Identification with Game Characters: Theoretical Explanations, Predictors, and Psychological Outcomes

Oyun Karakteriyle Özdeşleşme: Teorik Açıklamaları, Öncülleri ve Psikolojik Çıktıları

Özlem İskender[1]

[1]Kastamonu University, Kastamonu

ABSTRACT

This review investigates theoretical explanations, predictors, and psychological outcomes of identification with game characters. Theoretical explanations depended on Cohen's conceptualization of identification with media characters, wishful identification, similarity identification, embodied presence concepts, self-perception, self-discrepancy, and social identity theories. Predictors included customizability, how the character is perceived (ideal, attractive, similar, real), narrative, immersion, presence, age, time spent playing/playing history, player's psychological characteristics, and perceived performance. Psychological outcomes included enjoyment, flow experience, addiction, problematic gaming, playing motivations, self-efficacy, competence, short-term outcomes (change in aggression, empathy), intention to continue playing, game-related spending, social identification, and in-group bias. The self-discrepancy perspective provides the most prevalent explanation, which proposes that game characters are closer to players' ideal selves, and identification with the game character reduces their self-discrepancies. However, the social identity perspective offers more overarching explanations discussing identification with game-related groups (groups created within the game and game community) and the game character together, thus pointing to a bigger picture where players develop social identities through interaction with game-related groups. Therefore, unlike other explanations discussing game character identification as a temporary experience, the social identity perspective indicates it may be a lasting experience. Regarding predictors, only two were game-related (customizability, narrative), while most were player-related (e.g., age, time spent playing, player's psychological characteristics), which might show that player characteristics deserve more attention than the game itself to understand the identification process. Concerning psychological outcomes, while two were positive (enjoyment, flow experience) and two were negative (addiction, problematic gaming), most had various aftermaths, such as a short-term outcome of an increase in aggression or empathy.

Keywords: Video games, game character, identification, self-discrepancy, social-identification

ÖZ

Bu derleme çalışması, oyun karakteriyle özdeşleşmenin teorik açıklamalarını, öncüllerini ve psikolojik çıktılarını incelemektedir. Teorik açıklamalar, Cohen'in medya karakterleriyle özdeşleşme kavramsallaştırmasına, arzulanan özdeşleşme, benzerlik özdeşleşmesi, somutlaşmış bulunuşluk kavramlarına, kendini algılama, benlik uyuşmazlığı ve sosyal kimlik teorilerine dayanmıştır. Oyun karakteriyle özdeşleşmenin öncülleri şunları içermiştir: Kişiselleştirilebilirlik, oyun karakterinin nasıl algılandığı (ideal, çekici, benzer, gerçek), öyküleme, dalma, bulunuşluk, yaş, oynamaya harcanan süre/oynama geçmişi, oyuncunun psikolojik özellikleri ve algılanan performans. Psikolojik çıktıları ise şunları içermiştir: Keyif alma, akış deneyimi, bağımlılık, problemli oynama, oynama motivasyonları, öz-yeterlik, yeterlik hissi, kısa süreli çıktılar (saldırganlık ve empatide değişim), oynamaya devam etme niyeti, oyunla ilgili harcama yapma, sosyal özdeşleşme ve iç-grup yanlılığı. Oyun karakteriyle özdeşleşmenin en geçerli açıklamasını, oyun karakterlerinin, oyuncuların ideal benliklerine daha yakın olduğunu ve oyun karakteriyle özdeşleşmenin benlik uyuşmazlıklarını azaltabileceğini savunan benlik uyuşmazlığı yaklaşımı sağlamıştır. Ancak, sosyal kimlik perspektifi, oyunla ilgili gruplarla (oyun içinde oluşturulan gruplar ve oyun topluluğu) ve oyun karakteriyle özdeşleşmeyi birlikte ele alarak daha kapsayıcı açıklamalar sunmuş, oyuncuların, oyunla ilgili gruplarla etkileşimleri vasıtasıyla sosyal kimlikler geliştirdiğini gösteren büyük resmi de tasvir etmiştir. Böylece, oyun karakteriyle özdeşleşmeyi geçici bir deneyim olarak ele alan diğer açıklamaların aksine, uzun süreli bir deneyim olabileceğini göstermiştir. Öncüllere bakıldığında, yalnızca ikisinin oyunla ilgili olduğu (kişiselleştirilebilirlik, öyküleme), çoğunun ise oyuncuyla ilgili olduğu (yaş, oynamaya harcanan süre, oyuncuların psikolojik özellikleri gibi) görülmüştür. Bu, özdeşleşme sürecini anlamada, oyuncu özelliklerinin, oyundan daha önemli olduğunu gösteriyor olabilir. Psikolojik çıktılara bakıldığında, ikisinin olumlu (keyif alma, akış deneyimi), ikisinin olumsuz (bağımlılık, problemli oynama) olarak değerlendirilmesi mümkünken, birçoğunun çok çeşitli neticeleri olabildiği görülmüştür, saldırganlıkta ya da empatide kısa süreli bir değişim gibi.

Anahtar sözcükler: Video oyunları, oyun karakteri, özdeşleşme, benlik uyuşmazlığı, sosyal özdeşleşme

Introduction

Video games (or digital games) are any games that can be played online or offline, on a computer or other electronic devices (e.g., video game console, mobile devices, or monitors), and in multiplayer or single-player mode (Brkljačić et al. 2019). More than 3 billion people are playing video games across the world (DFC Intelligence 2022). Unsurprisingly, video games have distinctive features that offer their users unique experiences. First and foremost, video games differ from traditional media (such as TV, newspaper, or novel) due to their interactivity feature (Klimmt et al. 2009) and are considered the most interactive of the new media technologies (Vorderer et al. 2003) such as social media platforms, blogging, wikis, and the like. For instance, in traditional media such as TV, there is a distance between the media user and the media character (Klimmt et al. 2009). Typically, the user follows the character's actions on the screen (or in a text) and cannot intervene in anything going on. In a video game, however, the player themselves controls the game character, performs actions via the character, and gets involved in and actively shapes events and happenings in the video game environment. Therefore, the distance between the user and the character in traditional media does not exist in video games (Klimmt et al. 2009). Another distinctive feature of video games is a tremendous amount of detailed visualization, making it easy to immerse into the game story and a more vivid experience overall (Klimmt et al. 2009). Besides rich visual details, aural details make it easier to be involved in the game (Sherry 2004). Lastly, there is usually quite a freedom of choice in video games. For instance, players can choose what to do and the difficulty level of it, owing to easily adjustable settings (Sherry 2004). Also, they can customize their game characters' appearance or skills (Turkay and Kinzer 2014) or choose among many possible game characters. Overall, it can be argued that video games, thanks to their unique features, are tools addressing many users' needs.

As is the case with popularity among users (i.e., players), video games have attracted enormous attention from researchers. Early on, negative sides of playing video games, such as addiction (Gentile et al. 2011), were on the agenda. However, psychological and social benefits of playing video games, such as in cognitive, motivational, emotional, and social domains (Granic et al. 2014), have also been discussed. Recently, it has been recognized that adverse and beneficial sides of playing video games exist together (Prot et al. 2014, Groves and Anderson 2015), and evaluating video games as either "good" or "bad" would be an oversimplification (Groves and Anderson 2015). One thing is for sure, in a digital world where people spend a considerable amount of time on their electronic devices and initiate and maintain social relations online, it is crucial to understand the meaning of this popular media type (i.e., video games) to its users (i.e., players). The present study aimed to understand video game players' experiences by examining the function of the game character. A game character (also called an avatar) may be the most important element in a video game. After all, game characters represent players in the virtual world, as it is the players themselves behind the game character's actions.

