Collaborative Digital Games as Mediation Tool to Foster Intercultural Integration in Primary Dutch Schools

Authors

Teresa de la Hera Conde-Pumpido
T.delaHera@uu.nl
Postdoctoral researcher and lecturer at Utrecht University
Utrecht, The Netherlands

Amanda Paz Alencar
A.p.alencar@uva.nl
Marie Curie Fellow 2013-2015 and post-doc researcher at University of Amsterdam
Amsterdam, The Netherlands

In the Netherlands, the growing presence of immigrant children in schools has fueled scholarly interest in and concerns for examining the process of integration in school environments. 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 as a mediation tool in the process of knowledge acquisition. The present research proposes a new approach for the study of digital games in the field of education. Drawing from collaborative learning methods, we explore the potential of digital entertaining collaborative games to become a mediation tool in the process of integration of immigrant children with different cultural backgrounds in Dutch schools. This paper[1] reports the preliminary results of an exploratory study that sets out to evaluate the potential of digital games as a mediation tool to foster intercultural integration in educational environments.

Tags

Persuasive gaming, game-mediated persuasion, intercultural integration, collaboration with games, educational practices.

1. Introduction

In the Netherlands, the presence of students who have an immigrant background has continuously increased since 2005. In 2014, the children of immigrants represents 11% of the overall school population (OECD, 2014). The integration of immigrant children into the host cultural environment is a major function of schools in the immigration country. This is evident in the case of the Dutch educational system, in which specific measures have been designed to ensure that migrant children achieve basic qualification and that their integration is facilitated in the school environment. These include funding to secondary schools for newly arrived immigrants. At schools, migrant children experience a very different atmosphere, and this can be very difficult for parents to understand and very confusing for children who have to live in two separate worlds. Problems of adaptation, identity formation and interaction with native Dutch as well as with other migrant children and even with teachers are usually experienced at Dutch schools. Most studies in the field have only focused on the educational performance of migrant children (e.g., Traag & Velden, 2008; Ohinata & van Ours, 2012). This indicates the need to examine the role of new educational interventions for the integration of migrant children in European schools and societies. The present study is focused on the potential of entertainment collaborative digital games to foster integration of migrant children in Dutch schools.

1 This article was written within the project "Persuasive Gaming in Context. From theory-based design to validation and back" funded by the Netherlands Organization for Scientific Research (NWO). See www.persuasivegaming.nl. This study is also in collaboration with the Research Project "Television News for Promoting Interculturalism. A Novel Step towards Immigrant Integration" funded by the European Commission in the framework of Marie Curie Actions (327228-TVNPI).

In recent years, mainly with the advent of new technologies, the use of digital media tools has become an important and exciting part of education instructional and learning processes (see O'Maraa & Harris, 2014). In the framework of education and migration, digital media technology is a catalyst for the successful integration of immigrant children in European schools and societies (Nguyen, 2010). On the other hand, the use of digital games has found to be an effective tool to reinforce teaching/learning practices. Several studies conclude that by incorporating video games in the school practices, pupil's educational performance and motivation to learn is improved (see González Sánchez et al., 2007; Padilla Zea et al, 2009). However, the study of the potential of digital games in the context of education has been mainly focused on their use for knowledge acquisition and far too little attention has been paid to the ways digital games can be used in educational environments for other purposes different from acquiring knowledge.

Consequently, the current study aims to fill a gap in the literature by exploring the potential of digital games as a mediating tool in the persuasion process for attitude change in educational environments. Our study proposes the use of digital games as an alternative for fostering integration of immigrant children as well as for attenuating identity crisis/conflict among children with different nationalities in the school environment. Drawing from collaborative learning methods (Johnson and Johnson, 2004), we explore the potential of digital entertaining collaborative games to become a mediation tool in the process of integration of immigrant children with different cultural backgrounds in Dutch schools.

For this purpose we have conducted an explorative qualitative study in a Dutch integration school in which three pairs of children coming from different migrant backgrounds were asked to participate in a collaborative digital game session. In this game session players needed to collaborate in order to achieve a common objective. An entertaining collaborative digital game was used to facilitate a situation in which children forget about cultural differences and interact in a digital environment in which all of them are represented in the same way.

