Gaming in Multicultural Classrooms: The Potential of Collaborative Digital Games to Foster Intercultural Interaction[1]

Amanda Paz Alencar
Lecturer of Media and Communication, Erasmus University Rotterdam
mailto:pazalencar@eshcc.eur.nl

Teresa de la Hera Conde-Pumpido
Postdoc Researcher and Lecturer, Utrecht University
T.delaHera@uu.nl

Abstract

With growing cultural diversity in European educational settings, acculturation processes at schools have become more complex as well as 'problems' associated to cultural essentialisms in everyday classroom practices. The use of digital games has found to be an effective tool to reinforce teaching/learning practices. Several studies have already shown the benefits of the use of digital games in educational contexts. However, most of these studies are focused on how digital games can be used for knowledge acquisition. The present research proposes a new approach for the study of digital games in the field of education. Drawing from collaborative approaches, in this chapter, we explore the potential of digital entertaining collaborative games to foster intercultural interaction in culturally diverse classrooms. The mechanisms of intergroup contact theory serve to explain the importance of intercultural interactions for the long-term process of integration.

Keywords

Collaborative games, intercultural interaction, cooperative learning, educational practices, multicultural classrooms.

Introduction

In most European countries, schools are facing increasing numbers of students with diverse migrant backgrounds (OECD, 2014). Recent developments in school education highlight the importance of promoting intercultural awareness and competences among teachers, as well as recommendations of a

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curriculum reform that can meet the challenges of teaching for diversity in Europe (EU, 2007). In line with this, education scholars Severiens and colleagues (2014) argue that the main obstacles faced by teachers in culturally diverse classrooms are the development of pupils' communication skills and the promotion of positive social interactions and cultural identity among migrant students. Hence, migrant children experiencing difficulties in terms of learning achievements are very often confronted with problems of adaptation, identity formation and interaction with native as well as with other migrant children and even with teachers (Bruin, 1985).

Evidence of this relationship has been found in the study by Suárez-Orozco and Suárez-Orozco (2000), in which pupils involved with both the native society and the new host society are usually those to achieve better studying results and attain higher levels of social and language integration at schools. Similarly, Berry's (2006) acculturation theory argues that successful adaptation of migrant children at schools is correlated with their ability to engage in interactions with both native and migrant pupils. The importance of intercultural interaction in multicultural classrooms is based on the students' ability to deal across cultures, which facilitates their development and integration within the group. According to intergroup contact theory (Pettigrew, 1998), there are four main conditions that may facilitate the opportunities for intercultural interaction: equal status, support from authorities, common goals and cooperation. Intergroup contact theory suggests that the teaching/learning methods adopted in multicultural classrooms play a major role in providing the conditions for students to engage in intercultural contact situations (Pettigrew & Tropp, 2011). For instance, an intercultural approach to education has been widely connected to improvements in social interactions of pupils in culturally diverse educational settings, as it fosters the development of competencies, attitudes and behaviors that allow for the understanding of different cultures, and the harmonious coexistence and cooperation among students representing this diversity (Schleicher, 2013; Severiens et al., 2014). In the context of intercultural education, cooperative learning (CL) is a learning method that employs

Pettigrew's contact conditions and that has been proven to encourage cross-cultural interactions of pupils coming from different migrant backgrounds (see Coelho, 1994; Johnson & Johnson, 2004; Tielman, den Brok, Bolhuis, & Vallejo, 2012).

Among the many forms of implementation of the cooperative learning method, the use of digital media technologies in the classroom has gained popularity because it facilitates acceptance by encouraging cooperative learning and equal communication opportunities by the users (O'Mara & Harris, 2014; Padilla Zea et al., 2009). In this study, we particularly focus on the potential of collaborative digital games to become an effective cooperative learning tool to achieve intercultural goals and contribute to the long-term social integration process of migrant children in multicultural schools.

