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*Review article*

## **Intercultural Perspective on Impact of Video Games on Players: Insights from a Systematic Review of Recent Literature**

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### **Abstract**

The video-game industry has become a significant force in the business and entertainment world. Video games have become so widespread and pervasive that they are now considered a part of the mass media, a common method of storytelling and representation. Despite the massive popularity of video games, their increasing variety, and the diversification of the player base, until very recently little attention was devoted to understanding how playing video games affects the way people think and collaborate across cultures. This paper examines the recent literature regarding the impact of video games on players from an intercultural perspective. Sixty-two studies are identified whose aim is to analyze behavioral-change, content understanding, knowledge acquisition, and perceptual impacts. Their findings suggest that video games have the potential to help to acquire cultural knowledge and develop intercultural literacy, socio-cultural literacy, cultural awareness, self-awareness, and the cultural understanding of different geopolitical spaces, to reinforce or weaken stereotypes, and to some extent also facilitate the development of intercultural skills. The paper provides valuable insights to the scholars, teachers, and practitioners of cultural studies, education, social studies, as well as to the researchers, pointing out areas for future research.

### **Keywords**

video games • intercultural skills • digital game-based learning • impact of video games • educational technology

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Video games have become so widespread and pervasive that they are now considered a part of the mass media, a common method of storytelling and representation (Kondrat, 2015; Shapiro, 2014). Online games have become the second most popular online activity behind streaming videos. In 2014, it was reported that there were 1.82 billion video gamers playing video games in some form or other; this figure is expected to rise to over 2.7 billion gamers by 2021 (Gough, 2019) confirming that “video games are fast becoming games for everyone” (Juul, 2005, p. 152).

Nowadays video games are viewed as “sophisticated tools inhabiting and disseminating racial, gender and cultural meaning” that “more so than schools, religion, or other forms of popular culture are teaching Americans about race, gender, sexuality, class, and national identity” (Leonard, 2004a, p. 4). In the same vein, Greenfield (2004) adds that video games’ scope of influence had been exceeding that of other forms of media, and it is becoming increasingly difficult to tell which source the younger generations are learning more from, whether textbooks or video games.

As real-life experience blends with the virtual, the virtual contributes to how we experience the real (Penix-Tadsen, 2013). In a world facing rapid population growth, migratory processes, and globalization, there is an increasing interest in supporting intercultural education. There is an unprecedented and pressing need for people to be able to deal with the complex dynamics of the world in which we live, to constantly assess our surroundings, and to adapt to and operate in them by continuously reviewing our frames of reference (Fabricatore & Lopez, 2012). Thus, intercultural education requires new tools of the assimilation of domain-specific knowledge and the development of mindsets that enable people to engage in complex system dynamics, in other words, “playful, innovative, trans-disciplinary thinking in which systems can be analyzed, redesigned, and transformed into something new” (Zimmerman & Chaplin, 2013).

### **Potential of In-Built Cultural Models in Video Games to Influence Players**

Players and educators alike have recognized the role of video games as a tool for encouraging the transfer of learning (Dickerman, Christensen, & Kerl-McClain, 2008; Gee, 2003; Greenfield, 2004). Video games have the potential to improve the learning outcomes of students (Shapiro, 2014), to teach the paramount skills required in the twenty-first century, such as systems thinking, strategic problem solving, and interpretative analysis (Qian & Clark, 2016; Romero & Gebera, 2012; Romero, Usart, & Ott, 2015; Torres, 2009), to contribute to business education (Fu, Hainey, & Baxter, 2016), to influence the moral and mental development of youth (Jin, Ma, Hua, & Coward, 2017), to empower people (Gee, 2005) and “train for a logical way of thinking, teach cooperation with other players, create and improve their imagination” (Kondrat, 2015, p. 1).

Gee (2003), in his influential book *What Video Games Have to Teach Us About Literacy and Learning*, justified 36 learning principles of video games and described how video games could serve to develop an understanding of cultural modes by immersing players in a particular cultural worldview. In the same vein, Bogost (2011) states that one of the unique properties of video games is their ability to put players in someone else’s shoes. Similarly, not only Facer, Furlong, Furlong, and Sutherland (2003, p. 74) argue that computer games seem to be an instrument for allowing players to discover and model various ways of being, “to imaginary inhabit alternative realities”, but Bourgonjon, Vandermeersche, De Wever, Soetaert, and Valcke (2016, p. 1740) add that video games “offer a perspective on how other people interpret specific problems, dilemmas, and situations in life and suggest potential ways of dealing with them”. Furthermore, Granic, Lobel, and Engels (2014), and Greitemeyer and Mügge (2014) argue that gamers playing prosocial video games are more likely to be engaged in social and civic movements in their everyday lives.