2. Promoting Integration in Culturally Diverse Classrooms

Success in integrating the children of immigrants is of enormous consequence for societies. The educational system plays a crucial role in this process by integrating the child into socio-cultural life of the host country and preparing children for the real world. Relevant studies suggest that schools facilitate the integration of migrant children, functioning as a doorway to host societies and the key to enter a 'new future' (Eurydice, 2004; Chomentowski, 2009; Steinbach, 2010). In the Netherlands, the growing presence of immigrant children in schools has fueled scholarly interest in and concerns for examining the factors important in shaping their educational trajectories (Asher et al., 2008; Traag & Velden, 2008). In general, several studies suggest that problems of school adjustment and sociocultural integration among immigrant children are usually associated to their different cultural background (Lenoir et al., 2008; Crul & Holdaway, 2009). During their school attendance, learning and integration difficulties may occur, as the characteristics of migrant children and their cultural background are highly varied.

In light of these considerations, it is important to highlight the role of culture in major areas of integration outlined in the initiatives launched by the Dutch government for the integration of immigrant children. Such initiatives are mainly focused on the implementation of integration or reception schools with special programs for language instruction that can facilitate learning and foster the integration process of migrant children in Dutch schools. In this process of adaptation, language and friendship are key elements for creating the sense of belonging to and make them feel part of the life and activity of the class (Dusi et al., 2015). Former research on the integration of migrant children at schools have provided empirical evidences that language and friendship are the two dimensions that color the experience of migrant children entering a new world (Suarez-Orozco & Suarez-Orozco, 2000). Similarly, Berry et al. (2006) have argued that successful integration at schools is correlated to the acquisition of linguistic-communication and socio-cultural competence.

In culturally diverse classrooms, more experienced teachers and integration activities are fundamental to promote friendship and stimulate higher grades and more participation among them. Consequently, these skills, values and objectives are associated with the intercultural outlook that should be developed among pupils. Intercultural strategies for teaching culturally diverse pupils are focused on the development of educational interventions that support cultural dialogue in order to hinder differences and protect cultural diversity, but at the same time fosters the integration of immigrant children at schools. In the Netherlands, the educational system does not provide recommendations regarding the promotion of intercultural

activities at schools, failing to address the real-life performance of pupils in multicultural classrooms (Bauman, 1999). It is up to schools to organize and implement curricular activities for intercultural education.

One of the most effective educational practices for promoting intercultural experiences among students and teachers at schools is the so-called collaborative learning. This method has gained fresh prominence among education scholars as a device for managing diversity in multicultural classrooms (see Tielman et al., 2009). In the sections that follow, it will be argued that collaborative video games as a tool for collaborative learning can help immigrant children develop the intercultural skills and competences necessary to live and function well in their daily lives in the school environment.

3. A Collaborative Approach to Intercultural Education

Although individualism and competition are usually prioritized as student–student interactive patterns in educational environments, previous research has shown that collaborative interactive patterns have several positive effects (Padilla, González & Gutiérrez, 2009, p.1251) that can benefit intercultural integration among children in educational environments. Students seem to be more positive about each other when they work cooperatively regardless of differences in ability, ethnic background, handicapped or not. Students also seem to be more effective interpersonally as a result of working cooperatively when cooperative interactive patterns are used (Johnson and Johnson, 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). As a result of collaborative interactive practices in educational environments students can learn to work together and different skills can be acquired and developed regardless of their cultural backgrounds, fostering attitudes of respect and tolerance.

Educational researchers Johnson and Johnson (1994) have identified five collaborative components that according to the authors should be encouraged when collaborative learning is promoted:

- Positive interdependence: Positive interdependence happens when collaborating students are aware that they are linked with others and that their success depends not only on their performance, but also on the performance of their partners. To put it differently, they understand that their own performance benefits not only themselves, but also their partners, and that their partners' work also benefits them. Positive interdependence is therefore related to socio-cultural competence: students participating in activities that foster positive interdependence learn that collaborating with others can report personal benefits and that an egocentric behaviour is not always beneficial. Positive interdependence has also the potential to facilitate communication among participants who need to understand other students and communicate their individual needs.
- Individual accountability: Individual accountability happens when all the players can contribute in a specific way with their personal knowledge, but also can benefit from others' personal skills. Individual accountability is therefore related to socio-cultural competence: students participating in activities that foster individual accountability are encouraged to empathize with other participants and acknowledge and value their individual skills. Positive interdependence has also the potential to facilitate communication among participants who might be interested in learning the skills they observe on their partners or ask them for help, for example.
- Face-to-face promotive interaction: This is produced when players share their knowledge, discuss different points of view, help others who are finding it difficult, etc. The benefits of face-to-face promotive interactions are related to the cognitive activities and interpersonal dynamics that only occur when players get involved in promoting each other's progress such as orally explaining how to solve problems or teaching their own skills.
- Social skills: This cooperative component is present when in collaborative sessions students are encouraged to use their social skills such as leadership, decision-making, trust-building, communication and conflict management. This component is then again strongly related to socio-cultural competence and also facilitates linguistic-communication.
- Group processing (Self-analysis of the group): According to Johnson and Johnson collaborative learning is also more effective when group self-reflection is encouraged. Students should be given the possibility to discover whether their working relationships were effective and if they were able to achieve their goals. Again, linguistic