Although previous research has widely claimed.that digital games may foster social inclusion, the majority of expectations regarding the value of this type of intervention remain largely hypothetical as research on its effective impact is still currently lacking (Bleumers et al., 2012). More extensive research in this field is necessary to enable an appropriate implementation of playful interventions aimed to support at-risk communities, such as those formed by migrant children (Haché & Cullen, 2010). Previous studies have already explored the potential of digital games to foster multicultural integration (Memarzia & Star, 2011; Kayalis et al., 2011). However, the analysis of the collaborative features of research-based games used in the context of these studies -*Choices and Voices* (Playgen, 2011) and YourTurn (2012)-, was not supported by a theoretical framework that clearly connects the benefits of collaboration with intercultural interaction. This study provides a theoretical framework based on a new implementation of the cooperative learning method (Johnson & Johnson, 1998) in the analysis of collaborative digital games as a tool for encouraging positive intercultural interactions of pupils coming from different migrant backgrounds.

This chapter has been organized in the following way. It first gives an overview of the main obstacles of culturally diverse classrooms and the importance of intercultural contact for addressing cultural differences and improving collaboration and interaction. The second part analyzes the benefits of the collaborative learning method for promoting positive intercultural interactions as well as the limitations of the approach. It is then followed by a discussion of the potential of collaborative digital games as a cooperative learning activity in a multicultural context. Finally, the chapter summarizes the main concepts and issues addressed in the sections and suggesting a few directions for validating the approach.

Dealing with differences: the challenges of multicultural classrooms

Newly arrived migrant children experience a very difficult period, where they have the hard task to adapt to a new cultural environment without relying on fundamental cultural and linguistic resources related to the integration in the new host country. In this moment of high vulnerability, school can play a crucial role in providing the foundations for the future process of integration (Chomentowski, 2009; Steinbach, 2010). With the growing cultural diversity in European educational settings, acculturation processes at schools have become more complex as well as 'problems' associated to cultural essentialisms in everyday classroom practices (Tupas, 2014).

More broadly, obstacles regarding migrant children's adaptation to the school environment are defined in terms of interaction with teachers as well as with other pupils in the classroom. In the former case, limitations in the language of instruction affect the ways migrant pupils relate with teachers and participate in class activities. At the same time, poor interaction between students with diverse backgrounds may be due to a lack of communication skills among them. In that respect, Chamberlin-Quinlisk (2013) highlights the importance of using meaningful systems of

communication (both verbal and non-verbal) that prompt teachers and students to engage effectively in diverse educational settings.

On the other hand, challenges can also be analyzed in terms of preparation for diversity teaching (Severiens et al., 2015). The theory "stereotype threat" of Steele (1997) describes one of the main problems regarding the lack of teacher's training that affects students' performance in multicultural classrooms. The author argues that teachers' negative expectations of certain groups of pupils influence poor performance among these groups when this stereotype becomes explicit (e.g., mentioned by instructors). Teachers should have minimal knowledge of the cultural background of their students to avoid making negative assumptions and compromising the quality of their students' performance. By way of illustration, the study by den Brok and Levy (2005) carried out in multicultural schools in the United States, Australia and the Netherlands revealed that teacher interpersonal behavior has significant implications for immigrant minority students' outcomes than for their native peers.

Similarly, cultural background influences the ways students perceive and interpret the learning environment (Coelho, 1998). In this sense, tensions among students are in most cases related to a lack of understanding of each other's culture and these intercultural conflicts represent a big challenge for teachers in multicultural classrooms. Several studies suggest that problems of school adjustment and socio-cultural integration among immigrant children are usually associated to their different cultural background (Crul & Holdaway, 2009; Lenoir et al., 2008; Tielman et al., 2012). During their school attendance, learning and interaction difficulties such as increased egocentrism and negative relationships including hostility, rejection, stereotyping, prejudice and racism may occur as the result of the highly variety of the characteristics, language skills and cultural background of migrant children (Johnson & Johnson, 1999).

In culturally diverse classrooms, it is also common to observe the development of undesirable attitudes (in the form of prejudices) and behaviors (in the form of discrimination). When pupils express discriminatory statements, teachers usually react by using reliable information to try to change premature judgments. However, prejudices towards minority groups is a complex problem not just caused by a lack of information and undesirable attitudes, and it is an evidence that behaviors hardly ever change by the influence of alternative information (Bruin, 1985, p.162).

It follows that alternative teaching methods capable of dealing with highly diverse classrooms are fundamental to promote positive intercultural interaction among students (Schleicher, 2013; Severiens et al., 2014). Intercultural strategies for culturally diverse pupils in learning environments should be focused on the development of interventions that support positive social interaction that help to hinder cultural differences and protect cultural diversity, but at the same time foster the integration of immigrant children at schools.