Conversely, Koster (2013) argues that video games teach us that which can be absorbed by the subconscious, as opposed to that which is designed to be taken in by the conscious, logical mind. Thus, intentionally or otherwise, video games are the developers' route into perpetuating their own existing stereotypes. By way of example, Provenzo (1991) thinks that video games reflect what is going on in culture and society, as well as attitudes towards gender, race, and ethnicity. Gee (2003) adds that video games make implicit cultural assumptions that players are unable to influence. As an example, in *Joystick Nation*, Herz (1997, p. 46) points out that "SimCity favors public transportation because Will Wright is a proponent of public transportation". Thus, video games are full of embedded biases and assumptions, and these stereotypical images and messages may affect players. In fact, Hayes (2007) points out that worldviews are often taken for granted and unquestioned until they are juxtaposed with other frames of interpretation. In other words, the figured worlds inherent in video games are important in reinforcing or challenging players' existing perspectives on the world (Gee, 2003). Additionally, over time these existing stereotypes and biases from virtual worlds have the ability to alter gamers' thoughts and offline behavior (Burgess, Dill, Stermer, Burgess, & Brown, 2011). As a result, numerous critics remain concerned about the interactivity of video games and their impact on players arguing that it is very important to critically evaluate how much, what kind, and how good or bad is the influence of video games on those who play them based on the identities and cultural values they promote, and consequently its impact upon the educational process and on society.

Despite the massive popularity of video games, until very recently, not enough effort has been devoted to finding proper answers and evidence of video games effectiveness and learning gain from an intercultural perspective. As a consequence, this is one of the barriers preventing video games from being widely adopted in intercultural, diversity and inclusive education (Mortara et al., 2014). Scholarly research, however, is aware of this, and has been devoting glowing attention to video games' potential for teaching gamers cultural assumptions and about stereotypes (Near, 2013), and to accessing the role video games play in people's need to acquire the rules of living, learning and working cross-culturally in the transnational spaces occupied by the rapid global movement of people (Pandey, Pandey, & Shreshtha, 2007). The existing research has not yet been summarized, though. This systematic literature review aims to summarize the potential of both entertaining and serious video games for teaching and learning across intercultural, diversity and inclusive education by answering the question: What evidence exists that video games help to acquire (inter)cultural literacy and intercultural skills, decrease stereotypical thinking and foster empathy towards culturally "other"?

## Methods

### Data Collection

**Databases searched.** To answer the research question, the large accessible databases Web of Knowledge, ProQuest, Scopus, Science Direct, Google Scholar and PoliBuscador (PoliBuscador is the bibliographic search engine of the Polytechnical University of Valencia) covering subjects related with education, social studies, cultural studies, and information technology were reviewed.

**Search terms for possible outcomes and impact.** The following video game-related and interculturality-related keywords were entered in the search engines: "video games", "serious game", "digital games", "game-based learning", "avatar", "educational games". Then these terms were combined with "stereotype", "minority groups", "identity", "pro-social", "empathy" and "intercultural". Finally, terms, such as "skill", "competency", "awareness", "representation", "impact", "attitude", "effect" and "outcome" were used. Dissertations and book chapters were included in the search.

**Selection of studies for inclusion in the review.** To select appropriate papers for inclusion in the present review, the following criteria were defined: (i) article should have publication data between 2001 and May 2018; (ii) articles should include evidence relating to the impacts of video game playing on players; (iii) article should contain data that can be broken down into manageable code categories; (iv) paper should contain results related with (inter)cultural literacy acquisition and intercultural skills learning, decreasing or increasing stereotypical thinking and empathy in case of empirical studies; (v) paper should contain themes and concepts related to culture, minority groups, stereotypes, empathy drawing conclusions and generalizations in case of content analysis.

Exclusion criteria were: (i) studies that are not accessible for the authors in full text; (ii) texts in other than English or Spanish languages; (iii) articles that generally contrast aggression/violence vs. empathy, without (inter)cultural context. Figure 1 shows the identification, selection and appraising of the studies to be included in the review.