and socio-cultural competence can be derived from learning practices in which group processing is promoted.

In light of the correlation between these five components and the acquisition of linguistic and socio-cultural competences, they have been used as guidelines to structure our exploratory study. These five components are then considered here as indicators of intercultural integration in educational environments.

4. Collaborative Video Games for Intercultural Integration

Considering the benefits of collaborative interaction for intercultural integration, the present study explores the potential of the use of collaborative digital games as a mediation tool in designed gaming sessions that aim to foster intercultural integration in educational environments. The use of a digital game in a specific context as a mediation tool to foster attitude change was coined by the game scholar Teresa de la Hera (2015) as game-mediated persuasion. The practice of game-mediated persuasion can be used, among other purposes, in a process of persuasion in which the game is used as a tool of mediation between transmitters and receivers. In this case, the game is not used to convey a specific message, but to change or reinforce specific attitudes or behaviours of players by providing an experience that fosters specific interactive patterns to achieve the attitude or behaviour pursued among participants. The persuasive potential of this practice relies on the fact that while playing the game players are not only situated as avatars in a virtual world but are also situated as human beings in a particular physical space, sometimes surrounded by other people that can or cannot be playing the game (Hung, 2007, p. 248). In this respect, game scholar Chia-Yuan Hung (2007) has found that offline interaction among players and the locally constructed and contingent factors of the context in which games are played have an important role in the process of persuasion. As well, the relationship between integration and adjustment is also moderated by the context of integration (Berry et al., 2006). The relevant dimensions and elements of the environment where integration occurs need to be considered, as they exert great influence on intergroup attitudes towards intercultural practices (Ward, 2013). Because the school environment provides the conditions for intercultural interactions among students from different migrant backgrounds, playing the game at school moderates the persuasive effects of the game on intercultural integration.

This exploratory study is based on the hypothesis that the use of collaborative video games as mediation tool in sessions in which intercultural integration is sought and fostered can facilitate verbal and non-verbal communication and social interaction among immigrant students. These social communication practices can increase players' language and socio-cultural competences, which in turn will positively rebound on their sense of belonging, fostering the process of integration. As previously stated, the five components identified by Johnson and Johnson (2004) are considered in this study as indicators of intercultural integration. The study of Padilla Zea et al (2008) has analyzed how these five collaborative components can be encouraged via collaborative digital games:

- *Positive interdependence*. Collaborative games can foster positive interdependence by:
  - Establishing a common goal for all players.
  - Including a "group life" system to achieve team accountability.
  - Establishing an evaluation process on the group rather than on each player.
  - Providing a player score and a group score.
- *Individual accountability.* Collaborative games can foster positive interdependence by balancing players' activities in a hidden way in order to help participants with difficulties.
- *Face-to-face promotive interaction.* Collaborative video games encourage players to play together to achieve their goals in the game. Interaction among players becomes then essential to progress in the game. Sharing their knowledge, discussing different points of view and orally teaching their own skills become essential to progress in the game.
- *Social skills.* Players of collaborative games must organize their tasks and make decisions that help them show their leadership and conciliation abilities.
- *Group processing* (Self-analysis of the group). A group analysis of the gaming session allows us to examine 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.

Up to this point we have discussed the theory that helps us support the claim that collaborative digital games used in designed gaming sessions in educational environments can

be an effective mediating tool in the process of persuasion. In the following sections, we present the design and results of a qualitative study that aims to be a first step to explore the potential of this practice.

