Children's Rights Education via Game-based Activities: An Intervention in Kindergarten

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Abstract

This paper presents an effort for introducing children rights to preschool students transcending conventional methods. An educational intervention was designed and developed for the introduction of preschoolers to issues of survival, development, non-discrimination and protection rights through digital games. The latter were used in online sessions, due to Covid-19 constraints. Educational effectiveness was studied through qualitative analysis of interviews with children before and after the intervention, through questionnaires regarding their degree of fun, and through the projects and the comments they produced during online sessions. Results showed that, following the intervention, individual rights occupied a more central place in the children's self-awareness. All children approached the issues of rights in relation to the improvement of the quality of life and demonstrated an ethical reasoning regarding the reciprocity of social rules. Digital games mobilized children's creative thinking, dialogue and social reflection through role-playing in distant instructional scenarios. They became useful tools as an asynchronous activity for the creative expression of social messages as well as for the interaction between children and parents. This study highlights the potential of promoting a critical approach to rights-based social issues through digital games at preschool education, as well as the need for developing serious games explicitly focused on children rights education. At the same time, further research is necessary to explore and cross-reference the views of students and parents on children rights for, and through, the use of digital games.

Keywords: *children's rights, preschool education, digital games*

1   Introduction

The international movement for world peace, respect for human dignity and social development calls for formation of a common culture among states based on the language of human rights. Human Rights Education (HRE) can and should start at a young age and continue for life through formal and non-formal education [1]. Introducing children to their rights at a young age is fundamental for the creation of a society of individuals capable of defending and enforcing human rights for themselves and others in all aspects of daily life [2]. New sociological approaches promote children's active participation as an experiential exercise of their rights [3]. Rights pedagogy follows the need of kindergarten children to co-construct social meanings, starting from familiar environments, through social interactions and active participation in learning processes. The use of multiple media in the cultivation of critical thinking and free expression are forms of exercising

one's rights, which all children should experience at the beginning of their formal education. All these pedagogical approaches converge in learning through digital games.

The educational dimension of serious games has been found to be effective not only in motivating young children but also in cultivating higher skills, such as creative thinking, collaboration and problem solving as well as developing healthy socio-emotional behaviors [4-6]. Digital games as a multimodal means of information offer the opportunity for children to understand the world by coding and decoding a variety of images, symbols, sounds and words. Furthermore, it combines unique experiences with motivation for a child, like setting goals and strategies, taking control of the action, participating in the story of the game, identifying with the character and interacting with the other characters, and receiving confirmation or reward for their participation (e.g., by collecting new items or by rewarding sounds) [4]. Such activities cultivate the students' empathy skills and teach concepts in social relations [7]. Storytelling with social reflection can be enhanced when children themselves play a role in such a story. The interactive environment of the digital world not only appeals to children of this age, but provides them with many options to handle a variety of roles, social situations and symbols which are impossible to bring together in the real environment. Moreover, role play can be safely performed in the digital simulation environment, when developmentally appropriate, avoiding role appropriation and emotional trauma [8].

Despite all this, the use of digital games for rights education in preschool children has not been fully researched. This constitutes an innovation of this paper, which aims to highlight educational practices using digital games in kindergarten to introduce children to basic concepts of the rights of survival and development, non-discrimination, and protection. An educational intervention was designed and applied in kindergarten, in order to help children become aware of specific rights and able to critically deal with the content of the digital games based on rights reasoning. A three-level reasoning scale has been proposed to test children's knowledge and attitudes about children's rights by Melton [9]. Initially, preschool children understand the concept of rights as some privileges freely granted to them, due to their vulnerable age. On the next level, older children consider rights as rules formulated by some form of authority and must be followed to maintain social order. The last level goes along with the stage of autonomous morality, where social norms and behaviors follow moral principles and cannot be mastered before the individual's adulthood. The advanced understanding of rights entails abstract concepts such as "the right to freedom of speech", "the right to equal treatment" and recognizes the inherent and inalienable nature of rights from the moment a child is born [10].