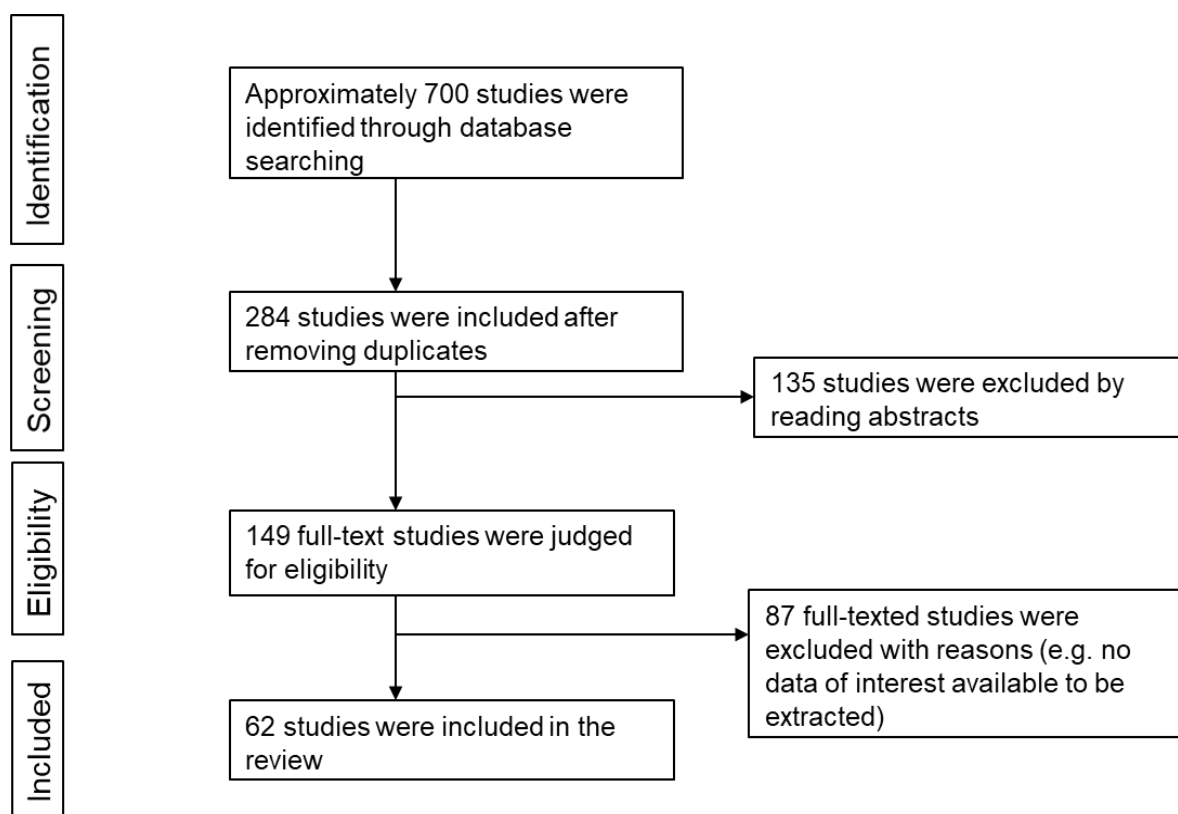


Figure 1. *Flow diagram of the articles included in the present study*

## Data Analysis

**Coding of studies.** Full texts of 59 articles, one thesis and two book chapters that met the inclusion criteria were analyzed and coded based on some elements of the multidimensional approach developed by Connolly, Boyle, Macarthur, Hainey, and Boyle (2012).

**Categorization of games.** The categories were defined by the primary purpose of the games. Serious games are developed for educational purposes. Entertainment AAA (pronounced "triple-A") games are produced and distributed by mid-sized or major publishers, have higher development and marketing

budgets, and are for entertainment purposes. Simulation video games are designed to simulate real-world activities or situations for training, analysis, or prediction purposes. Simulation video games in many cases could be included in the serious-games category. Some papers included in this research dealt with immersive virtual environment technology (IVET). Thus, serious games using IVET are shown as a separate category reflecting the academic world's interest in IVET in their experiments, especially since 2013.

#### **Categorization of impacts.**

**Impacts.** The categories used are behavioral change impact, content understanding impact, knowledge acquisition impact, and perceptual impact.

**Intended or unintended impact.** If the designer purposefully built certain learning themes into the game, it is considered to have obtained its intended impact. Unintended impacts are impacts which are not purposefully built into the game.

#### **Categorization of research methods.**

**Study design.** It refers to the research design used in the study, categorized as a randomized control trial (RCT), quasi-experimental, or correlational or qualitative design and content analysis.

## **Results**

Figure 2 shows an overall trend in research from the intercultural point of view where the y-axis presents the number of studies and the x-axis the year of publication. A relatively stable interest in video games from the intercultural, diversity and culturally inclusive points of view starts at the beginning of this decade. More than 5,300 participants aged 10 to 45 took part in thirty-six experiments reporting positive behavioral change, knowledge acquisition and perceptual impacts. Around 1,000 video-games titles were studied, ranging from top-selling games (e.g., *World of Warcraft*) to virtual-reality simulations (e.g., *Second China*), from major video-game producers (e.g., *Electronic Arts*) to university projects (e.g., *Virtual racial embodiment*).