The present study makes an in-depth analysis involving theoretical explanations, predictors, and psychological outcomes of identification with video game characters. To be more precise, first, theoretical explanations accounting for identification with the game character were examined. Then, empirical studies demonstrating its predictors and psychological outcomes were investigated. While conveying theoretical explanations and describing predictors and psychological outcomes, measurement tools were examined and presented in Table 1 (see Table 1 for measurement tools). The objective of examining measurement tools was to see if they align with theoretical explanations and allow the reader to scrutinize the terms and methods if required. Lastly, in the discussion section, the findings were summarized and the implications of theoretical explanations, measurement tools, predictors, and psychological outcomes of identification with the video game character were discussed. Finally, several suggestions for future studies were provided. Thus, the present study presents a comprehensive understanding of the identification process with the game character, including its theoretical explanations, predictors, and psychological outcomes, as well as directions for future research. This way, the present study may assist mental health professionals in their assessment, interpretation, and interventions by giving them an account of game players' psychological and social needs, acts, and gains in the virtual world of gameplay. The present study may also guide researchers interested in this subject by pointing out research needs and encouraging them to contribute to the literature.

Theoretical Frameworks

Some theoretical frameworks relied on while explaining identification with video game characters were initially designed to explain identification with TV characters, namely Cohen's conceptualization of identification with media characters, similarity identification, and wishful identification concepts. However, these frameworks do not meet the need to explain identification in the video game context (Klimmt et al. 2009, Van Looy et al. 2012)

since identification with characters in video games and other media is inherently different and should have different conceptualization and operationalization (Van Looy et al. 2012). Alternative models have been introduced to serve the need to describe the identification with video game characters. As a result, there is no single theoretical explanation for it. Theoretical explanations can change from one study to another, as with the measurement tools (Table 1).

Cohen's Conceptualization of Identification with Media Characters

According to Cohen (2001), identification with a media character occurs when the media user imagines themselves as the media character. During identification, their personal identity and audience role are temporarily replaced with the character's identity and role. Cohen (2001) adds that if the media user strongly identifies with the media character, they may even lose their awareness as the audience. He proposes four dimensions in his identification model: Sharing the character's feelings (feeling what it feels, such as feeling happy when it is happy), sharing its perspective (understanding its motivations), sharing its goals (internalizing as well), and loss of self-awareness during media engagement. Example items from Cohen's measurement can be found in Table 1.

Concepts of Similarity Identification, Wishful Identification, Embodied Presence

Similarity identification occurs when a media user perceives that they and the media character have things in common; they have mutual characteristics (Von Feilitzen and Linné 1975, Hoffner and Buchanan 2005,). Social psychological evidence that similarity is strongly related to interpersonal attraction may lie behind the similarity identification explanation (Van Looy et al. 2012). On the other hand, wishful identification occurs when a media user wishes to be like the character (Von Feilitzen and Linné 1975). It may be a proceeding experience going beyond the media engagement moment and reflecting a wish to be like the character and even an effort to act like the character in the future (Konijn et al. 2007). Konijn et al. (2007) stated that wishful identification is similar to the vicarious learning concept (Bandura 1986), as young players who wishfully identify with game characters may imitate them. Finally, embodied presence (Van Looy et al. 2012) is a later introduced concept that is usually handled together with similarity identification and wishful identification concepts. It refers to the feeling that the player is embodied in the character and therefore presented physically in the game. Example items measuring these three concepts can be found in Table 1.

Self-Perception Theory

Klimmt et al. (2009) proposed an explanation specifically designed to describe the identification process in video games. Their explanation relies on self-perception and self-concept research in social psychology. They stated that from a social psychological standpoint, identification with a media character means a temporary change in the self-concept of the media user when they adopt the media character's perceived attributes. Due to the monadic player-game character relationship, instead of perceiving themselves and their game character as distinct social entities, players perceive their own self and their game character as merged during the video game engagement. Hence, this merge between the player's self and the game character corresponds to the temporary change in the player's self-perception (i.e., identification) (Klimmt et al. 2009).

Self-Discrepancy Theory

The self-discrepancy explanation is a follow-up to Klimmt et al.'s (2009) altered self-perception explanation because an altered self-perception may reduce players' self-discrepancies. Self-Discrepancy Theory (Higgins 1987) asserts that people seeing a difference between who they are (i.e., their actual self) and who they want to be (i.e., their ideal self) creates a discrepancy, accompanied by unwanted emotions such as sadness, disappointment, or dissatisfaction. Therefore, they want to reduce and get rid of it if possible. When it comes to video game context it was shown that game characters are closer to players' ideal selves rather than their actual selves (McDonald and Kim 2001, Bessiere et al. 2007, Van Looy et al. 2014). In other words, game characters are superior to players; they are more powerful, beautiful, courageous, and the like. This way, the discrepancy between players' actual and ideal selves is reduced when they identify with their game character by adopting the character's salient features. To illustrate, a player who thinks they are less courageous than they desire (which means they experience self-discrepancy in terms of courage) could diminish their self-discrepancy by identifying with a courageous game character and thus feeling more courageous during gameplay (Klimmt et al. 2009). In summary, identification with a game character close to the player's ideal self can reduce the self-discrepancy of the player.

Social Identity Theory

Some researchers claimed that discussing identification with the game character alone is insufficient to understand the identification processes in video games where there are opportunities for group formation. They depended on Social Identity Theory (Tajfel and Turner 1979) to explain identification in video games. Social identity refers to an individual's perception and definition of themselves as a member of a group they value, feel belonging to and are emotionally involved in (Tajfel and Turner 1979). Researchers noted that virtual groups formed in the context of video games promote social identity (Van Looy et al. 2012, Gabbiadini et al. 2014, Guegan et al. 2015,). They claimed that social identification with such groups is linked to identification with the game character and needs to be considered to understand the identification process (Van Looy et al. 2012, Gabbiadini et al. 2014).

Van Looy et al.'s (2012) "player identification" model is an excellent example of relying on Social Identity Theory in explaining character identification in video games. Van Looy et al. (2012) highlighted the importance of paying attention to the social side of digital play and remarked that players identify with their game-related groups aside from identification with their game character. Game-related groups include in-game groups (groups created within games to do game activities and complete objectives, such as teams, guilds, or clans in different games) and the game community compromising all players sharing the mutual interest in playing a game. Besides in-game, community members can communicate outside the game on game-related internet forums, websites, platforms, and the like. Van Looy et al. (2012) argued that identification with such groups (i.e., social identification) should be included in a model aspiring to explain identification in video games. They introduced a three-dimensional model to explain identification in massively multiplayer online (MMO) games. In these games, where there is large-scale social interaction, thousands of players can play simultaneously and form groups or teams. In their model, identification with the game character constitutes only one part of a construct they called "player identification." They described character identification as the mental association players have with their game character and suggested it has three dimensions: Similarity identification, wishful identification, and embodied presence. "Group identification" is the second dimension in the model. They define it as the mental association players have with their in-game groups (i.e., with their team, guild, or clan). Finally, "community/game identification" is the third dimension in the model. It is players' identification with the game and the community surrounding it. They stated that both in-game and community groups entail a cognitive aspect as players categorize themselves as a member of these groups and an emotional aspect since they feel committed to them (Van Looy et al. 2012).

Predictors of Identification with Video Game Characters

Customizability of the Game Character

There are and can be created many game characters with different appearances and specialties. To be able to choose the game character's looks and characteristics is one of the predictors of identification with it. Several studies have shown that being able to customize a game character (in terms of appearance or specialties) positively predicts identification with it (Kim et al. 2012, Turkay and Kinzer 2014, Liao et al. 2019, Pimentel and Kalyanaraman 2020, Green et al. 2021, Teng 2021). Researchers depended on the self-discrepancy perspective while explaining the findings. Namely, reducing the gap between the player's actual and ideal selves is possible when they can create a game character close to their ideal self, which would make it more likely that they will identify with it (Turkay and Kinzer 2014). Thus, if game characters are assumed to be closer to players' ideal selves than their actual selves, being able to customize a game character implies that they can create some version of their ideal selves. However, perception of similarity is also a predictor of game character identification (which is discussed under the next heading). Thus, customizing a game character might also mean players can create a character similar to their actual self.