On this basis, and due to the fact that in the effort reported we are concerned with a special case (teaching about children's rights at the preschool level, through digital games), which is currently under-researched in the literature, our research questions have been formulated with a focus on exploring feasibility and effectiveness of this stream of work as follows:

- RQ1. After an educational intervention in kindergarten, using digital games, do preschoolers' knowledge, attitudes, and values about children's rights to survival and development, protection and non-discrimination differ in relation to their initial perspectives?
- RQ2. How can digital games contribute to children's rights education in kindergarten?
- RQ3. Which thinking dispositions do preschoolers develop, regarding the rights of the child in a game of rights, after this intervention?

2   Background concepts and literature review

2.1   Child Rights Education (CRE)

According to Tibbits' [1] typology of modern programs, public awareness campaigns and school curricula are included in the "Values and Awareness Model." This model includes the transmission of basic knowledge about international rights documents (historical background, content, examples of infringements) and their association with universal values. The relationship of this model to social behavior commitment is not so clear according to Tibbitts [1], but it is certainly the basis for fueling awareness by putting rights issues at the center of people's interest. Furthermore, such an educational endeavor can, when lasting for long enough, cultivate critical thinking skills about human rights and offer creative experiences to students. Human rights education should start at an early age through multiple educational methods beyond typical lectures [2].

Teaching social meanings about rights in preschool requires adapting topics to children's learning levels and to their social and cultural context. A learning framework is proposed in the literature for the gradual introduction of children from kindergarten to upper secondary education [11]. At the age of 3-7 y.o., the teaching of rights aims mainly at the development of both self-esteem and empathy, for the cultivation of mutual respect between peers and the rest of humanity. At this age, the basis is laid for the development of the individual's personal responsibility in relation to the community. Through familiar examples, children can relate personal experiences to rights issues. For example, rules in the classroom and family patterns of behavior constitute the framework where they can recall previous social experiences and connect social meanings related to their own relationships with the world.

The education of children as rights holders is cultivated particularly through Children Rights Education (CRE), an integral part of Human Rights Education (HRE). Following the wider policy of HRE, CRE is based on and promoted in the Convention on the Rights of the Child (CRC) [12] and is carried out *by*, *through* and *for* these rights: it involves a gradual awareness of the rights of children as proclaimed in the CRC, applying in full its principles and provisions within a pedagogical framework that respects the rights of all stakeholders in order to cultivate skills for advocacy [13,14].

Through an analysis of CRC articles, Doek [15] argued that full implementation of the provisions of the convention aims to enhance the level of child well-being in a society. This perspective is evident in Article 2, on protection against discrimination, in Article 3, on safeguarding the best interests of the child, in Article 6, recognizing the dual aspect in the quality of life "survival and development." Finally, in Article 12, quality of life is linked to the recognition of the children's ability to have a say and act in issues related to them depending on the level of maturity. The latter was discussed, as it is an innovation of CRC where every child is recognized as a unique personality, able to affect their own life [16].

Autonomy and the right to participate have been implemented in early childhood school settings, mainly in the light of sociology of childhood and democratic citizenship movements. General well-being, increased autonomy, self-esteem, self-determination, communication skills and problem-solving skills have been positively correlated with various participatory practices: a) strengthening the voice of children as rights holders, b) creating opportunities for children to choose, use resources and co-build interactions as those responsible for their own social life, c) exercising democratic citizenship, employing the educational environment as example of a democratic society that children experience [17, 3, 18].

Education systems can be transformative through inclusive, diversity-respectful, rights-based approaches which benefit students, schoolteachers, families, government policy and beyond [14]. Previous studies [19-23] have highlighted the long-term positive impact of such a curriculum in preschool children: young students understood the nature

of their rights to fair treatment and the importance of respect for the rights of others, while children who had not been taught their rights, either recognized them not at all, or simply as freedoms or rewards. It is also reported that children 5-15 y.o. who participated in a rights-based educational program exhibited a more socially responsible behavior. A UNICEF study [21] to assess the level of well-being in Spain found it positively correlated with the introduction of CRE. In other UNICEF surveys in 26 countries, children who received CRE showed higher well-being rates.