5. Explorative Study Design

In this section we present the design of the study conducted with the aim of exploring the potential of designed gaming sessions in which collaborative digital games are used to foster intercultural integration in educational environments. This research is qualitative in nature and therefore it does not seek for generalizable results. Accordingly, the purpose is to serve as a preliminary step for an eventual follow-up study.

Methodology and Sampling

The methodological approach of this study is the triangulation of methods. Methodological triangulation is defined as "the use of two or more methods of data collection in the study of some aspect of human behaviour" and it is used to "attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint" (Cohen, Manion, & Morrison, 2000, p. 141) and to overcome the problem of 'method boundedness' (see Gorard and Taylor, 2004). We have combined methodological triangulation with investigator triangulation, engaging two independent investigators for data collection and interpretation (see Silverman, 1993). Investigator triangulation has been used to increase the reliability of results as the use of two or more participants has been proven to lead to more valid and reliable data (see Smith, 1975).

For this study we have used the combination of two methods: semi-structured interviews and observation during designed gaming sessions. As a methodological technique, an interview is a "flexible tool for data collection, enabling multi-sensory channels to be used: verbal, non-verbal, spoken and heard" (Cohen et al., 2000, p. 350) used for "an interchange of views between two or more people on a topic of mutual interest" for knowledge production (2000, p. 349). In this case, we conducted semi-structured interviews, i.e. "with a given agenda and open-ended questions" (2000, p. 97). Semi-structured interviews should be conducted on a 'critical case' basis, selecting participants who are in key positions and have insightful knowledge about the information that is going to be collected. We held interviews with the director of the school and the teacher of the students participating in the study. These interviews have been conducted as a first step with the objective of collecting information about the real situation of the school, present practices that are being used to foster integration and students' profiles that could be interesting for the project.

In a second stage, we conducted observation of designed gaming sessions (see Cohen et al., 2000, p. 401). The observation was direct and known by students but non-participant in nature (see Cooper and Schindler, 2001, p.375). The investigators did not intervene during the game sessions, avoiding conversations and eye contact with participants. Observational techniques were used to collect verbal and non-verbal data on the human setting and the interactional setting of the gaming sessions conducted with students. During the gaming sessions the gameplay and the conversations among players were recorded. Furthermore, both researchers present during the game sessions took notes about students' performance in the game, verbal and non-verbal communication and any other details that could be relevant for the study.

Three pairs of students were selected to participate in the gaming session. The selection of participants was done after collecting information during the interviews about their cultural background, linguistic competence in Dutch, time living in The Netherlands, social profile and school performance. Among the participants, we formed three pairs of students between 6 and 8 years old according to the following criteria: participants of pair one had good relationship in the classroom, participants of pair two had scarce relationship in the classroom and participants of pair three had a bad relationship in the classroom (See table 1). The criteria used for the selection of participants and pairs sought after the configuration of a sample that represented a variety in linguistic and social competences. As this was a qualitative research it was not the purpose of this study to look for a representative sample, as general conclusions will not be made from the results of the analysis.

Once the game sessions were finished the researchers conducted a short structured interview consisting of the following questions:

1. Did you enjoy playing the game?
2. Did you enjoy playing with your partner?
3. If you were asked to play again, would you like to play again with the same partner?

This short interview was used to triangulate its results with some of the observations of the researchers regarding the evolution of the relationships among the pairs.

Integration schools in the Netherlands

The field site was located in one of the integration schools based in the city of Amsterdam. This school was chosen because it introduces newly arrived immigrant children to the challenges of adapting to a new school system where they have to learn a new language and integrate with other pupils coming from culturally diverse backgrounds. The main goal of integration schools is to provide new immigrant children with a good understanding of Dutch language in terms of speaking, reading and writing before they engage in regular public schools. The classes in these schools are smaller (10-15 pupils), and they often have an extra-school assistant and appropriate teaching methods and books that focus on the special (language) needs of children of immigrants. They cover children between 6 and 13 years old, as these children are defined as the most critical groups when arriving in a new school environment. New immigrant children attend the integration schools on a temporary basis, which means that after a year and a half of intensive education in Dutch language they are prepared to start regular schools.

The promotion of educational practices that support intercultural integration is stimulated in integration schools. In the interviews conducted with the director of the school and the teacher of the students participating in the study, the informants provided a description of the types of activities conducted with the students and how they contribute to improve respect and mutual understanding, which is a fundamental element of knowledge and understanding of other cultures. For example, films and programs are used as a way to promote knowledge of their home country and at the same time stimulate their interesting in learning more about their classmates' culture.