How the Game Character is Perceived: Ideal, Attractive, Similar, Real

There is evidence that concepts of the ideal self and game characters are similar in children's minds (McDonald and Kim 2001). Adult players (ages 18 to 27) also create or choose game characters more similar to their ideal self than their actual self (Bessiere et al. 2007, Van Looy et al. 2014). It was indicated that when their game character reflects their ideal self, players are inclined to identify with it (Van Looy et al. 2014, Mancini et al. 2019, Ko and Park 2020). Depending on these findings, it could be concluded that game characters indeed function as versions of players' ideal selves.

Finding the game character attractive can also predict identification with it. It was shown that the attractiveness of the game character in terms of appearance positively predicted identification with it (Kim et al. 2012, Liao et al. 2019). It can be said that this could also be related to the self-discrepancy explanation since an attractive game character could correspond to an idealized version of the player in terms of appearance. Wishful identification could also be relevant since players might want to be like that attractive game character.

Furthermore, finding the game character similar can also predict identification with it. Several studies have shown that players' perception of the game character as similar to themselves in terms of personality positively predicts identification with it (McDonald and Kim 2001, Hefner et al. 2007, Trepte and Reinecke 2010, Soutter and Hitchens 2016, Mancini and Sibilla 2017). These findings may seem to contradict the idea that game characters are some version of players' ideal selves. However, it is in line with the similarity identification explanation, which states that identification occurs when a media user perceives a media character as having mutual characteristics with them (Von Feilitzen and Linné 1975, Hoffner and Buchanan 2005). In keeping with theoretical explanations, players could identify with their game character when they perceive it as close to their ideal self (which could be linked to self-discrepancy and wishful identification explanations) as well as when they think they have similar personalities with it (could be linked to similarity identification explanation).

Finally, another factor predicting identification with the game character is perceiving the character as if it acts like a human being in the real world. In a related study, Konijn et al. (2007) indicated that this realism perception positively predicted identification with the game character. This finding might be associated with the similarity identification explanation in that identification occurs when the game character has similar characteristics with the people in the real world, although not with the player themselves.

Narrative, Immersion, Presence

One of the positive predictors of game character identification is having narrative elements in the game. For instance, Schneider et al. (2004) compared the identification level of those who played story-based games to those who played non-story-based games. Results revealed that the former got significantly higher identification scores than the latter. In another study, Ferchaud et al. (2020) showed that transportation (narrative engagement) into the game story strongly predicted identification with the game character. Overall, games with a story can be more interactive and make players feel like they are a part of the game (Schneider et al. 2004). Being personally involved in the game story may make it easier for them to be involved with the character's life (Ferchaud et al. 2020).

The relationship between narrative and game character identification could be linked to self-discrepancy explanation because when immersed in the game through narrative, players may feel even closer to the version of their ideal self (i.e., game character). Indeed, immersion (deep involvement in the game to the extent of completely forgetting the surrounding) is another positive predictor of identification with the game character (Konijn et al. 2007). Immersive presence (feeling of being involved and absorbed in the virtual world) is also a positive predictor of it (Bachen et al. 2016). Finally, self-presence (feeling the game character as a moveable part of one's body) is another factor that positively predicts identification with game characters (Li et al. 2021). Thus, promoting or intensifying immersion and presence processes in the game might be another way the narrative contributes to identification with the game character.

Age

Younger players may identify more with their game characters. Several studies have reported that age was a negative predictor of game character identification (McDonald and Kim 2001, Smahel et al. 2008, Van Reijmersdal et al. 2013, Mancini et al. 2019). Also, a negative correlation between dissociation motivation and players' age was reported (Fuster et al. 2013). Fuster et al. (2013) included identification with the game character in a construct named "dissociation," which included not only identification with the game character but also gaming motivation of escapism (playing to escape from real-life problems) (Table 1). Self-discrepancy and wishful identification explanations may underlie age's negative impact on identification with game characters. Smahel et al. (2008) commented that virtual worlds offer young players, who might be in the early stages of their identity development with a weak sense of who they are, a space for identity exploration and opportunities to work on their selves. Konijn et al. (2007) exemplified that a game character handling dangerous situations very well and taking action as an independent hero might fit an ideal of a teen boy who values maturity and independence. Thus, adolescent boys may more readily identify with such characters (Konijn et al. 2007).

Time Spent Playing/Playing History

Time appears as another positive predictor of game character identification. It is measured as time spent playing, that is, how many hours players spend playing a game during a specific period (such as a week), or as playing history, that is, how long they have been playing a game (such as two years). Studies show a positive correlation between time spent playing and identification with the game character (Lewis et al. 2008, Fuster et al. 2013) as well as between an indication of both (i.e., time spent playing and playing history) and game character identification (Van Reijmersdal et al. 2013, Turkay and Kinzer 2014). Turkay and Kinzer (2014) commented that as a result of getting more familiar with their game character and the game itself, players' immersion in the game through the game character might become more straightforward. Ultimately, they may feel like their game character more (Turkay and Kinzer 2014).

Players' Psychological Characteristics: Personality, Self-Esteem, Social Skills, Depression, Identity Style

Players' psychological characteristics are also among the predictors of identification with game characters. One is personality. Soutter and Hitchens (2016) showed that personality dimensions of openness to experience positively predicted identification with the game character while extraversion negatively predicted it. Low self-esteem is another predictor. You et al. (2017) showed that self-esteem negatively correlated with identification with game characters. In another study, Lewis et al. (2008) showed that self-esteem and time spent playing were negatively correlated for players with high levels of character attachment. Lewis et al. (2008) included identification with the game character in a construct named "character attachment," which included four dimensions: Identification/friendship, suspension of disbelief, control, and responsibility (Table 1). You et al. (2017) commented that it might comfort players with low self-esteem to know that they can create characters with their desired physical appearance or personal characteristics in the game environment without revealing who they are (You et al. 2017). Depression and poor social skills also have a say in identification with the game character. For example, social skills (interpersonal communication skills) was a negative predictor, and depression was a positive predictor of it (You et al. 2017). Finally, identity styles can account for identification with the game character. Li et al. (2013) showed that participants with diffused identity styles (tendency to procrastinate and avoid handling individual matters) got higher identification scores than those with information-oriented styles (having established a true sense of self or exploring to establish one) and normative styles (tendency to conform to close others and authorities). Specifically, compared to others, they found their game character more important to their identity and reported being absorbed in the game more while playing. Li et al. (2013) commented that playing for a long time and being absorbed in the game might increase gamer identity salience. Depending on the Social Identity Approach (i.e., Social Identity Theory and Self-Categorization Theory), they stated that this salience increase might imply an increase in players' identification with the gamer identity. This is, according to them, especially likely when considering players of a long time collaborating with other players in in-game groups for years to complete game objectives. Thus, they declared that identification with game characters might be more than a temporary alteration in players' self-perception. Instead, it might have long-term influences on players' identity development and self-concept (Li et al. 2013).

Perceived Game Performance

How the player thinks they perform (i.e., how good they think they are at playing the game) might be another predictor of identification with the game character. Hefner et al. (2007) showed that feeling competent during play positively correlated with identification with the game character. In another study, Ko and Park (2020) showed that identification with the game character positively predicted players' perceived game power, which, in turn, positively predicted perceived game performance. Thus, the perception of being good at the game may both be a predictor and an outcome of identification with the game character. Together these findings might imply a process in which, after being satisfied with their performance, players adopt their game character's relevant features (i.e., they identify with the character) that they think brought them success, followed by continued play and getting better over time. As will be discussed in the next section, the intention to keep playing is, in fact, among the outcomes of identification with game characters. Several playing motivations are also among them. Thereby, it is possible that after identification with their game character, players develop several playing motivations and keep playing, becoming better performers ultimately. Overall, be it a predictor or an outcome, perceived performance seems to play a role in explaining the game character identification process.