The relevance of intercultural contact

In a recent European Union report (EU, 2016) on the increasing importance of promoting active educational settings that can potentially establish inclusiveness and collaborative communities, it was noted that the growing cultural diversity in European societies is not well reflected in their educational systems. This concern is echoed in the 'EACEA, Eurydice' report (EU, 2012), in which special attention is given to the need for developing teaching methods that rely more and more on intercultural interactions through the promotion of teamwork, collaborative learning and peer learning.

In this context, one of the most referred to intercultural mechanisms, highlighted by previous research, is intergroup contact theory (Pettigrew, 1998). In general, the conventional wisdom in this literature is that contact between immigrant and non-immigrant children, especially close/friendship contact, helps in reducing prejudices, boosts mutual interests and creates a more intercultural society

with intercultural societal interests (Pettigrew & Tropp, 2006). Several authors have defended the view that knowing the 'others', especially those from a different culture, leads to a fading away of prejudices, false opinions or biased perceptions (e.g., Berry, 2006; Ward, Stuart et al., 2011). Intergroup contact theory is particularly relevant for this study because it places great emphasis on the role of the educational context in providing the conditions that can potentially lead to positive cross-cultural interactions of children with diverse migrant backgrounds (Sleeter, 2013). In a study conducted by Stefanek et al. (2015) with non-immigrant, Turkish, and former Yugoslavian immigrant youths, the authors argue about the importance of encouraging intercultural friendships in multicultural schools, as these friendships can enhance social and intercultural competencies, promote social and language integration and create an environment free from stereotypes and discrimination.

Intergroup contact theory asserts that the friendship potential of a contact situation is determined by relevant conditions, such as intergroup cooperation and common goals between children belonging to different cultural groups (Pettigrew & Tropp, 2006). Both conditions can be fostered with the implementation of intercultural educational approaches. Such approaches are designed to integrate learning about other cultures, races and ethnicities as part of educational instructional processes while at the same time making use of cooperative learning activities in which immigrant and non-immigrant children have to work together to achieve a common goal (EU, 2006). In this sense, the adoption of a learning orientation has found to be useful for promoting positive intercultural interactions. For example, Migacheva and Tropp (2013) showed that individuals' primary motivation to learn new skills and capabilities as well as to enhance their knowledge is strongly correlated with their willingness to embrace intergroup contact with people from a different culture.

On the other hand, the extended model of Pettigrew's intergroup contact theory (2008) also takes into account the cultural diversity of the student body as one of the conditions to create opportunities for intercultural contact (Stefanek et al., 2015). Previous research has found that students

have more chances to establish cross-cultural interactions in classes where more culturally diverse peers are present (Hallinan & Teixeira, 1987). Finally, the extended model argues that support from authorities is essential in this context. For instance, school training programs to increase the capacity of teachers to use interactive methodologies to engage pupils and at the same time to offer them a safe space for exercising their acquired intercultural competencies can function properly when these programs are implemented by the educational system.

In line with intercultural education, the cooperative learning method has gained fresh prominence among education scholars as a device for managing diversity in multicultural classrooms (Johnson & Johnson, 2004; Tielman et al., 2012). The link between IE and Cooperative Learning (CL) is evident due to their mutual interest in developing school practices that foster collaboration and integration among students in various educational contexts. The following section provides an in-depth discussion of how the cooperative learning approach utilizes the contact conditions of intergroup cooperation and common goals to support learning and cross-cultural interactions through repeated and extensive exchange among children from different cultures. The implications of scarce educational policies encouraging the use of the cooperative method in heterogeneous classrooms are also discussed both in terms of adequate training for teaching diversity and communication problems in multicultural classes.

A Cooperative Approach to Intercultural Interaction in Culturally Diverse Classrooms

As previously stated, the cooperative learning method has gained special relevance in the field of multicultural education, due to its capacity to facilitate positive intercultural interaction. In this section, we draw upon previous research on cooperative learning to argue about the potential of this method to foster the four main conditions that may facilitate the opportunities for intercultural interaction according to intergroup contact theory (Pettigrew, 1998): equal status, support from

authorities, common goals and cooperation. Furthermore, we reflect on the benefits and issues related to the use of this learning method in culturally diverse classrooms.