Games also play a very important part in their learning process. When used in the classroom, they aim to create ways for students to collaborate with each other and help each other with their tasks during the class. Their teacher reported that when they play together, they are more motivated to speak with each other and work together. Another interesting activity is the "telling stories about their home country". This practice consists of giving immigrant children the opportunity to talk about their country of origin in their classroom and sharing their different cultural experiences with their schoolmates.

The Game

Little Big Planet 3 (Media Molecule, 2015) is a puzzle platform console game created by Media Molecule and published by Sony Computer Entertainment on multiple PlayStation platforms. The series follows the adventures of Sackboy and has a large emphasis on gameplay rather than being story-driven. The play component involves players taking control of Sackboy and navigating him through various levels. The game is suitable for those aged six and older.

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 co-operatively with other players to navigate through a level whilst collecting various "bubbles" along the way. There are also numerous co-operative 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.

The Gaming Sessions

We have conducted two hours designed gaming sessions with the three pairs of students described above. The pairs were asked to play the first level of the collaborative entertaining game Little Big Planet 3 (Media Molecule, 2015). Children were asked to play the game but did not receive any information about the objective of the study. Two researchers observed the gaming sessions without intervention.

The gaming sessions were conducted in a special room in the school and scheduled according to the school availability.

The first level of the entertaining collaborative digital game Little Big Planet 3 was used in this study because it is a tutorial level in which players are taught how to play. It follows that all participants, with or without experience playing video games in general and/or this one in particular, are given the possibility to learn how to play while playing. Furthermore the collaborative nature of this game allows encouraging the five collaborative components identified by the educational researches Johnson and Johnson (1994) in the following manner:

- Positive interdependence:

  - Little Big Planet 3 is a game in which players need to collaborate in order to pass the different levels. One of the players cannot progress alone; therefore, competitive play is pointless. The common goals

and the required collaboration lead to positive interdependence.

- Furthermore, all the players in the game are guiding a character with the same characteristics. The only thing that differentiates elements from one another is the customs they select for their particular character. This means that all players are equally represented in the game and physical or racial differences do not matter in this environment.

- Individual achievements and rewards in Little Big Planet 3 benefit all players in the game. This means that players acknowledge not only how their personal achievements can bring benefits to others, but also how sometimes they can benefit from others' achievements.

- In Little Big Planet there is also a "group life" system that helps to achieve team accountability. A single player can die at certain moment, but if other players progress in the played level, the dead player comes back to the game. There is also a number of lives that all players share, so at certain moment all of them cannot continue anymore, this means that each player needs to take care from the rest if he or she wants to continue playing.

- Individual accountability: Little Big Planet 3 is a game in which different skills are necessary to progress in the game. The game requires from analytical skills, to problem-solving capacities or good hand-eye coordination among other skills. This allows different players to shine in different moments of the game fostering individual accountability.
- Face-to-face promotive interaction: The collaborative nature of Little Big Planet 3 stimulates in a natural manner the face-to-face interaction among players. At certain moments, the players need to teach their skills to other players, reflect together on how to solve a certain problem or even share or celebrate together an achieved goal.
- Social skills: The different nature of the goals of Little Big Planet 3 encourages players to take different roles while playing. While some of them take the leadership, for example, others play more in silent or even show their ability to conciliate when problems show up.
- Group processing (Self-analysis of the group): In this case the context in which the game was played facilitated group processing after the gaming sessions. The short interviews conducted with the participants at the end of the session facilitated this reflection.

6. Results and Discussion

The analysis of the data collected during this exploratory study has been structured using the five components of collaborative learning previously discussed in the theoretical framework of this paper. Each of these components has been considered an indicator of the potential of the practice proposed in this study to foster intercultural integration. These five components are discussed in relation to the development of linguistic-communication and socio-cultural competences.

Positive interdependence

As previously stated in this paper Little Big Planet 3 is a game in which players need to collaborate in order to pass the different levels. This is also the case of the tutorial level that students were asked to play during the game sessions. As to positive interdependence, the most striking observation to emerge from data analysis is the evolution of collaborative behaviour among the three different pairs in the game. The three different couples started with different playing behaviour patterns. The first pair of students who had a good relationship in the classroom performed collaborative interaction in the beginning of the game. The second pair of students who did not have any relationship in the classroom started with an individualistic playing behaviour, without paying attention to their partner's performance in the game and trying to progress by themselves. It is important to note that this second pair was also the one with more limitations in terms of language, a factor that may have precipitated linguistic and social interaction between them. Finally, the third pair of students, who had a difficult relationship in the classroom, started the game with a competitive playing behaviour.