Psychological Outcomes of Identification with Video Game Characters

Enjoyment, Flow Experience

Enjoyment could be the brightest side of playing video games. Several studies showed that it is also one of the outcomes of identification with game characters. Positive correlations between the two (Hefner et al. 2007) and between character attachment and enjoyment (Lewis et al. 2008) have been reported. Other studies present evidence that identification with the game character is one of the positive predictors of game enjoyment (Trepte and Reinecke 2010, Bowey et al. 2017). Researchers depended on the self-discrepancy explanation while accounting for enjoyment as an outcome of identification with game characters. After all, bringing actual and ideal selves closer and reducing self-discrepancies can be expected to facilitate positive experiences such as enjoyment (Klimmt et al. 2009).

Identification with the game character also positively predicts flow experience (Soutter and Hitchens 2016). Flow is a positive subjective experience people feel when involved in an activity to the extent that they forget about everything else than the activity itself, cease to be self-conscious, and do not realize the passage of time (Csikszentmihalyi 1975). The self-discrepancy explanation might again be relevant while accounting for flow experience as an outcome of identification with game characters. More specifically, getting a distance from the actual self and going towards the ideal self might make it easier to experience flow characteristics, such as loss of self-consciousness. Flow experience being negatively predicted by perceived similarity to the game character (in terms of both appearance and personality) and positively by character customization (Soutter and Hitchens 2016) may support the idea that getting closer to the ideal self makes it easier to experience flow.

Playing Motivations

Identification with game characters is also closely related to reasons to play video games. van Reijmersdal et al. (2013) showed that identification with the game character positively predicted playing motivations of challenge (interest in fulfilling game objectives to get better skills in the game), interest (being curious about game content or topic), escapism (playing to take a break from daily life concerns) and social interaction. Van Reijmersdal et al. (2012) commented that relations between game character identification and these motivations show that gaming helps players fulfill their psychological and social needs. In another study, Lewis et al. (2008) reported positive correlations between character attachment and several playing motivations, including fantasy (playing due to being able to do things in the game not doable in real life, such as flying), arousal (playing due to the game being exciting), challenge, and competition. Finally, Van Looy et al. (2012) showed that identification with the game character positively predicted playing motivations of role-playing (interacting with other players based on a story created for the game character by the player), customization (interest in customizing the game character's appearance), and escapism (using the game as an escape from real-life problems). It is also linked to identification with game-related groups (in-game groups and game community), which are linked to other playing motivations (Van Looy et al. 2012). Van Looy et al. (2012) commented that identification with game characters being related to escapism motivations supports the idea that identification can be used to avoid discrepancies between actual and ideal selves. Likewise, the desire to create a story for the game character (role-playing motivation) or customize its appearance (customization motivation) can be interpreted in terms of its allowance to reduce the gap between the actual and ideal self (Van Looy et al. 2012).

Self-Efficacy, Competence

Identification with the game character can also increase the player's self-efficacy concerning what they do in the game. In general, it was shown that game character identification is one of the positive predictors of players' self-efficacy concerning in-game activities and objectives (Kim et al. 2012). It was also shown that game character identification positively predicted perceived in-game power, which, in turn, positively predicted perceived game performance (Ko and Park 2020). Further, it might increase self-efficacy in a serious game. Serious games are designed with other intentions than pure entertainment; they present simulations of real-life experiences to their users and make it possible to learn about and experience different situations (Susi et al. 2007). In Peng's (2008) study, players chose what the game character eats and what physical activities it does, followed by simulated consequences of the choices. Results showed that identification with the game character partially mediated the positive relationship between game interactivity and self-efficacy for healthy eating habits. Peng (2008) commented that this might imply that while designing serious games to promote healthy habits, paying close attention to the game character is a good idea to increase the possibility of identification with it. In another study, Li et al. (2021) showed that identification with the character in an exergame (video games having the

machinery for tracing the player's body movements in which the player controls the game character via their body movements) positively predicted in-game competence and in-game competence, in turn, positively predicted intention to exercise in the future. Li et al. (2021) commented that in-game competence being increased by identification implies that enactive learning can be facilitated by identification with a game character.

Addiction, Problematic Gaming

Identification with game characters also has unfavorable outcomes, such as addiction. Smahel et al. (2008) reported that identification with the game character and addiction are positively correlated. In another study, You et al. (2017) showed that identification with the game character not only directly and positively predicted game addiction but also was a partial mediator in the negative relationship between social skills and game addiction. It was also a full mediator in the positive relationship between depression and game addiction. In some other study, Green et al. (2021) showed that wishful identification negatively predicted self-concept clarity which, in turn, negatively predicted problematic gaming. Besides its indirect effect, wishful identification also directly and positively predicted problematic gaming. Green et al. (2021) commented that game characters functioning as a means to compensate for insufficiencies of the players might be the most noteworthy aspects of character identification concerning problematic gaming. Additionally, poor self-concept clarity might be a means through which identification with the character influences problematic gaming (Green et al. 2021). In line with the notion of the game character as a compensation means, Mancini et al. (2019) showed that identification with the game character not only directly and positively predicted gaming addiction but also was a partial mediator in the positive relationship between idealized game character indicator (difference between the actual self and game character) and gaming addiction.

Several other studies show that identification with the game character has both direct and indirect effects on adverse outcomes, such as internet gaming disorder (IGT). Sioni et al. (2017) showed that it directly and positively predicted IGT and was a partial mediator in the positive relationship between social phobia symptoms and IGT symptoms. In another study, Burleigh et al. (2018) showed that it not only directly and positively predicted IGT but also moderated the positive relationship between depression and IGT, amplifying depression's effect on IGT for players with high levels of character identification. Finally, Ting and Pau (2020) indicated that it directly and positively predicted IGT and was a partial mediator in the positive relationship between playing motivations (motivations of achievement, socialization, and immersion) and IGT.

When considering the findings under this heading together, it can be said that, to a large extent, the relation between character identification and addiction or IGT has underlying social reasons. Indeed, studies discussed under this heading were mostly conducted with massively multiplayer online role-playing games (MMORPGs) players. MMORPGs offer players an alternative world that, besides the possibility of in-game ability improvement and cooperative play, includes an online community resulting from in-game interactions and outside communications (Robinson 2012). MMORPGs are continuous digital platforms where actions and events go on even if the player is not online (not logged in to the game). In this respect, they are full of social interaction opportunities and a great place to meet social needs that are not possible to meet otherwise. Sioni et al. (2017) suggested that, especially for players with social phobia, the need to connect to and be approved by others forms powerful reasons to play. They stated that interacting with other players via the game character may meet these needs, strengthening the player's game character identification and providing them a more positive and stronger sense of self. Consequently, they may be motivated to play and be preoccupied with gameplay more, which then contributes to IGD (Sioni et al. 2017). Burleigh et al. (2018) also commented that the social aspect of these games encourages players to emotionally invest in their game character (which functions as their online identity) and gameplay. Overall, multiple findings support the idea that game addiction has social roots and game character identification is only a means in an effort for compensation.

Short-Term Outcomes: Change in Aggression, Empathy

Identification with the game character, that is, adopting its characteristics during play, may last after the game, but only for a limited time. Gabbiadini et al. (2016) showed that identification with game characters in a sexist-violent video game positively predicted the masculine beliefs of male participants. In turn, masculine beliefs negatively predicted empathy toward female violence victims. In another study, Konijn et al. (2007) showed that identification with game characters in violent video games positively predicted the intensity of aggression afterward. On the other hand, studies testing the effect of violent video game play on aggression indicates that it lasts only 5-10 minutes (Barlett et al. 2009). Also, longitudinal studies yield no evidence for a long-term effect

(Kühn et al. 2019, Drummond et al. 2020). Hence, it might be fallacious to consider aggression increase as an outcome of identification with violent video game characters. The same goes for empathy decrease, as there is also contrary evidence that such an empathy decrease results from violent gameplay (Gao et al. 2017, Szycik et al. 2017).