Cooperative learning is a learning methodology in which students share common goals that should be achieved together as a group. Cooperative learning fosters promotive interaction in comparison to individualistic and competitive learning approaches, usually prioritized as student–student interactive patterns in educational settings, which consecutively promote no interaction and oppositional interaction (Deutsch, 1949). It follows that when individualistic efforts are fostered, no interdependence is created among goal achievements, and students do not relate their achievements to the performance of other students in the class. Furthermore, when competition is encouraged, students perceive their success as related to other students' fail or poor performance. In comparison, students involved in cooperative learning realize that they can only achieve their goals if other students in the class also do so (Johnson & Johnson, 2002). It follows that cooperative learning is a learning methodology promoted and supervised by schools and educators, whom may be considered the *authorities* in Pettigrew's (1998) terminology, and that encompasses students with *equal status* involved in an activity in which they have to *cooperate* to achieve *common goals*.

Benefits of Cooperative Learning in Culturally Diverse Classrooms

The social psychologists David W. Johnson and Roger Johnson have extensively explored the potential of the cooperative learning method in respect to different learning goals and environments (1988, 1989, 1994, 2002), including research on the benefits of this learning method in culturally diverse classrooms (1988). The authors have found that when compared to individualistic and competitive experiences, students involved in cooperative experiences seem to be more positive about each other regardless of differences in ethnic background (1988). Students also seem to be more effective interpersonally as a result of working together when cooperative interactive patterns are used (1988, para.13). Furthermore, when collaborating, students seem to better develop their interaction

skills, and have a more positive expectation about working with others than students from competitive or individualistic settings (1988, para.14). By sharing common goals, students develop a sense of identity and belonging to the learning group that positively contributes to their interaction and reduces stereotypical visions about their peers (Coelho 1998).

Johnson & Johnson (1994) also found that when cooperative interaction is fostered, it can facilitate positive outcomes related to learning in a multicultural environment, such as increased achievement and productivity, creative problem solving, growth in cognitive and moral reasoning, increased perspective-talking ability, improved relationships, and general sophistication in interacting and working with peers from a variety of cultural and ethnic backgrounds. The authors have identified five collaborative components that should be encouraged to foster the positive effects of collaborative interaction in multicultural classrooms (2002):

1. Positive interdependence: This happens when collaborating students are aware that their success is linked not only to their own performance, but also to the performance of their peers. This means that they acknowledge that they can benefit from their partners' performance, and that their success benefits not only themselves, but also their peers. Activities that foster positive interdependence help students to understand the personal benefits of collaborating with others and that an egocentric behavior is not always beneficial. In multicultural classrooms, students involved in cooperative experiences understand the value of people who are different from them because other participants become potential contributors to individual's success. Cultural diversity means that different ways of reasoning are brought together to contribute to achieve the common goal. In this sense, all individuals are valued regardless of their ethnic membership or their cultural background (Johnson & Johnson, 2002; Tielman et al., 2012).

2. Individual accountability: It takes place in situations in which all participants find a way to contribute either with their personal knowledge or personal skills. Individual accountability facilitates not only that students learn to give value to their own skills, but also fosters empathy with other participants. Students participating in activities that encourage individual accountability, benefit from others' personal knowledge, which helps them to acknowledge the value of cultural diversity.

3. Face-to-face promotive interaction: This cooperative component arises when students are involved in activities that encourage them to share their knowledge or discuss different points of view in order to achieve their goals. When sharing common goals, participants get emotionally involved in promoting the progress of their partners, which encourages them to help others by orally explaining how to solve problems or teaching their own skills. Activities that foster face-to-face promotive interaction are an opportunity to discover together how the different ways in which different cultures interpret a specific situation can complement each other and can contribute to achieve certain goals together (Johnson & Johnson, 2002).

4. Social skills: This is produced when in collaborative sessions students need to use their social skills in order to achieve their goals. Skills such as leadership, conflict management, trust-building or decision-making are of special value in collaborative activities. Cooperative activities that include challenges in which different types of skills are needed to achieve common goals become a tool to overcome stereotyping and prejudice in multicultural education environments (Johnson & Johnson, 1999).