There is a first key moment in the game in which the attitudes of the three couples change from competitive to collaborative attitude. This is a moment when the two participants need to collaborate to pass a specific obstacle in the level. At this moment, all participants realize that they need to collaborate with their partners to progress in the game and positive interdependence arises for the first time.

We also identify a second key moment in the game and it is the one in which the participants realize that they can rescue their partners when they die in the game if they keep progressing in

an individual manner. Interestingly, this moment leads to a new change in the behaviour of the three couples; in the three cases, they shift from collaborative to individualistic playing behaviour. This is the point in the game when they seem to perceive that they do not need their partners as much as they previously thought, as they can individually progress in the game and rescue their partners in a later stage.

There is, however, a third key moment in the game that again turns the attitude of all the players. In this case, it changes from individualistic to again collaborative playing behaviour. In the three cases, the collaborative playing behaviour is maintained from this moment until the end of the session. This new change in behaviour is determined by the moment when players discover that there is a limited number of times they can die and be recovered in the game, and when this limited number of lives is reached, both players die in the game and need to start the level from the beginning. This key moment seems to foster positive interdependence again, and as previously stated, the collaborative playing behaviour is definitively settled.

Highlighted moments: Positive Interdependence	
Group 1	**Group 2**
1: Do you have an idea for that? 2: I think I understand it. We should do this together	They discover they can save each other when one of them dies. Then 1 starts playing alone and leaving 2 behind to save her later 2 starts learning from 1 by watching what she does. Finally 1 surprises 2, they start playing together and finish the level together.

Overall, the analysis of the evolution of behaviour in the three couples suggests that Little Big Planet 3 as a collaborative digital game has the potential to foster positive interdependence.

Individual accountability

There is also a specific key moment in the game in which it is possible to see how individual accountability arises in the three cases. This is a moment when different skills need to be combined to pass an obstacle. It is not obvious in the game how this obstacle needs to be passed and the three couples need to think for a while how to pass it. In this case, good problem-solving capacities are useful to overcome the obstacle. However, when the players discover how to pass the obstacle, good hand-eye coordination is also needed to achieve it. In both verbal and non-verbal communication emerging from that moment, it can be appreciated how participants recognize and value the skills of their partners and also enjoy when their partners discover and value their own skills. It is can also be observed that the pairs become more interactive at this point (i.e., they ask for help and offer help). It is notable the example of a pair who really struggled with language barriers. In this case, both players used non-verbal communication and interaction via their characters in the game in order to help each other.

Highlighted moments: Individual accountability	
Group 1	**Group 3**
2: I do not understand it. Do you see how I do it? 1: I can help you 2: This is better	2: Listen to me, listen to me, we have to do it like this 1: Can you please help me? They solve a problem together They bump fists to celebrate

Face-to-face promotive interaction

As previously stated, the collaborative nature of Little Big Planet 3 stimulates in a natural manner the interaction among players. In all the key moments described above, it can be noted how verbal and non-verbal communication increases. The participants seem to feel the need to communicate in order to solve the different challenges of the game. Again, we would like to highlight the case of group 2. In this case, it is interesting to observe the use of gestures to establish communication as a way to overcome language barriers. This factor led them to evolve from an individualistic playing behaviour to a collaborative playing behaviour.

Highlighted moments: *Face-to-face promotive interaction*	
Group 1	**Group**
1 takes 2's control, teaches 2 how to pass the obstacle, this way she draws her attention, and then gives 2 her control back and let her do it They celebrate together by touching each other and smiling	1: I am here 2: How I get there? 1: Do it like this (points the button in the control)

Social skills

It is interesting to observe the ways in which the players adopt a clear role in the game in relation to their social skills. In the three cases, for example, it is possible to see from the very beginning that there is a leader in each pair and that the other

member quickly assumes his/her secondary role. Another interesting pattern refers to the way they behave according to social conventions fostered in the school, such as apologizing when they do something wrong or being thankful when they receive help.