Favorable short-term outcomes of identification with game characters were also reported. For example, serious games could be used to reduce prejudice towards people living in adverse conditions. To illustrate, Bachen et al. (2016) showed that identification with a game character that was a simulation of a low-income female earthquake victim from an emerging country positively correlated with empathy toward it and interest in finding more about the game topic. In another study, Ferchaud et al. (2020) showed that identification with a game character that simulated a mentally ill person reduced social distance preference from mentally ill people. Ferchaud et al. (2020) commented that experiencing a mentally ill person's life through simulation helped players manage to integrate the mental illness into their self-concept via the identification process. They noted that this occurred although the identification level was low. However, as with short-term adverse outcomes, empathy increase resulting from gameplay is only a slight short-term outcome (Olivier et al. 2019). These studies present no evidence for long-term effects either. Indeed, researchers called for studies testing the long-term effects of gameplay on empathy raise (Papoutsi and Drigas, 2016, Sterkenburg et al. 2018, Olivier et al. 2019, Ferchaud et al. 2020,) and the role of character identification on empathy specifically (Papoutsi and Drigas 2016). All in all, it can be said, at least for now, that changes in empathy or aggression as an outcome of game character identification are only momentary.

Intention to Continue Playing, Game-Related Spending

Identification with the game character may also predict game-related intentions or doings. For instance, it was shown that identification with the game character positively predicted intention to buy game-related items (Park and Lee 2011) and loyalty to games (Teng 2021). Some variables may relate identification with the game character to future intentions and doings. One may be the attachment and meaning attributed to the game character. Ko and Park (2020) showed that identification with the game character positively predicted attachment to it, and attachment, in turn, positively predicted intention to spend money on the game character. Another may be the attachment and meaning attributed to the game community. To illustrate, Kim et al. (2012) showed that identification with the game character positively predicted trust in honesty, care, goodwill, and cooperative intentions of other players in the game community. This trust, in turn, positively predicted the intention to keep playing in the future. Still another variable may be seeing the game character as ideal. Mancini et al. (2019) showed that participants who customized a game character that they considered similar to their ideal self and identified with it reported higher levels of intention to keep playing compared to those who customized one they considered far away from their ideal self and did not identify with it. Finally, Liao et al. (2019) showed that identification with the game character positively predicted flow experience, and flow experience, in turn, positively predicted loyalty in gaming. Overall, it could be concluded that positive experiences players live, with their game character or game-related groups, contribute to their continuation intent and encourage them to invest in future positive experiences by spending money on the game.

Social Identification, In-group Bias

As stated before, game-related groups promote social identity. Unsurprisingly, some of the outcomes of identification with a game character are related to social identification processes in video games. Gabbiadini et al. (2014) tested whether identification with the game character predicts identification with in-game groups in an MMORPG. In the study, there were two levels of analyses for in-game groups: one at the "faction" level (there were two main hostile factions in the whole game; the Horde and the Alliance) and one at the "guild" level (guilds are smaller subgroups within these two factions). Analyses at the guild level showed that identification with the game character positively predicted identification with the guild. Identification with the guild, in turn, positively predicted in-group bias in that players evaluated other players in their guild (the guild they had joined via their game character) more positively compared to players of a rival guild. Analyses at the faction level showed that identification with the game character did not predict identification with the faction; however, it positively predicted in-group bias, that is, favoritism toward their faction, as they evaluated their faction members (i.e., other players in their faction) more positively. Thus, it can be said that these findings clearly show the connections between identification with the game character and virtual group identification as well as virtual group behavior, such as in-group bias. In another study, Van Looy et al. (2012) showed that identification with the game character positively predicted both identifications with the guild group in the game and the game community. Moreover, identification with these groups positively predicted motivations to play. Motivations of

socializing (interest in socializing with other players such as helping or chatting) and relationship (interest in forming long-term relationships with other players) were positively predicted by identification with the guild. Depending on these findings, it can be commented that players value their virtual group memberships and care about their relationships with other players. Together findings in this heading may show the importance of considering social identification with virtual groups while discussing identification with the game character.

Unfortunately, studies investigating social identification in relation to identification with the game character are limited. However, studies showing that game-related groups matter to players are common. Guegan et al. (2015) interviewed players both inside an MMORPG and outside of it, and players were asked to evaluate in-game groups (own guild and other guilds) and more inclusive groups of "MMORPG players" and "non-players". Results indicated that valence and identification scores for players' own guild (in-group) were significantly higher than valence and identification scores for other guilds (out-group). Additionally, there was an effect of the interview context in that the value of the guild and identification with it were stronger when interviewed inside the game than face to face setting. When it comes to the more inclusive group of "MMORPG players," however, results showed that valence and identification scores for it (which were positive) did not differ depending on the interview context (Guegan et al. 2015). Based on these findings, it could be concluded that players value their game-related groups, although in-game groups may mean more to them inside the game. However, being a member of the more inclusive "players" category is always valued. Guegan et al. (2015) commented that these results might explain why online video games are so self-involving since being a player (a member of the "players" category) as well as being a member of an in-game group provide players with social identities. It might be essential to consider the meaning of these group memberships while giving an account of identification with game characters.

Table 1. Measurement tools of identification with the game character		
Reference	**What did they ask participants/players?**	**Methodology**
McDonald and Kim 2001	If they pretend they are their game character (They measured imitation but used imitation and identification synonymously)	One close-ended yes/no question
Schneider et al. 2004	To what extent do they agree that they find their game character interesting, like it, are interested in its goals, desire to defeat its enemies, want to meet its goals, etc.	10-point Likert-type scale (Disagree-Agree)
Hefner et al. 2007	To what extent do they agree that they forget themselves during play, feel that they are the game character, adopt its goals, etc.	5-point Likert-type scale (I do not agree at all-I fully agree)
Konijn et al. 2007	How often do they wish to be their game character, etc. (wishful identification)	5-point Likert-type scale (Never-Often)
Peng 2008	To what extent do they agree that they know what exactly the character is going through, want the character to succeed, feel joy when it succeeds; sad when it fails, etc. (Cohen 2001)	Likert-type scale (Level of agreement, no details specified)
Smahel et al. 2008	To what extent do they agree that the game character and they are the same, they feel having its skills and abilities, the character compensates for their skills and abilities, etc.	Likert-type scale (Level of agreement, no details specified)
Lewis et al. 2008	Identification with the game character was included in a construct named "character attachment," which had four dimensions: Identification/friendship (Players were asked to what extent they agree that they forget their own feelings and adopt the game character's, pretend it's a real person, consider it as a friend, etc.), suspension of disbelief (willingness to consider its world as "real"), control (the degree to which they can manipulate its actions), responsibility (feeling responsible for it)	7-point Likert-type scale (Strongly disagree-Strongly agree)
Trepte and Reinecke 2010	To what extent do they agree that they identify entirely with their game character, immerse themselves in the character	5-point Likert-type scale (Strongly disagree-Strongly agree)