5. Group processing (Self-analysis of the group): According to Johnson & Johnson (2002) when students are encouraged to reflect together on the outcomes of a collaborative learning session to discuss whether their working relationships were effective and if they were able to achieve their goals, this can report extra positive outcomes to the activity.

Table 1 provides a summary of the five fundamental characteristics that improve learning and collaboration and the benefits of each collaborative component for intercultural interactions.

Table 1:   *Characteristics and benefits of collaborative learning practices*

5 components	*Characteristics*	*Benefits*
Positive interdependence	Collaborating students depend on each other's performance to achieve successful results	Collaborating students can understanding how students from different cultures can help one achieve individual success
Individual accountability	All collaborating students can offer insights and benefit from each other's personal skills	Collaborating students can empathize with other participants and acknowledge and value their individual skills
Face-to-face Promotive interaction	Collaborating students share their knowledge and help each other by providing different perspectives on the task	Collaborative students promote their own interpersonal skills by getting involved in each other's progress in the task
Social skills	Collaborating students are able to use their leadership skills	Collaborating students have the opportunity to manage intercultural conflicts and develop their communication skills and values of trust in the decision-making processes
Group processing	Collaborating students become self-consciousness of the effectiveness of their work as a group	Collaborating students develop their own abilities and become more commited to achieve common goals

Issues of Cooperative Learning in Culturally Diverse Classrooms

The positive effects of cooperative interaction for multicultural groups of students depend on the important conditions within the educational context. Some researchers have pointed at some barriers

that can limit the effectiveness of promotive interaction. On the one hand, previous research shows that cooperative learning practices when implemented by teachers usually do not meet the five conditions identified by Johnson and Johnson (2002). Less than half of the teachers implementing these practices are usually trained in cooperative learning methods, and only a few of them have been trained to use them in a multicultural classroom (Baker & Vlark, 2010, p.4). The lack of training of teachers might result in poor cooperative experiences that might not deliver the expected results.

Furthermore, cooperative learning requires language competence. To be able to contribute to the achievement of the common goals, students need to be able to communicate efficiently (Hijzen, 2006). However, in multicultural classrooms, students have different levels of language competence. In a study conducted by Tielman et al. (2012) in which the authors tested the effectiveness of collaborative learning activities in a secondary vocational school in the Netherlands, it was found that the vulnerability of migrant students regarding language proficiency compared to Dutch native students might prevent the formation of promotive interaction among them. Language difficulties can create difficulties related to two of the five components identified by Johnson and Johnson (1994) as relevant to achieve effective cooperation: face-to-face interaction and the use of relevant interpersonal and small group skills. For this reason, language difficulties can become a barrier for efficient promotive interaction (Baker & Vlark 2010; Coelho, 1994; Tielman et al., 2012).

There are also dangers related to the formation of what Johnson and Johnson (1998) call 'pseudo groups', defined as groups in which members that have been assigned to work together do not have interest in doing so. This can lead to students that divide up the work that has been assigned to a whole group, or groups in which one student or some of them, take the lead and do the work for all of them. In the context of multicultural classrooms, the cultural background of students also affects the proper functioning of collaborative groups. Tielman et al. (2012) stated that intercultural conflicts

often emerge within groups formed by Dutch native students and students from diverse migrant background.

It follows that, although cooperative learning practices have the potential of having positive effects when used in multicultural educational settings to foster intercultural interaction of students, there are also a series of difficulties linked to this practice that need to be overcome to achieve the expected results. The following section provides a detailed description of how the use of collaborative digital games may offer the conditions to promote positive intercultural interactions as well as to overthrow some of the limitations of the collaborative approach.

Collaborative Digital Games for Intercultural Interaction

In this section we claim that collaborative digital games are able to encourage cooperative interaction and accordingly, might become a useful cooperative learning tool to foster intercultural interaction among players with diverse cultural backgrounds. Furthermore, we also claim that the interactive nature of digital games and their capacity to adjust the experience and provide feedback based on players' performances become relevant characteristics when used with this purpose, because they have the potential to help overcome the difficulties associated to cooperative learning practices, such as lack of training of teachers, language difficulties and lack of motivation of students. These claims are based on the unique potential of digital games to engage people in collaborative activities via two basic functions: their potential to be used as tools and as social facilitators for persuasion (see Fogg, 2003). In their role as tools, digital games can be designed to influence and motivate people in specific ways by making activities easier or more efficient to do (Fogg, 2003, p. 24). Furthermore, in their role as social facilitators, digital games can be used to encourage social interaction by affording communication among players (2003, p. 89).