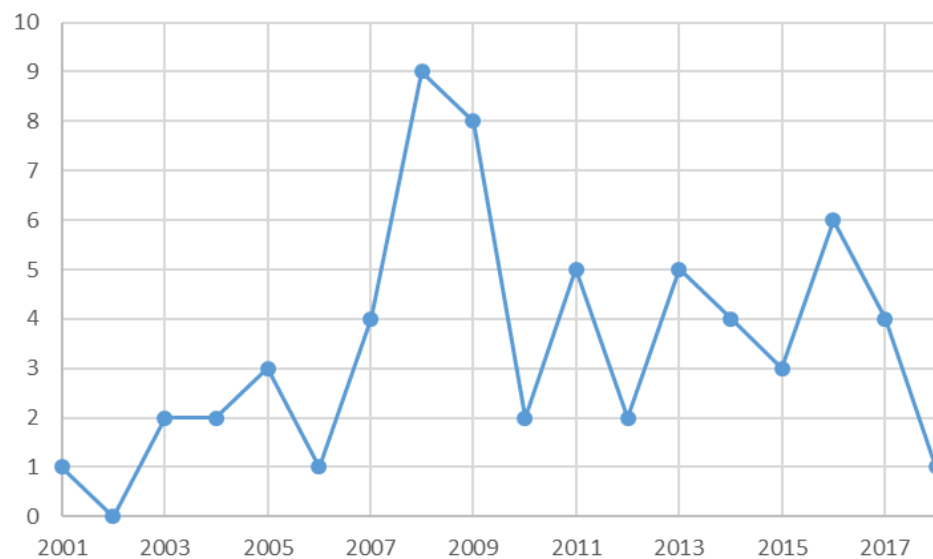


Figure 2. Overall trend in intercultural research on video games

Figure 3 shows various game genres used in studies. Most of the papers used AAA entertainment games in their research (70%). Ten per cent of papers researched serious games: *Peacemaker* (Alhabash & Wise, 2012; Cuhadar & Kampf, 2014), *Darfur is Dying* (Bogost, 2011; Peng, Lee, & Heeter, 2010), *It is a Deal* (Guillén-Nieto & Aleson-Carbonell, 2012), and *Real Lives* (Crogan, 2008). Twenty per cent of papers used IVET for their analysis (Ahn, Le, & Bailenson, 2013; Banakou, Hanumanthu, & Slater, 2016; Behm-Morawitz, Hoffswell, & Chen, 2016a; Gamberini, Chittaro, Spagnoli, & Carlesso, 2015; Hasler, Spanlang, & Slater, 2017; Kors, Ferri, Van Der Spek, Ketel, & Schouten, 2016; Lane et al., 2008; Lane & Ogan, 2009; Peck, Seinfeld, Aglioti, & Slater, 2013; Rosenberg, Baughman, & Bailenson, 2013).

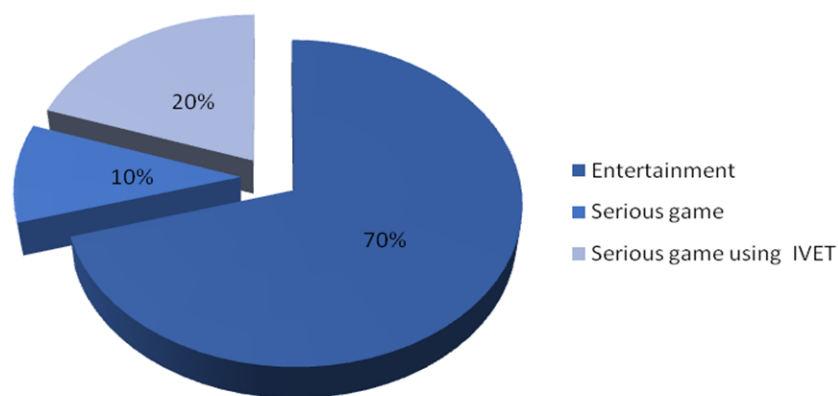


Figure 3. Games genres split by purpose

The results also reflect that entertainment AAA games get most of the attention from researchers, as is to be expected since this type of games has the widest audience. However, serious games using IVET may well be a newly developing trend in research. Since 2013 the number of researchers using immersive virtual reality in their studies has been increasing, a trend which is likely to continue. The launch of *Oculus Rift* in 2013 is making virtual reality more and more affordable to a wide audience for entertaining, educational and training purposes.

It is worth noting that video games are increasingly difficult to categorize by purpose only. Some entertainment AAA games offer to use their games for educational purposes, the most successful example being *CivilizationEDU*, a part of the *Civilization* series, which was launched in 2017. At the same time, some educational simulators, like *Real Lives*, enjoy high development and marketing budgets. The category of games known as edutainment, which includes *Kahoot!* or gamified learning platforms like *Duolingo*, engages both entertainment and educational elements, highlighting the lines separating the purposes of games are often blurred, and the current categorization of games by purpose needs to be reconsidered in a very near future.

### Study Design

Content analysis (24) was found by this review (see Table 1) to be the most popular study design used in studies of both entertainment and serious games. Quasi-experimental design (16), less rigorous than RCTs, were also used, including a number of studies that were like RCTs but without a pre-test or randomly assigned task. Quasi-experimental design was frequently chosen for entertainment, serious, and IVET

simulation games. RCTs (10) were adopted to test skill acquisition and game-based learning, mostly for entertainment games. Qualitative analysis (10) was adopted to explore entertainment games, and two correlational game designs were used to explore knowledge acquisition and perceptual change in the serious game *Peacemaker* and to test if embodiment into a dark-skinned virtual body could decrease racism. Content analysis, therefore, is the most commonly used study method. RCT, quasi-experimental, and qualitative designs are used with equal frequency to test behavioral change, knowledge acquisition and perceptual impact. Qualitative design was used to test various impacts.

Table 1. *Number of experiments of different types included in the relevant papers*

Study design	Game type			Total
	Entertainment	Serious games	Serious games using IVET	
Qualitative	8	1	1	10
Correlational	0	1	1	2
Quasi-experimental	8	2	6	16
RCT	7	2	1	10
Content analysis	20	1	3	24
Total	43	7	12	62

Note. IVET- Immersive Virtual Environment Technology

### Analysis of Video Games Impact on Players

A variety of impacts were investigated. Figure 4 shows impacts in a number of papers with the games categorized by purpose. A large number of studies investigated entertainment games for content understanding, behavioral change, perceptual, and knowledge acquisition impacts. Content understanding (22) is the mostly found impact, followed by perceptual (20), knowledge acquisition (13) and behavioral change (7).