Park and Lee 2011	Items from Cohen (2001) and Hefner et al. (2007)	Likert-type scale (Level of agreement, no details specified)
Kim et al. 2012	To what extent do they agree that their game character is similar to their ideal self, they feel they are the game character, etc.	7-point Likert-type scale (Level of agreement, no details specified)
Van Looy et al. 2012	To what extent do they agree that their game character is similar to them, they are similar to it, etc. (similarity identification), they see it as an example, it has characteristics they'd like to have, they want to be like it, etc. (wishful identification), while playing; they feel they are the game character, its body becomes their own, etc. (embodied presence)	5-point Likert-type scale (Strongly disagree-Strongly agree)
Turkay and Kinzer 2014	Items from Van Looy et al. (2012)	5-point Likert-type scale (Level of agreement, no details specified)
Gabbiadini et al. 2016	Items from Van Looy et al. (2012)	7-point Likert-type scale (Completely disagree-Completely agree)
Soutter and Hitchens 2016	Items from Van Looy et al. (2012)	5-point Likert-type scale (Strongly disagree-Strongly agree)
Mancini and Sibilla 2017	Items from Van Looy et al. (2012)	5-point Likert-type scale (Strongly disagree-Strongly agree)
Bowey et al. 2017	Items from Van Looy et al. (2012)	5-point Likert-type scale (Strongly disagree-Strongly agree)
Mancini et al. 2019	Items from Van Looy et al. (2012)	5-point Likert-type scale (Strongly Disagree-Strongly agree)
Pimentel and Kalyanaraman 2020	Items from Van Looy et al. (2012) (excluding embodied presence)	7-point Likert-type scale (Level of agreement, no details specified)
Ferchaud et al. 2020	Items from Van Looy et al. (2012)	7-point Likert-type scale (Strongly disagree-Strongly agree)
Green et al. 2021	Items from Van Looy et al. (2012)	5-point Likert-type scale (Strongly disagree-Strongly agree)
Li et al. 2021	Items from Van Looy et al. (2012) (only similarity identification items)	Likert-type scale (Level of agreement, no details specified)
van Reijmersdal et al. 2013	To what extent do they agree that their game character looks like them, they feel what's happening to it happens to them, they imagine themselves to be a part of the game, etc.	7-point Likert-type scale (Totally disagree-Totally agree)
Fuster et al. 2013	Identification with the game character was included in a construct named "dissociation," which included not only identification with it but also gaming motivation of escapism (playing to escape from real-life problems). Players were asked to what extent they agree that they put obligations aside while playing, etc.	7-point Likert-type scale (Completely disagree-Completely agree)

Li et al. 2013	To what extent do they agree that they feel nervous when their game character faces danger, happy when it achieves a goal, etc. (feelings during play), during play; they forget their surroundings, they feel being physically in the game, etc. (absorption during play), they are proud to play their game character, etc. (positive attitude toward avatar), their game character reflects who they are, influences the way they feel about themselves, etc. (importance to identity)	5-point Likert-type scale (Strongly disagree-Strongly agree)
Sioni et al. 2017	Items from Li et al. (2013)	5-point Likert-type scale (Strongly disagree-Strongly agree)
T'ng and Pau 2020	Items from Li et al. (2013)	5-point Likert-type scale (Strongly disagree-Strongly agree)
Gabbiadini et al. 2014	One-item ideographic scale by Aron et al. (1992) was used. Two circles represented the player and the character; players were asked to indicate the overlap between themselves and their game character by choosing among eight different overlap visuals (very far-total overlap)	One-item ideographic scale to measure the inclusion of the game character in the self
Bachen et al. 2016	To what extent do they agree that they were interested in the character's life, cared about its experience, were happy when the character had positive experiences, were sad when the character had negative experiences	6-point Likert-type scale (Agree strongly-Disagree strongly)
You et al. 2017	To what extent do they feel their game character is their other self, they are the same in many ways, etc	5-point Likert-type scale (Not at all-Highly likely)
Burleigh et al. 2018	To what extent do they feel their game character is an extension of their body, sad when sad things happen to it, its name represents some aspect of their personal identity, etc. (Self-Presence Questionnaire)	5-point Likert-type scale (Not at all-Absolutely)
Ko and Park 2020	To what extent do they agree they perceive it as a personal insult when someone criticizes their game character, etc.	7-point Likert-type scale (Strongly disagree-Strongly agree)
Liao et al. 2019	Items from Moon et al. (2013) (No examples given)	Not specified
Teng 2021	Items adapted from Moon et al. (2013) (No examples given)	5-point Likert-type scale (Strongly disagree-Strongly agree)

Discussion

Theoretical explanations for identification with game characters were based on Cohen's conceptualization of identification with media characters, wishful identification, similarity identification, embodied presence concepts, self-perception, self-discrepancy, and social identity theories. It could be concluded that theoretical explanations of identification with the game character can be distinguished as those considering it as a temporary experience occurring only during media engagement (i.e., while playing video games) and those discussing it as a lasting experience. Indeed, all consider it as a temporary experience except for the social identity explanation. It is possible that Cohen's approach, as one of the earliest theoretical frameworks of identification with characters, influenced other researchers in a direction to assume identification with video game characters as a temporary experience. Cohen stated that identification with media characters is a process in which self-awareness decreases and is temporarily replaced with emotional and cognitive connections with the media character. He claimed it is not like identification with a person, a group, or a nation that would be a lasting or permanent experience (Cohen, 2001). However, studies examined in this review indicated that players identify with other players, namely with their in-game and community groups (Van Looy et al. 2012). It was shown that not only their game character is important to their identity (Li et al. 2013) but also being a player is a strong part of who they are (Guegan et al. 2015). In this respect, identifying with the game character could be a lasting experience. In addition, considering that social interaction is a leading playing motivation (Griffiths et al. 2004,

Barr and Copeland-Stewart 2021), it can be said that the role of social identification in accounting for identification with game characters is overlooked in most studies. Thus, it could be concluded that identification with game characters as a lasting or more permanent experience needs more attention from researchers.

Equally important, there is a complication regarding how the player and the game character are represented in explanations and measurements. Klimmt et al. (2009) stated that Cohen's framework puts the media user and the media character as distant social entities, which is not the case in video games as it is the players themselves acting through the game character, whereas in traditional media, media user is just an observer of the media character's acts. Li et al. (2013) also asserted that sharing the character's perspectives and goals dimensions in Cohen's model may not apply to the video game context since it is the players themselves acting and experiencing related emotions when the game character does things such as interacting with others, engaging in, fulfilling or failing something (Li et al. 2013). As with Cohen's framework, it can be said that wishful identification and similarity identification concepts represent player and game character as two distinct social entities. However, although this can be seen in related work (as reflected in the items measuring these concepts; please refer to Table 1), researchers have not noted that. What Cohen's conceptualization, wishful identification, and similarity identification concepts have in common is that they are originally designed to explain identification with TV characters. Maybe the problem was created when they were used without being adapted to the video game context in a way to represent the player and game character in a monadic relationship. Thus, although some researchers (Klimmt et al. 2009, Li et al. 2013) attracted notice to the problem of representing player and game character as if they are in a dyadic relationship, most researchers continued the tradition of representing the two as distinct entities in their work. There may be a need for a unified approach for a clearer understanding of the game character identification process.

Predictors of identification with game characters included customizability of the game character, how the character is perceived (ideal, attractive, similar, or real), narrative, immersion, presence, age, time spent playing/playing history, the player's psychological characteristics (namely personality, self-esteem, social skills, depression, identity style) and perceived game performance. It can be said that only two of those are game-related factors: customizability of the game character and narrative. Some seem related to both the game and the player, such as how the character is perceived, immersion, and presence. The rest are entirely player-related: age, time spent playing/playing history, the player's psychological characteristics, and perceived performance. Most of the predictors being entirely player-related or related to both the player and the game may imply that what players are like, what they need, seek, or like is more important in determining identification with game character than what the game is like. For instance, whether they perceive a game character as close to their ideal self, similar to themselves, or attractive depends on their subjective interpretation. If game-related predictors and those related to both the game and the player are excluded, the answer to the question of who is more likely to identify with a game character would be younger players, those spending more time playing, those with lower self-esteem and lower social skills and higher levels of depression. Relatedly, studies mostly supported the self-discrepancy explanation (Klimmt et al. 2009), the idea that game characters are closer to players' ideal self, and they can reach this version of their ideal self by adopting relevant features of their game characters, i.e., by identification with it. Thus, it could be concluded that the game character functions as a compensation means for some players, for instance, players with lower self-esteem, lower social skills, and higher levels of depression.

