on competence and especially relatedness. Moreover, conducting a long-term study would be appropriate to gather more precise data.

The Role of Extrinsic Motivation

Birk et al. (2016) have shown that identification fosters intrinsic motivation. This finding begs the question of whether or not and to what extent avatar identification also results in extrinsic motivation. As already mentioned, extrinsic motivation refers to behavior that is driven by external rewards and can vary in the degree to which it is autonomous (Ryan & Deci, 2000). Especially, satisfying the need for competence through avatar identification could result in the more autonomous forms of extrinsic motivation since the existence of rewards in a video game play a large part in motivation.

Assuming that avatar identification results in motivation because of the satisfaction of autonomy and not because of the satisfaction of competence and relatedness, it seems reasonable that avatar identification per se does not result in extrinsic motivation but the overall game experience does.

Though, it could be argued that players who customize their avatar in a strategic way with the primary goal of winning the game are guided by external rewards. Thus, the way one identifies with an avatar results in perceived extrinsic motivation. Moreover, in a multiplayer online game, players through their avatar may have worked their way up in a fictive hierarchy and therefore receive attention and positive feedback from the other players. These examples illustrate that identifying with an avatar, and through it enjoying special reputation could result in extrinsic motivation.

The effects of avatar identification in digital games on extrinsic motivation could be addressed in future studies.

The Different Avatar Identification Types

Given the fact that avatar identification can be categorized in three types raises the question whether these different types differ in their effect on motivation. Although Birk et al. (2016) showed that greater identification with any of the three types results in motivated behavior, they did not specify whether the types differ in the extent of their motivational pull. By analyzing the data on the effects of identification on motivation as measured with the *Intrinsic Motivation Interview (IMI)* one can barely spot any difference between similarity-, embodied-, and wishful identification. In this respect, wishful identification is probably the most explored type since it has been shown that a shift of one's self perception as a reduction in one's self-discrepancy results in video game enjoyment (Hefner et al., 2007).

Future investigations could focus on the differences between the three identification types and how they may differ in their effect on a player's motivation.

Implications of Increased Motivation

Ryan et al. (2006) conclude that greater intrinsic motivation leads to greater engagement and effort. Therefore, video games can be used in many different contexts where people need to be motivated in order to accomplish any task. For instance, video games not only provide a form of entertainment but also hold benefits for health care and education (Granic, Lobel, & Engels, 2014). Granic et al. (2014) argue that psychoeducation is facilitated through video games. Therefore, video games can help motivate and increase engagement especially in children and adolescents that do not recognize their mental health problems or are not motivated to change. Thus, digital games could serve as an addition to the classic cognitive-behavioral therapy (CBT). Due to its motivational aspect, an avatar could furthermore help people going through an addiction treatment by accompanying them through the journey of the therapy. Considering that video games and especially identification within these virtual

environments increase motivation also holds implications for education. Due to the fact that children closely identify with an avatar (McDonald & Kim, 2001), video games could be used as an addition to the general school setting to teach children different subjects such as mathematics. On a social level, avatars in digital games could be applied to prevent violence and mobbing and to teach children a respectful interaction with peers at a young age.

However, it is important to keep in mind that increased motivation in video games can have negative psychological consequences such as video game addiction. Regarding the SDT it can be argued that for someone that can not satisfy the basic psychological needs in real life, video games are extremely motivating and a perfect environment since the focus is especially laid on the satisfaction of the psychological needs. For example, someone who hardly ever receives any feedback for their actions in real life may spend increased time in a virtual world where they get immediate and accurate feedback. The same applies for people who do not have a lot of friends in real life. They might be able to connect with other players around the world through video games and form a relationship that keeps them in the virtual world. Therefore, it can be argued that escapism not only through a perceived altered self perception but also through the satisfaction of the needs plays an essential role in the development of video game addiction and needs to be considered in further studies.

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