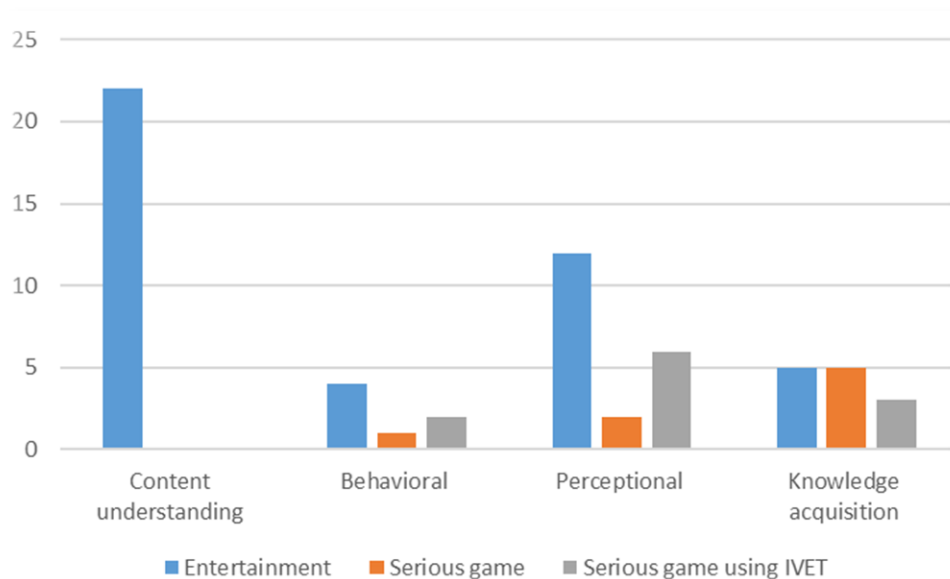


Figure 4. *Impacts by video game genres*

Cuhadar and Kampf (2014) reported both knowledge acquisition and perceptual change impact, but as the authors reported stronger evidence of knowledge acquisition in their study of the serious game *Peacemaker*, this study had placed them in the knowledge-acquisition impact category. The content understanding impact was mainly reached by content analysis study design. Perceptual impact employed all types of study design. Knowledge acquisition impact employed qualitative, quasi-experimental and content analysis. Behavioral change impact favored RTC and quasi-experimental study designs (see Table 2).

Table 2. *Learning impacts by study design*

<i>Learning outcome</i>	<i>Study design</i>					<i>Total</i>
	Qualitative	Correlational	Quasi-experimental	RCT	Content analysis	
Content understanding	1	0	0	0	21	22
Behavioral change	0	0	2	5	0	7
Perceptual	6	1	4	5	4	20
Knowledge acquisition	5	1	3	0	4	13
Total	12	2	9	10	29	62

### Behavioral Change Impact

Seven articles reported behavioral change impact (see Table 3). Changing of behavior to pro-social and helpful, and treating out-group members as in-group members were accomplished by embodied experience in immersive virtual reality (IVR) (Ahn et al., 2013; Hasler et al., 2017; Rosenberg et al., 2013) and by playing video games with prosocial content, like *Chibi Robo* and *Super Mario Sunshine* (Gentile et al. (2009) and *Darfur is Dying* (Peng et al., 2010). Increased sensitivity toward outgroup members and increased communication ability, adaptability, and resourcefulness were reported after embodiment in IVR (Ahn et al., 2013) and by playing games like *Borderland 2*, *Minecraft*, and *Papers, please* (Barr, 2017). Five studies adopted the RCT design, with quasi-experimental being second popular. All authors reported a positive impact of their studies.

Table 3. *Behavioral change impact*

<i>Impacts</i>	<i>Author(s)</i>
(i) Pro-social behavior (willingness to help strangers)	Ahn et al. (2013); Gentile et al. (2009); Happ, Melzer, & Steffgen (2013); Peng et al. (2010); Rosenberg et al. (2013)
(ii) Increased sensitivity toward outgroup members	Ahn et al. (2013)
(iii) Increased communication ability, adaptability, resourcefulness	Barr (2017)
(iv) Treating out-group members as if they were members of the in-group	Hasler et al. (2017)

### Content Understanding Impact

The number of papers that addressed the content understanding impact is 22. The 68% of papers reported small-scale, 18 % reported middle-scale and 14 % reported large-scale content analysis. Most of the papers used content analysis design for their research, except Brock (2011), who used qualitative research design to examine gamers' reactions to a developer using Africans as enemies in a survival horror



video game, *Resident Evil 5*. The majority of authors drew their conclusions based on their studies of entertainment AAA titles and top-selling games. Passmore, Yates, Birk, & Mandryk (2017) examined 80 indie video game titles. The majority of authors did a content analysis of top-selling entertainment AAA video games like *EverQuest* and *World of Warcraft* (Higgin, 2009), *NBA, NFL Street, Madden 2003* (Leonard, 2004b), and *Civilization III* (Chen, 2004). Behm-Morawitz (2017) conducted a systematic content analysis of 383 US magazine advertisements, and Burgess et al. (2011) did a content analysis of the top-selling video game magazine and 149 video game covers. Table 4 summarizes the content understanding impact.