Psychological outcomes of identification with game characters included enjoyment, flow experience, playing motivations, self-efficacy, competence, addiction, problematic gaming, short-term outcomes (change in aggression, empathy), intention to continue playing, game-related spending, social identification, and in-group bias. Psychological outcomes of identification with the game character could be judged as positive or negative. Although some of the outcomes could directly be called positive such as enjoyment and flow experience, or negative such as addiction and problematic gaming, most would depend on the aftermath. Playing motivations of escapism (using the game as an escape from real-life problems) was reported to be a strong positive predictor of problematic gaming (Yee 2005) as well as addictive use patterns (Zanetta Dauriat et al. 2011). However, playing motivations is also positively related to positive experiences such as flow experience (Dindar 2018). As another example, whether self-efficacy and competence are positive outcomes would depend. If it is a self-efficacy increase regarding in-game objectives and activities designed only for fun, it would bring nothing more than increased game enjoyment. However, if identification with the game character in a serious game helps to develop a self-efficacy increase regarding healthy eating habits (Peng, 2008) or identification with the game character in an exergame helps to build in-game competence, which, in turn, positively predicts intention to exercise in the future (Li et al. 2021) it would clearly be called a positive outcome. With regard to short-term outcomes, an increase in aggression (Konijn et al. 2007) would be negative, while empathy growth (Ferchaud et al. 2020) would be positive. When it comes to the intention to continue playing and game-related spending,

although, at first glance, they would sound like adverse outcomes (if it is thought concerning addiction or financial loss), findings demonstrate that they can also bring benefits. Some players intend to continue playing to keep their online social networks, namely their connection with the members of their gaming community (Kim et al. 2012) or due to positive experiences such as flow experience (Liao et al. 2019). Finally, social identification and in-group bias as outcomes of identification with game characters show that game-related groups matter to players. Their experience in virtual gaming environments is "real" with all its social identification processes and virtual group behavior.

Conclusion

In conclusion, no agreed explanation exists for identification with video game characters. Although the self-discrepancy explanation was the most prevalent in general, the social identity perspective presented more far-reaching explanations for identification in multiplayer games. Further, although all other explanations approach the game character identification process as a temporary experience, the social identity perspective demonstrates it may be a lasting or permanent experience. When it comes to measurement tools, although the player and the game character were announced to be in a monadic relationship (Klimmt et al. 2009, Li et al. 2013), most measurement tools portray them in a dyadic relationship. Regarding predictors, most seem player-related, which might show that to understand identification processes in video games better, paying more attention to the player would be reasonable. Finally, psychological outcomes of identification with video game characters showed that video games are neither "good" nor "bad", as Groves and Anderson (2015) put it.

This review has specific suggestions for future studies. First, studies focusing on identification with game characters as a lasting experience are needed to give a clearer understanding of the identification processes in video games. In this sense, discussing identification with game characters and social identification with game-related groups together could be useful. Second, how the player and the game character are represented demands more awareness for a more precise conceptualization, measurement, and understanding of the game character identification process. Finally, how gameplay may be beneficial, such as for empathy growth or to increase self-efficacy or intention regarding health-related behaviors, need more attention.

References

Aron A, Aron EN, Smollan D (1992) Inclusion of other in the self scale and the structure of interpersonal closeness. J Pers Soc Psychol, 63:596-612.

Bachen CM, Hernández-Ramos P, Raphael C, Waldron A (2016) How do presence, flow, and character identification affect players' empathy and interest in learning from a serious computer game? Comput Human Behav, 64:77-87.

Bandura A (1986) The social learning perspective: Mechanisms of aggression. In Psychology of Crime and Criminal Justice. (Ed H Toch):198-236. Long Grovw, IL, Waveland Press.

Barlett C, Branch O, Rodeheffer C, Harris R (2009) How long do the short-term violent video game effects last? Aggress Behav, 35:225-236.

Barr M, Copeland-Stewart A (2022) Playing video games during the COVID-19 pandemic and effects on players' well-being. Games Cult, 17:122-139.

Bessière K, Seay AF, Kiesler S (2007) The ideal elf: Identity exploration in World of Warcraft. Cyberpsychol Behav, 10:530-535.

Bowey JT, Depping AE, Mandryk RL (2017) Don't talk dirty to me: How sexist beliefs affect experience in sexist games. CHI Conference on Human Factors in Computing Systems, May 2017. Congress Proceedings pp.1530-1543.

Brkljačić T, Sučić I, Tkalić RG, Wertag A, Lučić L (2019) Games we play: Wellbeing of players of live and digital games. In Multifaceted Approach to Digital Addiction and Its Treatment, 1st ed. (Ed. B Bozoğlan): 118-137. Hershey, PA, IGI Global.

Burleigh TL, Stavropoulos V, Liew LW, Adams BL, Griffiths MD (2018) Depression, internet gaming disorder, and the moderating effect of the gamer-avatar relationship: An exploratory longitudinal study. Int J Ment Health Addict, 16:102-124.

Cohen J (2001) Defining identification: A theoretical look at the identification of audiences with media characters. Mass Commun Soc, 4:245-264.

Csikszentmihalyi M (1975) Beyond Boredom and Anxiety. San Francisco, CA, Jossey-Bass.

DFC Intelligence (2022) Global video game consumer segmentation. https://www.dfcint.com/product/video-game-consumer-segmentation-2/ (Accessed 30.01.2022).

Dindar M (2018) Do people play MMORPGs for extrinsic or intrinsic rewards? Telemat Inform, 35:1877-1886.

Drummond A, Sauer JD, Ferguson CJ (2020) Do longitudinal studies support long-term relationships between aggressive game play and youth aggressive behaviour? A meta-analytic examination. R Soc Open Sci, 7:200373.

Ferchaud A, Seibert J, Sellers N, Escobar Salazar N (2020) Reducing mental health stigma through identification with video game avatars with mental illness. Front Psychol, 11:1-10.

Fuster H, Carbonell X, Chamarro A, Oberst U (2013) Interaction with the game and motivation among players of massively multiplayer online role-playing games. Span J Psychol, 16:1-8.

Gabbiadini A, Mari S, Volpato C, Monaci MG (2014) Identification processes in online groups. J Media Psychol, 26:141-152.

Gabbiadini A, Riva P, Andrighetto L, Volpato C, Bushman BJ (2016) Acting like a tough guy: Violent-sexist video games, identification with game characters, masculine beliefs, & empathy for female violence victims. PLoS One, 11:1-14.

Gao X, Pan W, Li C, Weng L, Yao M, Chen A (2017) Long-time exposure to violent video games does not show desensitization on empathy for pain: an fMRI study. Front Psychol, 8:650.

Gentile DA, Choo H, Liau A, Sim T, Li D, Fung D et al. (2011) Pathological video game use among youths: A two-year longitudinal study. Pediatrics, 127:319-329.

Granic I, Lobel A, Engels RCME (2014) The benefits of playing video games. American Psychologist, 69:66-78.

Green R, Delfabbro PH, King DL (2021) Avatar identification and problematic gaming: The role of self-concept clarity. Addict Behav, 113: 106694.

Griffiths MD, Davies MNO, Chappell D (2004) Demographic factors and playing variables in online computer gaming. Cyberpsychol Behav, 7:479-487.

Groves CL, Anderson CA (2015) Negative effects of video game play. Handbook of Digital Games and Entertainment Technologies (Eds R Nakatsu, M Rauterberg, P Ciancarini):1297-1322. Singapore, Springer.

Guegan J, Moliner P, Buisine S (2015) Why are online games so self-involving: A social identity analysis of massively multiplayer online role-playing games. Eur J Soc Psychol, 45:349-355.

Hefner D, Klimmt C, Vorderer P (2007) Identification with the player character as determinant of video game enjoyment. International Conference on Entertainment Computing, September 15-17 2007 Shanghai, China. Congress Proceedings pp.39-48.

Higgins ET (1987) Self-discrepancy: A theory relating self and affect. Psychol Rev, 94:319-340.