CRE presupposes a child-friendly school [24] implementing new learning methods and teaching practices and providing equal opportunities by using inclusive and incentive means. Because there are different types and paces of learning, the teacher's role is to facilitate student participation through role-playing, democratic dialogue, small group work, games, and simulation. Parent involvement and close communication with the teachers can benefit children's education. Community is part of the pedagogical framework, so school must be open to act outside its walls and bring the outside world into the classroom. Information and Communication Technology has offered significant tools towards this goal [24].

2.2 Games for social awareness

Environmental, economic and socio-political sustainability are addressed in digital games in order to raise awareness and promote positive social change [25]. Designers have collaborated with experts and scientists from different fields of social studies [26, 27] arguing that long-term user experience may enhance the maintenance of a new social attitude [7].

Unlike traditional methods for social awareness, digital games give players the opportunity to gain real-time experience by immersing themselves in the digital world and experiencing different approaches to social situations without risks of real-life emotional rejection [26]. Digital environments allow players to try alternative routes to solve a problem with the risk of losing. Many serious and persuasive games have decision-making systems that ask players to choose the best solution based on different game perspectives. In real social life, such practices are almost impossible or dangerous and may lead to marginalization and unresolved conflicts [8]. Serious games combine fun with learning because their main goal is experiential learning, hence their effectiveness as therapeutic tools in psychological and physical health issues, too [28, 29].

Previous research for serious games with human rights at the forefront helps to identify several ones [30], mostly focusing on vulnerable refugees or the poor. Other issues include discrimination, child labor, conflict, the use of equal resources and gender issues, to encourage critical thinking on rights issues and engender social action through empathy. Development of empathy has been linked to the influence of social behavior within and through video games. Identifying with characters and their emotions can lead to cognitive consciousness of a problem [28] that affects emotional consciousness, namely the ability to experience the same feelings [31], which often causes discomfort or compassion. Empathy is thus linked to the inclination for social contribution.

The distinguishing feature of games is fun. According to Dillon [32], game fun stems from satisfying basic instincts and emotions evoked. Thus, fun is subjective and game-specific and player immersion depends on the individuals' idea of fun. Since the main purpose of these games is social reflection, entertainment elements are hard to meet, thus reducing their popularity rate [8]. Most games cast the player as the victim of a right's violation or as the defender of rights. Fun here comes from a sense of responsibility, a sense of caring satisfaction or even a sarcastic presentation of a problem [33], such as in the Smuggle Truck and Penner Game [30].

2.3 Previous educational research

No substantial corpus of empirical research in early childhood education on children's rights through digital games has been identified. Research projects in other educational contexts examine the use of digital games in developing social interest in learners. Educational endeavors for primary schools, using games in combination with physical activities, showed that learners increased social activity and interest in local urban issues [34] or in environmental sustainability issues [35] through gaming activities in mobile devices. Several studies suggested simulation games as more effective than conventional ones, on complex issues such as environmental education [36] and energy conservation [37], mostly concerning emotional commitment to social behavior, beyond developing knowledge. The ability of virtual worlds to display consequences of players' actions directly, identification, as well as the elements of emotional expressions (e.g., facial expressions of the game characters), reinforce positive attitudes of players towards social interest.

Many games have been developed with a focus on bullying behaviors, but their impact remains largely under-researched. A systematic review [38] found that most games were narrative games, role-playing games and simulations. Through different scenarios players experienced the negative effects of the entire range of bullying. Usually, players represented a character who supported the victim's rights and suggested solutions to deal with it. Research results for 6-12- and 12–16-year-olds often included students' cognitive and emotional skills and behavior change, or useful strategies for teachers. Another study on developing empathy in adolescents found that student involvement in a game concerning cyberbullying had more positive results over other traditional methods. The game incorporated AI (Artificial Intelligence) avatars, as social factors [31].