Collaborative digital games are digital games in which "all the participants work together as a team, sharing the payoffs and outcomes; if the team wins or loses, everyone wins or loses" (Zagal et al., 2006). Within the game "a team is an organization in which the kind of information each person has can differ, but the interests and beliefs are the same" (Marschak in Zagal et al., 2006). A good example of collaborative digital games is the saga Little Big Planet. The gameplay consists primarily, but not entirely, of platforming like jumping and avoiding obstacles to successfully navigate to the end of a level to win. The game involves a player playing in collaboration with other players to navigate through a level whilst collecting various "bubbles" along the way. There are also numerous collaborative parts of levels whereby certain prize bubbles can only be collected with the help of at least one player or more depending on the number of players stated in the level.

Although digital games have the potential to foster co-located and virtual non-co-located collaboration, we focus on games played synchronically by all players at the same location as the most effective way to elicit intercultural interaction in education environments. Co-located collaborative games have been shown to enhance social engagement and group cohesiveness and strengthen bonds among group players (Isbister, 2010).

In order to support our claim that collaborative digital games can be used as a tool to foster positive intercultural interaction, in this section we discuss in which ways they are able to elicit the five collaborative components described by Johnson and Johnson (1998), which enhances the positive outcomes related to learning in a multicultural environment.

1. *Positive interdependence.* Collaborative games can foster positive interdependence by establishing a common goal for all players, which may help the group bond as players share in their success or failure together, including a "group life" system to achieve team accountability, establishing an evaluation process on the group rather than on each player and/or providing a player score and a group score (Padilla Zea et al., 2008). Furthermore,

digital games can include affordances "for players to have a proper sense of the team utility of certain actions" (Zagal et al., 2006, 36).

2. *Individual accountability*. Collaborative games usually "bestow different abilities upon the players" (Zagal et al., 2006, p. 37). Collaborative games can foster individual accountability by balancing players' activities in a hidden way in order to help participants with difficulties (Padilla Zea et al., 2008).

3. *Face-to-face promotive interaction*. Communication is of particular importance to a collaborative game, as players have to coordinate their actions and strategy (Zagal et al., 2006, p. 35). Sharing their knowledge, discussing different points of view and orally teaching their own skills become essential to progress in the game (Padilla Zea et al, 2008). Moreover, digital games offer communication flexibility (Zagal et al., 2006, 35) and this allows them to support conflict resolution and group decision-making in ways that might be superior to face-to-face discussions (Nuñez, Aguero, & Olivares, 1998).

4. *Social skills*. Collaborative games also bestow different responsibilities upon the players (Zagal et al., 2006, p. 37). Players of collaborative games must organize their tasks and make decisions that help them show, by instance, their leadership and conciliation abilities (Padilla Zea et al., 2008).

5. *Group processing* (Self-analysis of the group). A group analysis of the gaming session allows examining the effectiveness of each player's contribution and how targets are being achieved. This could be a useful way to enforce an individual player's abilities and enhance the group commitment to common targets (Padilla Zea et al., 2008). A study conducted by Usart and colleagues (2011) reported that dyads playing collaborative games incorporating knowledge group awareness tools were effective in encouraging out-of-game conversations among players. Furthermore, group discussion on individual feelings of knowledge increased feeling

of another's' knowledge (2011, p.33) which can be a useful way to overcome stereotyping and prejudice in multicultural education environments (Johnson & Johnson, 1999).

Table 2:   *Affordances of collaborative games in relation to cooperative learning components*

5 components	*Affordances in Collaborative Games*
Positive interdependence	All participants work together as a team Players share the play-offs and outcomes Affords team unity
Individual accountability	Bestow different abilities upon players
Face-to-face Promotive interaction	Players have to coordinate their actions and strategies Offer communication flexibility Support conflict resolution and group decision making
Social skills	Bestow different responsibilities upon players
Group processing	Can incorporate group awareness tools

Overcoming Cooperative Learning Practices' Barriers

Up to this point we have discussed how digital games are able to elicit the five components of collaborative learning identified by Johnson and Johnson (1998). This serves to support our claim that collaborative games have the potential to foster positive intercultural interaction. This also may serve to overcome the first barrier associated to the use of cooperative learning practices: the lack of training of teachers. Using the game as a mediating tool, teachers can promote intercultural interaction meeting the guidelines proposed by Johnson and Johnson, even when they were not specially trained on how to effectively enhance promotive interaction.