Table 4. *Content understanding impact*

<i>Main findings</i>	<i>Author(s)</i>
(i) Lack of racial diversity. Minority groups are underrepresented and are added for visual variety.	Adams (2003); Behm-Morawitz (2017); Burgess et al. (2011); Dill, Gentile, Richter, & Dill (2005); Glaubke, Miller, Parker, & Espejo (2001); Friedberg (2015); Mou & Peng (2009); Passmore et al. (2017); Williams, Martins, Consalvo, & Ivory (2009).
(ii) Minority groups are portrayed in a stereotypical negative light and have a certain role within a game (e.g., black as criminals or sports stars, Asian as ninjas or martial-arts experts, Mexicans as illegal immigrants, Arabs and Muslims as enemies and terrorists, etc.).	Behm-Morawitz (2017); Brock (2011); Burgess et al. (2011); Dickerman et al. (2008); Everett (2005); Glaubke et al. (2001); Higgin (2009); Leonard (2004b); Magnet (2006); Šisler (2008).
(iii) The cultural framing is hegemonic. White privilege and Eurocentrism. White male protagonist conquers, explores, exploits, and solves.	Brock (2011); Dietrich (2013); Harrer (2018); Higgin (2009); Everett & Watkins (2008); Leonard (2003).
(iv) The animosity between certain races and alignments simulates intolerance; it also promotes cooperation between the seemingly hostile races, and it teaches the value of diversity.	Brown (2008)
(v) Problematic values and assumptions built into the game. The game allows certain technological and cultural choices but not others.	Chen (2004)
(vi) Some cultures, identities and stories are misrepresented. Living room couch serves as an arena for “contemporary commodity racism”.	Harrer (2018)

### **Knowledge Acquisition Impact**

Thirteen studies were identified in this category (see Table 5). Lane and Ogan (2009), and Diehl and Prins (2008) adopted content analysis to explore if serious games *Croquelandia*, *ATL*, *Second China*, *TLCTS*, *BiLAT*, and *VECTOR* support cultural knowledge acquisition, and to indicate how intercultural literacy and cultural identity are constructed in the virtual world of *Second Life*. Deaton et al. (2005), and Zielke et al. (2009) used content design to test how serious games using IVET help to acquire culture-specific knowledge. Lane et al. (2008), Guillén-Nieto and Aleson-Carbonell (2012), and Froschauer, Seidel, Gärtner, Berger, and Merkl (2010) used quasi-experimental study design to examine if serious games *It Is a Deal*, *BiLAT* and *ICURA* help to develop intercultural understanding, raise intercultural awareness, and learn culture and etiquette. Cuhadar and Kampf (2014) studied serious game *Peacemaker*, reporting strong knowledge acquisition in all four groups tested. Other authors used qualitative study design to investigate AAA entertainment games like *Age of Empires*, *Rise of Nations*, *Rise of Nations: Thrones and Patriots* (Pandey et al., 2007), and *The Elder Scrolls IV: Oblivion* (Anderton & King, 2016), except for Crogan (2008), who concluded that the educational simulator *Real Lives* enhances understanding of global world

processes. All authors reported a positive impact of their studies. Pandey et al. (2007), Toscano (2011), and Smith and Deitsch (2007) interviewed gamers to explore the role of gaming in sociocultural literacy acquisition. Table 5 summarizes the knowledge acquisition impact.

Table 5. *Knowledge acquisition impact*

<i>Learning outcomes</i>	<i>Author(s)</i>
(i) Increased cultural expertise in a specific culture.	Deaton et al., (2005); Froschauer et al. (2010); Zielke et al. (2009)
(ii) Virtual learning environments might support the acquisition of cultural knowledge and communication skills.	Lane & Ogan (2009)
(iii) Increased level(s) of self-awareness, understanding, and cognitive and cultural empathy for others. Ease of navigating unfamiliar cultural systems.	Anderton & King (2016)
(iv) Improved knowledge of culturally related phases in meetings (guided learning).	Lane et al. (2008)
(v) Enhanced intercultural literacy. Cultural identity construction shifting took place.	Diehl & Prins (2008)
(vi) A substantial learning effect of intercultural communicative competence, a medium effect of intercultural knowledge, and a small effect of intercultural awareness.	Guillén-Nieto & Aleson-Carbonell (2012)
(vii) Explored the role of gaming in developing cultural literacy. Gamers learnt the colonial narrative, the power of international monopoly capitalism, imagined western leadership roles, and felt prepared to navigate different geo-cultural spaces.	Pandey et al. (2007)
(viii) Explored literacy acquisition concerning video gameplay culture. Literacy practices can be absorbed through socially mediated ways.	Toscano (2011)
(ix) Explored the development of sociocultural literacy. Playing video games caused Japanese language learning, raised Japanese culture awareness and developed multimodal literacy.	Smith & Deitsch (2007)
(x) Raised knowledge about the Palestine-Israel conflict.	Cuhadar & Kampf (2014)
(xi) Enhanced global world processes understanding.	Crogan (2008)

### Perceptual Impact

The twenty papers addressing perceptual impact used a range of study designs to look at entertainment AAA games (12) and serious games using IVET (6). Eastwick and Gardner (2009), and Martey and Consalvo (2011) examined virtual worlds *There.com* and *Second Life*. Alhabash & Wise (2012) investigated the effects of video games on the changing of explicit and implicit attitudes towards foreign nations using the serious game *Peacemaker*, and Bogost (2011) found that serious game *Darfur Is Dying* could foster empathy. A number of studies addressing perceptual impact involved RCT (5), qualitative (6), quasi-experimental (4), content analysis (4) and correlational (1) study designs. Table 6 summarizes the perceptual impact.