In other research efforts, specific rights issues emerged during the training on social and moral aspects, such as multicultural issues in primary education [39] or in corporate social responsibility training in higher levels of education [40-41]. Students worked in a simulation environment to present business performance strategies that could support the common good of the company and the local community. The educator's role was to represent a Non-Governmental Organization and remind students about social and environmental responsibility issues. Students' comments seemed to justify their views with reference to human rights in many cases [41]. In addition, games on transnational conflicts, implemented in peace education programs, have very often provoked students' thinking about human rights [42]. Thus, the use of digital games to raise awareness of social issues has been linked to HRE.

3 Design goals for a game-based learning research effort about rights for preschoolers

For the integration of digital play in the educational process, Prensky [43] distinguished two dimensions: the game's learning potential and its playability. To achieve game-based learning, both dimensions must be fully developed. Educational designs must properly consider learning content and usability features that facilitate players' interaction with the game itself [43].

Teaching complex social concepts regarding human rights can be supported in primary education using virtual reality games such as The Sims, Spore, Second life, Free Realms [44]. Children can assimilate different social experiences in an entertaining fashion and process issues drawn from their daily lives. The environment of these games is suitable for listening and accepting different perspectives.

Those review findings led to some guidelines for a kindergarten implementation, expressed in the following design goals:

- Definition of the cognitive content to be taught, depending on participating students' developmental level and cultural background.
- Selection of digital games with appropriate developmental specifications that support the cognitive content.
- Active participation of students in learning processes using games, via role playing, decision making and problem solving.
- Exploitation of opportunities to discuss controversies between students' views.
- Giving room to children's reflection on topics that make sense to them.
- Highlighting paths for integration of rights policy into the curriculum.

4   Games selection and assessment

Out of the above analysis and design, the games used in this research were selected primarily due to their social content (described below) and age suitability, assessed against the Pan European Game Information (PEGI) scale [45]. The games selected were also checked against usability and gameplay heuristics proposed in the literature [46]. Usability heuristics concern user interface elements that support easy and fluent interaction. Gameplay heuristics concern game interactions that facilitate playing and having fun. Both heuristics contribute to making games easy and fun to play.

Table 1 presents the evaluation findings of the three games that were finally selected for this research, namely:

1. My Town Game (https://my-town.com/game_series/my-town/)
2. The Unstoppables Game (https://theunstoppablesgame.ch/)
3. 3rd World Farmer. A thought-provoking simulation (https://3rdworldfarmer.org/)

Table 1. *Playability, usability and age suitability assessment of the games selected*

Heuristics of usability and playfulness	My Town Game	The Unstoppables	3rd World Farmer
Consistency within similar functions in the game, so user knows every button's reaction	✓	✓	✓
Feedback to inform the player	✓	✓	✓
Avoid mistakes that effects the game, no unexpected errors	✓	✓	✓
Providing assistance with symbols, sounds and texts	✓	✓	✓
Simple & clear menu	✓	✓	✓
Efficient and pleasant screen layout	✓	✓	✓
Audiovisual support	✓	✓	✓
Clear goals to motivate players	✓	✓	✓
Rewards with meaning	✓	✓	✓
Control over the player, not many unexpected events	✓	✓	✓
Balance between easy and difficult tasks and in suitable time limits for the player	✓	✓	✓
A pleasant and easy to learn interface from the start of the game	✓	✓	✓
There is a plot or roles with interest for the children	✓	✓	✓
No boring or repetitive but various tasks	✓	✓	✓
Feeling of progress over playing time, no stagnation	✓	✓	✓
Possibility of personal expression (customize game, characters)	✓		
Age suitability	PEGI 3	PEGI 3	PEGI 7