Highlighted moment: *Social Skills*	
Group 1	**Group 3**
When they are not able to continue together, 2 decides to kill himself, 1 passes the obstacle and he gets 2 back later At certain moment 1 starts leaving 2 continuously behind, killing him several times 2 starts crying 1 offers his control to 2 for him to play Then 2 takes the control of 1 and helps his character to save an obstacle to keep playing together They finally find the way to finish the level together	When they realize they have to play together they start helping each other from their own benefit. 2 starts teaching 1 how to do things Then 1 discovers how to do something and 2 realizes that he needs from 1. They solve together a problem 2: Well done! Thank you!

Group processing (Self-analysis of the group)

As previously explained, group processing has been fostered via short interviews conducted after the gaming sessions in which questions were focused on making participants reflect on the value of collaborating with their partners during the game. It needs to be highlighted in this section that the six participants in the study manifested their will to play again if the possibility would be given to them. The overall response to this practice was very positive. Interestingly, all the six participants manifested their desire to play again with the same partner and reported that playing in collaboration was more fun than competitive or individual play.

7. Conclusions and Directions for Further Research

After analyzing the data collected during the exploratory study presented in this paper we can conclude that the results suggest that collaborative video games might have the potential to become an effective mediation tool to foster intercultural integration in schools. As it has been discussed in the previous section, we have found in the three gaming sessions conducted for the study examples of the five components of collaboration identified by Johnson and Johnson (1994). These five components have been showed to have a direct correlation to the development of linguistic-communication and socio-cultural competences, considered in this paper as indicators of intercultural integration.

It is interesting to note that the three couples, who had completely different playing behaviours at the beginning of the session, experienced similar changes in playing behaviour throughout the session triggered by specific key moments in the game. The need of collaboration and combination of different skills in the game to pass the proposed level were the key game elements that not only fostered a collaborative attitude, but also encouraged communication among players and increased social interaction. During the sessions, it was also possible to appreciate how participants learned to value their partners' skills and learned the value of their own skills. These findings suggest that collaborative games may serve as a way to foster players to see differences between each other from a positive perspective. The positive consequences of these game interactions for integration can be illustrated by assessing the third couple's performance in the game. Both students started with a really competitive behaviour, and eventually learned to value each other's competences, which were not only appreciated via their linguistic and non-linguistic communication codes during the game, but also verbally manifested by them in the short interview after the gaming session.

Furthermore, collaborating in a digital environment in which visual communication played a main role seems to serve as a tool to overcome language barriers. It is interesting to note here how in the second gaming session of this study problems stemming from language barriers that at the beginning of the session affected their capability to express their difficulties and/or explain different mechanisms of the game, were overcame during the session by the use of other types of communication, such as interaction of characters in the digital environment.

In short, the results of the current study support the idea that game-mediated persuasion via collaborative digital games can be an effective practice to foster multicultural integration. Further research including a larger group of participants and evaluation of the evolution of the relationships beyond the gaming should

be conducted in order to evaluate the effectiveness of this practice.

Of relevance to our study was also the fact that integration schools in Amsterdam allow for a curriculum that includes activities aimed at the improvement of intercultural dialogue and mutual understanding of the culture of immigrant children attending these schools. Despite the lack of incentives by the Dutch government towards the adoption of policies to manage cultural diversity, schools receiving children with immigrant backgrounds recognize the importance of implementing innovative practices that can help students successfully negotiate their cultural differences.

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Appendix

	Students	Age	Country of origin	Time in NL	School group	School Performance (General information)
Pair 1	Boy 1	7	Greece	12 months	3-4	Regular child
	Boy 2	6	Serbia	5 months	3	Very talkative and curious, performs well at school
Pair 2	Boy 3	8	Israel/Italy	6 months	4-5	He's very smart, performs well at school, but he has lots of trouble at home, sometimes he finds it difficult to express himself.
	Boy 4	8	Egypt	6 months	4-5	He is very active, likes sports and he performs well in the activities.
Pair 3	Girl 1	8	Poland	6 months	4	She performs well at school
	Girl 2	8	Great Britain	6 months	5	No special remarks, she performs well

Edition and production

Name of the publication: eLearning Papers
ISSN: 1887-1542
Publisher: openeducation.eu
Edited by: P.A.U. Education, S.L.
Postal address: c/Muntaner 262, 3r, 08021 Barcelona (Spain)
Phone: +34 933 670 400
Email: editorialteam[at]openeducationeuropa[dot]eu
Internet: www.openeducationeuropa.eu/en/elearning_papers