Hoffner C, Buchanan M (2005) Young adults' wishful identification with television characters: The role of perceived similarity and character attributes. Media Psychol, 7:325-351.

Kim C, Lee SG, Kang M (2012) I became an attractive person in the virtual world: Users' identification with virtual communities and avatars. Comput Human Behav, 28:1663-1669.

Klimmt C, Hefner D, Vorderer P (2009) The video game experience as "true" identification: A theory of enjoyable alterations of players' self-perception. Commun Theory, 19:351-373.

Ko DW, Park J (2020) I am you, you are me: Game character congruence with the ideal self. Internet Research, 31:613-634.

Konijn EA, Nije Bijvank M, Bushman BJ (2007) I wish I were a warrior: The role of wishful identification in the effects of violent video games on aggression in adolescent boys. Dev Psychol, 43:1038-1044.

Kühn S, Kugler DT, Schmalen K, Weichenberger M, Witt C, Gallinat J (2019) Does playing violent video games cause aggression? A longitudinal intervention study. Mol Psychiatry, 24:1220-1234.

Lewis ML, Weber R, Bowman ND (2008) "They may be pixels, but they're my pixels:" Developing a metric of character attachment in role-playing video games. Cyberpsychol Behav, 11:515-518.

Li BJ, Ratan R, Lwin MO (2021) Virtual game changers: How avatars and virtual coaches influence exergame outcomes through enactive and vicarious learning. Behav Inf Technol, 1-15.

Li DD, Liau AK, Khoo A (2013) Player-Avatar identification in video gaming: Concept and measurement. Comput Human Behav, 29:257-263.

Liao GY, Cheng TCE, Teng CI (2019) How do avatar attractiveness and customization impact online gamers' flow and loyalty? Internet Research, 29:349-366.

Mancini T, Imperato C, Sibilla F (2019) Does avatar's character and emotional bond expose to gaming addiction? Two studies on virtual self-discrepancy, avatar identification and gaming addiction in massively multiplayer online role-playing game players. Comput Human Behav, 92:297-305.

Mancini T, Sibilla F (2017) Offline personality and avatar customisation. Discrepancy profiles and avatar identification in a sample of MMORPG players. Comput Human Behav, 69:275-283.

McDonald DG, Kim H (2001) When I die, I feel small: Electronic game characters and the social self. J Broadcast Electron Media, 45:241-258.

Moon J, Hossain MD, Sanders GL, Garrity EJ, Jo S (2013) Player commitment to massively multiplayer online role-playing games (MMORPGs): An integrated model. International Journal of Electronic Commerce, 17:7-38.

Olivier L, Sterkenburg P, Van Rensburg E (2019) The effect of a serious game on empathy and prejudice of psychology students towards persons with disabilities. Afr J Disabil, 8:328.

Papoutsi C, Drigas A (2016) Games for empathy for social impact. International Journal of Engineering Pedagogy (iJEP), 6:36-40.

Park BW, Lee KC (2011) Exploring the value of purchasing online game items. Comput Human Behav, 27:2178-2185.

Peng W (2008) The mediational role of identification in the relationship between experience mode and self-efficacy: Enactive role-playing versus passive observation. Cyberpsychol Behav, 11:649-652.

Pimentel D, Kalyanaraman S (2020) Customizing your demons: Anxiety reduction via anthropomorphizing and destroying an "anxiety avatar". Front Psychol, 11:566682.

Prot S, Anderson CA, Gentile DA, Brown SC, Swing EL (2014) The positive and negative effects of video game play. In Media and the Well-Being of Children and Adolescents. (Eds A Jordan, D Romer):109-128.New York, Oxford University Press.

Robinson JA (2012) Developing social identities in massively multiplayer online role-playing games (Master's thesis). Kingston, United States, University of Rhode Island.

Schneider EF, Lang A, Shin M, Bradley SD (2004) Death with a story: How story impacts emotional, motivational, and physiological responses to first-person shooter video games. Hum Commun Res, 30:361-375.

Sherry JL (2004) Flow and media enjoyment. Commun Theory, 14:328-347.

Sioni SR, Burleson MH, Bekerian DA (2017) Internet gaming disorder: Social phobia and identifying with your virtual self. Comput Human Behav, 71:11-15.

Smahel D, Blinka L, Ledabyl O (2008) Playing MMORPGs: Connections between addiction and identifying with a character. Cyberpsychol Behav, 11:715-718.

Soutter ARB, Hitchens M (2016) The relationship between character identification and flow state within video games. Comput Human Behav, 55:1030-1038.

Sterkenburg PS, Vacaru VS (2018) The effectiveness of a serious game to enhance empathy for care workers for people with disabilities: A parallel randomized controlled trial. Disabil Health J, 11:576-582.

Susi T, Johannesson M, Backlund P (2007) Serious games: An overview. (Technical report). Skövde, Sweden, University of Skövde.

Szycik GR, Mohammadi B, Münte TF, Te Wildt BT (2017) Lack of evidence that neural empathic responses are blunted in excessive users of violent video games: An fMRI study. Front Psychol, 8:174.

Tajfel H, Turner JC (1979) An integrative theory of intergroup conflict. In The Social Psychology of Intergroup Relation. (Eds WG Austin, S Worchel):33-47. Monterey, CA, Brooks/Cole.

Teng CI (2021) How can avatar's item customizability impact gamer loyalty? Telemat Inform, 62:1-12.

Trepte S, Reinecke L (2010) Avatar creation and video game enjoyment: Effects of life-satisfaction, game competitiveness, and identification with the avatar. J Media Psychol, 22:171-184.

Turkay S, Kinzer CK (2014) The effects of avatar-based customization on player identification. Int J Gaming Comput Mediat Simul, 6:1-26.

T'ng ST, Pau K (2021) Identification of avatar mediates the associations between motivations of gaming and internet gaming disorder among the Malaysian youth. Int J Ment Health Addict, 19:1346-1361.

Van Looy J, Courtois C, De Vocht M, De Marez L (2012) Player identification in online games: Validation of a scale for measuring identification in MMOGs. Media Psychol, 15:197-221.

Van Looy J, Courtois C, De Voch M (2014) Self-discrepancy and MMORPGs: Testing the moderating effects of avatar identication and pathological gaming in World of Warcraft. In Multiplayer: The Social Aspects of Digital Gaming. (Eds T Quandt, S Kröger):236-244. London, Routledge.

Van Reijmersdal EA, Jansz J, Peters O, van Noort G (2013) Why girls go pink: Game character identification and game-players' motivations. Comput Human Behav, 29:2640-2649.

Von Feilitzen C, Linne´ O (1975) Identifying with television characters. J Commun, 25:51-55.

Vorderer P, Hartmann T, Klimmt C (2003) Explaining the enjoyment of playing video games: The role of competition. International Conference on Entertainment Computing, May 8-10 Pittsburgh, Pennsylvania, USA. Congress Proceedings pp.1-9.

Yee N (2005) Motivations of play in MMORPGs: Results from a factor analytic approach. http://www.nickyee.com/daedalus/motivations.pdf (Accessed 02.09.2021).

You S, Kim E, Lee D (2017) Virtually actual: Exploring avatar identification in game addiction among massively multiplayer online role-playing games (MMORPG) players. Games Cult, 12:56-71.

Zanetta Dauriat F, Zermatten A, Billieux J, Thorens G, Bondolfi G, Zullino D, et al. (2011) Motivations to play specifically predict excessive involvement in massively multiplayer online role-playing games: Evidence from an online survey. Eur Addict Res, 17:185-189.

Verhulst FC, Van der Ende J, Koot HM (1996) Handleiding voor de CBCL (4–18) [Manual for the CBCL (4–18)]. Rotterdam, Erasmus University.

Zigmond AS, Snaith RP (1983) The Hospital Anxiety and Depression Scale. Acta Psychiatr Scand, 67:361-370.