4.1   My Town Game

This simulation game is a virtual world very close to the interests and experiences of children at preschool age. There is a variation of roles and objects, and every avatar can be personalized by its user's will in choosing age, hair, clothes, emotion and style. Two separate editions of this series of games were selected. The first one was My Town Home Dollhouse: Family Playhouse (Windows edition). In this game users can explore and operate in a simulated house, such as opening cabinets, climbing stairs, eating, cooking, playing the guitar, planting flowers etc. The second was My Town: Play & Discover Pretend Play Kids Game (android), where children can visit different places in a town such as stores, museums, schools, a family house, and sports fields. As time passes during play, a new store or other building is unlocked and available to visit. Players also collect points in the form of little hearts that are hidden in different spots. Various mini tasks are implemented in each environment. Available routes are indicated by arrows. Children's activities focused on role-playing and co-creating short stories. The educational objective was for them to experience scenarios where their desires, needs and obligations are addressed in relation to their rights.

Figure 1. *Selected scenes from My Town Game. Up left: Home Dollhouse. Up right: Family Playhouse Game. Down: Play & Discover Pretend Play Kids Game*

4.2 The Unstoppables

This game runs on android devices and is a role-playing game with a plot. It is particularly suitable for discussing issues related to diversity and equality because of the game's unique storyline. A group of 4 friends embark on an adventure to rescue a blind girl's dog from a kidnapper. Each member has special difficulties and abilities. The game has four tracks with difficulty gradation and a variety of activities. To complete each mission, all the heroes must stay together by helping and complementing each other. The children's activity aims to take the role of one of the heroes, be responsible and choose a strategy while considering everyone's difficulties and abilities.

Figure 2. *Selected scenes from The Unstoppables game*

4.3   3rd World Farmer. A thought-provoking simulation

This online game is a simulation of a family farm in a third world country. Its subject is a family's struggle for survival in the face of poverty. The goal is for the rural family to survive and develop the farm. The user selects items from a list to buy for the family and to place it in the farm. The list provides various options that meet basic needs of food, infrastructure, communication, health conditions or agricultural tools. When one selects a player character, information is displayed about its position in the family, its age, level of education, its state of health and its capacity to work on the farm. In times of impoverishment, there is an option for someone to leave the farm and work in a distant area, in exchange for an advance payment. Scenarios of financial hardship, bad health conditions and political events appear. The user's choices are crucial to the farmers' family life. This game was chosen to provoke group discussion and reflection on the value and interconnectivity of rights. The children's activity was to take responsibility and make decisions.

Figure 3. *Selected scene from the 3ʳᵈ World Farmer simulation*

5   Research design and methods used

This qualitative research aimed to indicate useful educational practices that digital games promote during CRE program for preschoolers. For this purpose, a game-based intervention was implemented and studied, focusing on children's perspectives variation of their rights and their gaming experience during activities. Considering the possibility of Covid-19 effects suspending physical teaching classes, a distance learning program was designed.

5.1   Participants

A kindergarten class of an Athens, Greece public school, where the first author had been teaching, was the research sample, comprising 12 participants (6 boys, 6 girls) between 4.5 (2 boys, 1 girl) and 5.5 (4 boys, 5 girls) y.o. Surveying family demographics showed that both parents of these children were employed, most of them had a high level of education and high digital skills. None of the children had extensive gaming experience. Their previous digital experience was mainly watching videos and children's movies in their free time. Because of some parents' concerns about gaming activities, it was agreed that a time limit of 30 minutes would be respected in research interventions.

Both parents and children were informed about their contribution to the educational research and parents provided their signed consent. Before engaging in interviews (see below), children were asked if they wanted to help the teacher understand how they felt about their lives at home and about school activities, and they agreed to help and give honest and thoughtful answers. The research effort occurred during physical class lockdown due to Covid-19, thus children participated online with parental approval. The teacher communicated with parents regularly, to provide instructions for implementation of the program. All children were connected to the virtual class from their homes using their parents' devices. For every participating child, either a parent or a caregiver was present during the online sessions to provide technical support.

5.2 Data collection tools and methods

Data collection was realized through semi-structured interviews of children before and after the intervention; questionnaires for evaluating gaming activities by children; and works and comments provided by the children themselves.