Besides this, collaborative digital games used as mediation tool to foster intercultural integration have also the potential to prevent the dangers related to the formation of 'pseudo groups', defined as groups in which members that have been assigned to work together do not have interest in doing so. To this respect, digital games may incorporate small persuasive elements, called

microsuasive elements, to motivate players to engage with an experience, complete certain tasks, gain better understanding of specific material and/or stay on task longer (see Fogg, 2003). Microsuasive persuasive techniques implemented within collaborative digital games can therefore help to overcome the difficulties related to the lack of motivation of some participants (Baker & Vlark 2010).

Furthermore, in digital games players can be equally represented via their avatars. Players can control an avatar of any gender, age, race, species that do not necessarily represent their physical attributes or identity (Blascovich & Bailenson, 2012), which is a way to leave outside the gaming experience players' differences that are usually related to stereotyping, prejudice and/or racism.

The wide range of player-to-player forms of communication provide collaborative digital games with the potential to help players to overcome the difficulties associated to the lack of language competences while playing. Digital games have the potential to foster different forms of player-to-player communication that go beyond face-to-face language communication. On the top level we can differentiate between in-game communication and out-of-game communication, and both can consist of forms of communication different from language (Wiklund, 2005). On the one hand, out-of-game communication can happen while playing and/or after playing, and it may take the form of verbal communication and non-verbal communication including gestures, paralanguage and the non-verbal part of speech. On the other hand, in-game communication includes in-character and out-character communication. In-character communication occurs while players act their own characters' personality in the game, and can consist of verbal interaction with other characters, but also non-verbal interaction with other characters at the game space. Players with low language skills can make use of in and out-of-game non-verbal communication to interact with each other.

An example of how a game can foster in-game non-verbal social interaction as a way to overcome language barriers is the game *Ghost in the cave* (KTH, 2004). In this game participants are encouraged to communicate using non-verbal emotional expressions. Players, who work as a team,

control their avatars by singing or moving in front of a video camera (Rinman et al., 2004). This game explores a new form of in-game communication that illustrates how in-character non-verbal communication can be used as a form to foster social interactions among players that struggle with language barriers.

Table 3:   *Affordances of collaborative games in relation to cooperative learning components*

Barriers	Collaborative Games
Lack of teachers training	All participants work together as a team Players share the play-offs and outcomes Affords team unity
Formation of 'pseudo groups'	Implementation of microsuasive techniques to increase motivation Players equally represented in games
Language Barriers	Wide range of player-to-player forms of communication

Conclusions and Directions for Further Research

The main goal of the current study was to explore how collaborative digital games can be used to foster positive intercultural interactions by eliciting the benefits of the cooperative learning method as described by Johnson and Johnson (2002) and by helping to overcome the barriers associated to this method when applied in multicultural classrooms. The first section of the chapter provided an overview of the main challenges of culturally diverse educational settings, underpinning the importance of implementing teaching strategies that can address the problem of intercultural conflicts and foster positive interactions among pupils.

In the second section, we used the mechanisms of the intergroup contact theory to support the implementation of collaborative teaching methods in accord with the main objectives of European intercultural education (Bleszynska, 2008). Analyzing the role of the educational context through the lens of intergroup contact theory was essential to understand the importance of social interactions for enhancing intercultural competence, mitigating conflicts stirred by cultural differences, and fostering

long-term processes of language and social integration among pupils in culturally diverse educational settings.

When discussing the conditions provided by collaborative learning approaches for promoting positive intercultural interactions, Johnson and Johnson's (2002) five collaborative components were presented as the main characteristics that elicit the positive effects of collaborative practices in multicultural classrooms. The limitations of the approach were argued in terms of insufficient qualified teachers, language difficulties among pupils with diverse migrant backgrounds, and the dynamics of group collaboration. These issues have already been addressed by a number of researchers who have reported that the level of teacher's preparation, the type of task and the group's cultural diversity composition will play a major role in the efficiency of cooperative learning practices (Severiens et al., 2015; Steele, 1997; Tielman et al., 2012).