**Intended or unintended impact.** Obviously, educational impacts in serious games are usually intended since these games have the clear aim of teaching or testing something. The majority of papers that studied serious video games and serious video games using IVET reported impacts which were intentionally designed. The papers that studied entertainment AAA games reported impacts that could be classified as unintended. The capacity of real-time strategy video games like *Age of Empires* or *Rise of Nations* to support intercultural literacy learning (Pandey et al., 2007) or the *Grand Theft Auto* series to reinforce stereotypical racial associations (Cicchirillo, 2015) are examples of entertainment games yielding unintended impacts.

Table 6. *Perceptual impact*

<i>Main findings</i>	<i>Author(s)</i>
(i) An increase in racial biases and stereotypical cultural associations.	Behm-Morawitz et al. (2016a); Cicchirillo (2015); Eastin, Appiah, & Cicchirillo (2009); Gerber & Aboukacem (2016); Höglund (2008); Von Borries et al. (2007); Yang, Gibson, Lueke, Huesmann, & Bushman (2014).
(ii) A decrease in implicit racial biases and stereotypical cultural associations.	Alhabash & Wise (2012); Banakou et al. (2016); Behm-Morawitz, Pennell, & Speno (2016b); Bente, Dratsch, Rieger, & Al-Issa (2014); Peck et al. (2013); Vang & Fox (2014).
(iii) Real-world racial biases emerge in virtual environments.	Eastwick & Gardner (2009); Gamberini et al. (2015); Martey & Consalvo (2011).
(iv) Acknowledgement of the presence of stereotypes in video games. Negative stereotypes could influence younger gamers.	DeVane & Squire (2008); Gillentine (2007).
(v) Serious games and stimulators foster empathy for terrible real-world genocide, for refugees, and invite gamers to step into the uncomfortable shoes of the downtrodden.	Bogost (2011); Kors et al. (2016).

## Discussion

The media and cultural scholars seem to have taken notice of the potential of video games for intercultural education as evidenced by the steady number of studies published on the topic during the last two decades. Fifty-nine papers, one thesis and two book chapters were selected to be included in this paper. Chapters from the books by Bogost (2011) and Brown (2008) and Gillentine's thesis (2007) are included in the review as they answer the research question. Bogost (2011) explained how the serious game *Darfur is Dying* can foster empathy for refugees, Brown (2008) justified the opinion that *EverQuest* can teach cooperation between different races and the valuing of diversity, and Gillentine (2007) explored stereotype awareness, stereotype perception, and the impact of AAA sports, racing and shooting video games. The articles selected for this review were analyzed in the modified multi-component framework (Connolly et al., 2012), examining game genres according to their purpose, the study methodology used, and the specified impact, which provides a framework for understanding the impacts of the video games from the intercultural perspective.

Video games provide players with a "safe" place where they can acquire culture and play with cultural identities in a virtual environment that realistically imitates real life (Zielke et al., 2009). On top of that, video games let players soak in cultural content in an engaging way (Mortara et al., 2014). The main finding of this research suggests that video games offer freedom from previously fixed belief systems, stereotypical cultural association and racial bias. This demonstrates, that, video games are capable of affecting players' ethical mindsets and changing their attitudes towards culturally different people (Cuhadar & Kampf, 2014; Zagal, 2009). The acquisition of cultural knowledge and the stimulation of the development of intercultural literacy, socio-cultural literacy, cultural awareness and self-awareness, and cultural understanding of different geopolitical spaces challenge existing cultural patterns while, at the same time, provide a simulation or at least imitation of real-life which offers a bridge for in-game learning and experiences to enter into real-life perceptions and activity. It makes clear that video games play an increasing role in shaping and broadening players' imagination and worldview (Petkov & Rogers, 2011).

Subsequently, this research provides evidence that the use of IVET games and simulations lead to increased pro-social behavior (willingness to help strangers) and treatment of out-group members as if they were in-group. This might be a result of video game allowing players to explore cultural options without reprisal or judgment and engaging in a multitude of cultural identities and experiences in an active way. Increased and intensified empathy and sensitivity towards people different from oneself confirm that realistic in-game environments provide a space where players can be open and vulnerable, question their beliefs, and increase their empathy for the culturally different other (Anderton & King, 2016). Thus, this study also offers a glimpse of the potential of video games to become agents of social and personal transformation (Darvasi, 2016).

Our findings, therefore, suggest that both entertainment and serious video games provide a wide variety of learning outcomes from an intercultural perspective during gameplay and immersive experience in virtual worlds, confirming that the digital game space “is a site for playful simulation, rehearsal, and experimentation that may be transferred to real life” (Darvasi, 2016, p. 18). Our results also confirm that video games can be tools for persuasion and influence thoughts and actions (Bogost, 2011; Gee, 2003). In short, video games may contribute to social development and intercultural competence. Thus, this article is also an invitation for researchers and educators from the intercultural, diversity, inclusion, and global citizenship fields to examine video games as a new tool that might be adapted to support their practice.