The main contribution of this paper is to propose a theoretical framework for the analysis and implementation of collaborative gaming practices for positive intercultural interaction. This theoretical framework is grounded on the cooperative learning method's benefits and barriers, and the potential of collaborative digital games to foster the former and overcome the latter. To support our claims, we discussed how collaborative digital games can promote intercultural interactions of pupils belonging to different cultures and to overcome limitations of the method. The ways in which video games support the development of collaborative behavior among players were directly related to the intercultural potential of the gaming activity. Several mechanisms of the game can be used as way to solve problems associated with the cooperative approach, and most of them have been already tested in other fields.

First, the capacity of collaborative games to promote positive interdependence was linked to common goals established for all players in the game and the inclusion of a "group life" system. Second, we have also discussed how players of collaborative games can use their unique skills to

contribute to the solutions of challenges in the game, arousing individual accountability. Third, we have reflected on the relevance of player-to-player communication within collaborative games as a key feature to achieve common goals, and how this elicits face-to-face promotive interaction. Fourth, we have discussed how the different tasks that need to be accomplished within collaborative games help players to show the value or their unique social skills, such as leadership or conciliation abilities. Finally, we have highlighted in which ways collaborative games that include knowledge group awareness tools can effectively promote group processing of the gaming session.

The main value of collaborative digital games as a tool to foster intercultural interaction, does not only lie in their capacity to promote the benefits associated to cooperative learning practices, but also on their potential to overcome the barriers associated to these practices when implemented in multicultural settings. To this respect, we have discussed that by using collaborative games as a mediating tool, teachers can promote intercultural interaction meeting the guidelines proposed by Johnson and Johnson (2002) even when they do not have specific training on this learning method, which has been referred to as one of the main barriers associated with cooperative learning. Moreover, we have discussed how collaborative digital have also the potential to prevent the negative effects that the formation of 'pseudo groups' may cause, by the use of microsuasive strategies focused on motivating players to engage with the experience and complete specific tasks within the game.

Furthermore, we have reflected on how the representation of players via their avatars within the game, may serve to leave outside the experience players' differences that are usually related to stereotyping, prejudice and/or racism. Besides this. we have also discussed how the wide range of player-to-player forms of communication provided by collaborative digital games may help players to overcome the difficulties associated to the lack of language competences while playing.

The scope of this study was limited in terms of empirical research. Further work is required to study the viability of the use of video games in multicultural educational settings. In terms of

directions for future research, further work should assess the impact of the approach in culturally diverse classrooms with students coming from at least five diverse cultural backgrounds. As addressed by previous research, high cultural diversity in classrooms increases the chances of intercultural contact, as it promotes more diversity in cooperation skills (Tielman et al., 2012). Also, equal-status interactions in terms of cultural background of the pupils playing the game should be implemented (Stefanek, 2013). The propensity of intercultural interactions is higher when both players belong to different cultures and fair equally in terms of acculturation needs. Also, it is important to carefully observe the collaborating students while playing the game. The sessions should be videotaped and notes should be taken by the researchers on their impressions of the environment and how the players behave during the game activity. Finally, the analysis of longer periods allows for investigating the evolution of interactions among pupils. At the same time, it is recommended to interview teachers involved in the task in order to have not only their perception of the collaborative process during the game activities, but also to describe their impression of their students' behavioral patterns (den Brok & Levy, 2005). Last but not least, ensuring appropriate instruction for student teachers before the gaming collaborative activities begin should be a priority for the validity and success of empirical trials.

European policies have long been emphasizing the implementation of intercultural policies to deal with cultural diversity in education, but little evidence on the effectiveness of the intercultural model has been proved. The increasing growth of multicultural societies in Europe as well as the decline of assimilation mechanisms associated with immigration discourses in various European countries are key factors that will impact the development of educational frameworks integrating a diverse range of ethnic groups. A key policy priority should therefore be to plan for the short-term implementation of innovative teaching/learning approaches to tackle the problems deriving from

cultural diversity in educational environments. Our study concludes by claiming that the use of digital

collaborative videogames has the potential to be one of these practices.

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