However, in order to provide both neutral and useful picture of the existing research from an intercultural perspective, it is critically important to carefully critique video games in order to discover the identities and cultural values into which the player is thrust, that intensifies bias and negative perceptions of different others. Even though today’s video games cater to aim ever wider player audience, the findings of this study show that video games still contain racially stereotypical material, with minority characters built around either negative or cultural stereotypes, privilege whiteness and Eurocentrism, reinforce “contemporary commodity racism” (harmful stereotypes); and increase racial bias and stereotypical cultural association. Considering that many video games explicitly or implicitly encourage gamers to absorb their built-in cultural messages (Smith & Deitsch, 2007; Toscano, 2011), it requires players to be aware of the context they and their characters exist in. Otherwise, video game players with time become less critical of the stereotypic content of the games (Brenick, Henning, Killen, O’Connor, & Collins, 2007), and often show signs that their belief system is incorporating these negative beliefs (Dickerman et al., 2008).

Critically studying effects of video games on players is an ongoing task. There will be no single future definitive research result about this, but there must be a continuing process of carefully examining the effects of various forms of video gaming on diverse populations in a rather endless variety of contexts. This may not sound encouraging, but it is an important invitation to due diligence when it comes to staying abreast of what the video games world is bringing to the values and behavior of players at every age.

To conclude, the results of this paper, while seemingly positive in outlook fairly juxtaposes the available research on both sides of the issues, there being no definitive or ultimate evaluation given nor possible. Rather the results presented give a collection of insights as to the possible influence of video games on the various intercultural contexts in which we live and act as humans and as gamers.

As a final point, the thought-provoking discovery worth mentioning here is that the majority of studies on video games are done by male researches, with a very few exceptions such as Elizabeth Behm-Morawitz, Anna Everett, Isabella Granic. Digital game environment nowadays is far from being a rarity in a male-dominated realm, female players make up half of the gaming audience. Employing more females in the game development industry is a pervasive trend in the tech industry nowadays. Video game studies are still largely male-dominated, though.

## Future Research Directions

Analyzing the state of the art, the authors detected the specific educational areas where the influence and impact of video games have not yet been addressed or only a little. Firstly, more RCTs and quasi-experimental study design to be carried out in future investigations because they could provide rigorous evidence about learning and the impact of video games. Secondly, longitudinal studies with long-term analysis of learning experiences would provide more insights into the suitability of some video games for intercultural learning outcomes. In recent years, a number of serious games have been developed aimed at fostering intercultural communication, helping change cultural perspectives, raising awareness of immigrants' issues, and promoting more inclusive and tolerant societies. These games, however, have gained little visibility. It makes sense for educators to look at these games and check their potential for intercultural education. Another promising topic is the re-creation of real cities and cultures as settings, which are supposed to be identifiable and its influence on adding to cultural knowledge baggage of gamers about a particular culture (Manchester Cathedral in *Resistance: Fall of Man*, Los Angeles in *True Crime: Streets of LA*, London in *The Gateway*, New York in *Godfather*, landscapes of Arabic worlds in *Call of Duty* and *Battlefield 3*, and ancient civilizations in *Age of Empires II: The Conquerors* and *Counter-Strike: Global Offensive*, Bogost, 2011; Mortara et al., 2014; Penix-Tadsen, 2013). Another under investigated area is the representation of capitalist society's hegemonic values and its influence on gamers. Some authors claim that many video games spread and cement in gamers' minds capitalist values like consumerism, capitalism and acquiring wealth, the free market, perseverance, imperialism by violent expansion and exploration, eurocentrism, and whiteness (Brown, 2008; Embrick, Wright, & Lukács, 2012; Frasca, 2000; Higgin, 2009; Schut, 2007; Toscano, 2011). Further research is, therefore, required to investigate how and to what extent players absorb the cultures and ideologies built into the narratives and storylines of video games. Finally, Glaubke et al. (2001), and Jansz and Martis (2007) revealed that women of color portrayed as props, bystanders, sex objects, or victims are not seen as strong competitors nor as heroines. Research is needed on how negative portrayals of minority women influences male players and their post-game beliefs, as well as non-white female gamers' self-concept. Considering all of the above, there is a hope that the future will bring broader debate and more valuable research on the impact of video games from a diverse range of perspectives.

The current review does not claim to be comprehensive but summarizes the research on the period under review, the search terms used, the databases included, and whether the outcomes can be included in the defined categorizations. This article fits with the global trend of studying the impact of video games on players on a wide range of topics. The authorship has determined what evidence exists concerning the impact of video games on players' knowledge and skills acquisition from the intercultural point of view. This systematic literature review includes a mix of empirical evidence, case studies, and content analysis research to answer the research question. It offers a clear description of the criteria, focus, methodology and procedures of the research efforts reported on, clarifying the kinds of video games, dimensions of entertainment and seriousness found in them, as well as looking at the intended and unintended impacts that their content and design are purported to have according to those who have researched them and those who played them.

If anything, since the data mentioned in this paper was produced, video game engagement has apparently increased in terms of the total hours spent on it. Being that, much work is to be done in the field of research on the intersections of video games and intercultural education. This article is a snapshot of a topic forever to be updated.

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