Children answered general rights questions in the interviews. They also discussed examples of child-hero rights negotiations. Content analysis of children's responses before and after the intervention was done using previous research models to assess young children's rights understanding [9, 47-49]. The children's answers to each question were initially categorized and their responses were classified into the categories that emerged.
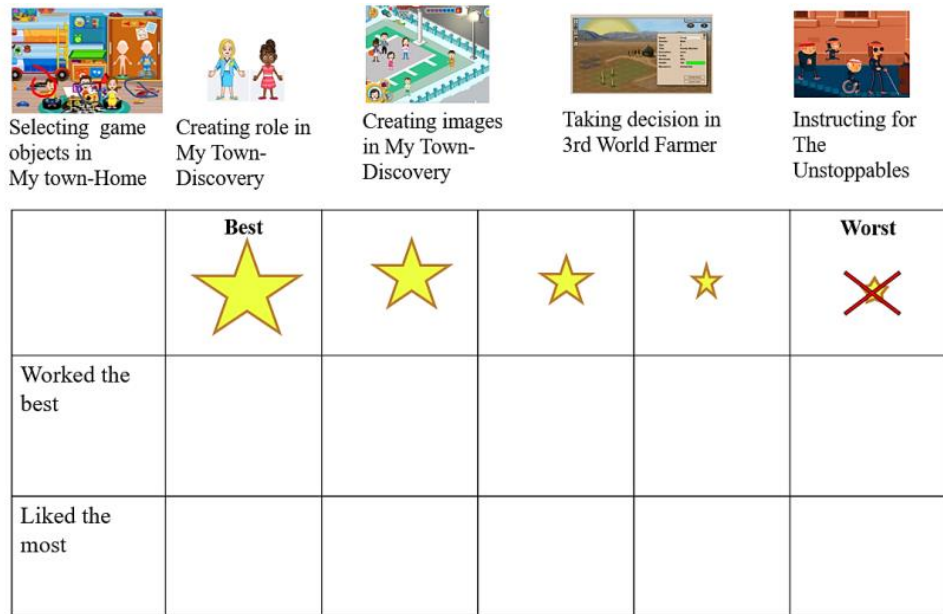
Questionnaires were used to record children's preference for different games and different digital activities implemented during the educational program. A combination of three questionnaires was selected from Read's Fun Toolkit [50, 51] for young children, comprising the Smileyometer (Figure 4), Fun Sorter (Figure 5) and Again Again Table (Figure 7) tools. Read's Fun Toolkit [50], provides valid questionnaires for children's own evaluation of innovative technologies, which respect participants' voice, do not require advanced language skills, and are fair, quick, and fun for children to complete.

Children completed a Smileyometer instance at the end of each activity. The questionnaire consisted of five pictures in a horizontal row representing the degree of fun on a five-point Likert scale.

How fun was it?

Awful · Not very good · Good · Really good · Brilliant

Figure 4. *Smileyometer ratings of Fun*

In the Fun Sorter Table, children freely placed five images of game activities in two rows of a table (Figures 5-6), in order of preference from best to worst. In the first row, children arranged activities in terms of how they worked for them; in the second row, in terms of how much they liked them.

Selecting game objects in My town-Home	Creating role in My Town-Discovery	Creating images in My Town-Discovery	Taking decision in 3rd World Farmer	Instructing for The Unstoppables

	Best				**Worst**
	★	★	★	★	✕
Worked the best					
Liked the most					

Figure 5. *Fun Sorter Table and images of game activities*

Figure 6. *Students arranged images of game activities in two rows to complete the Fun Sorter Table*

The Again Again Table was a double-entry table where children's willingness to play the games again was encoded. The first column contained game images and the first row degrees of willingness to play again (Figure 7). The teacher asked for each game: "*Would you like to play it again? Yes, maybe or no?*"

Figure 7. *Again Again Table with images of the gaming activities used*

Students' verbal expressions and screenshots of their gameplay were collected and analyzed, also focusing on their expressed emotions and thoughts towards their engagement and child rights issues.
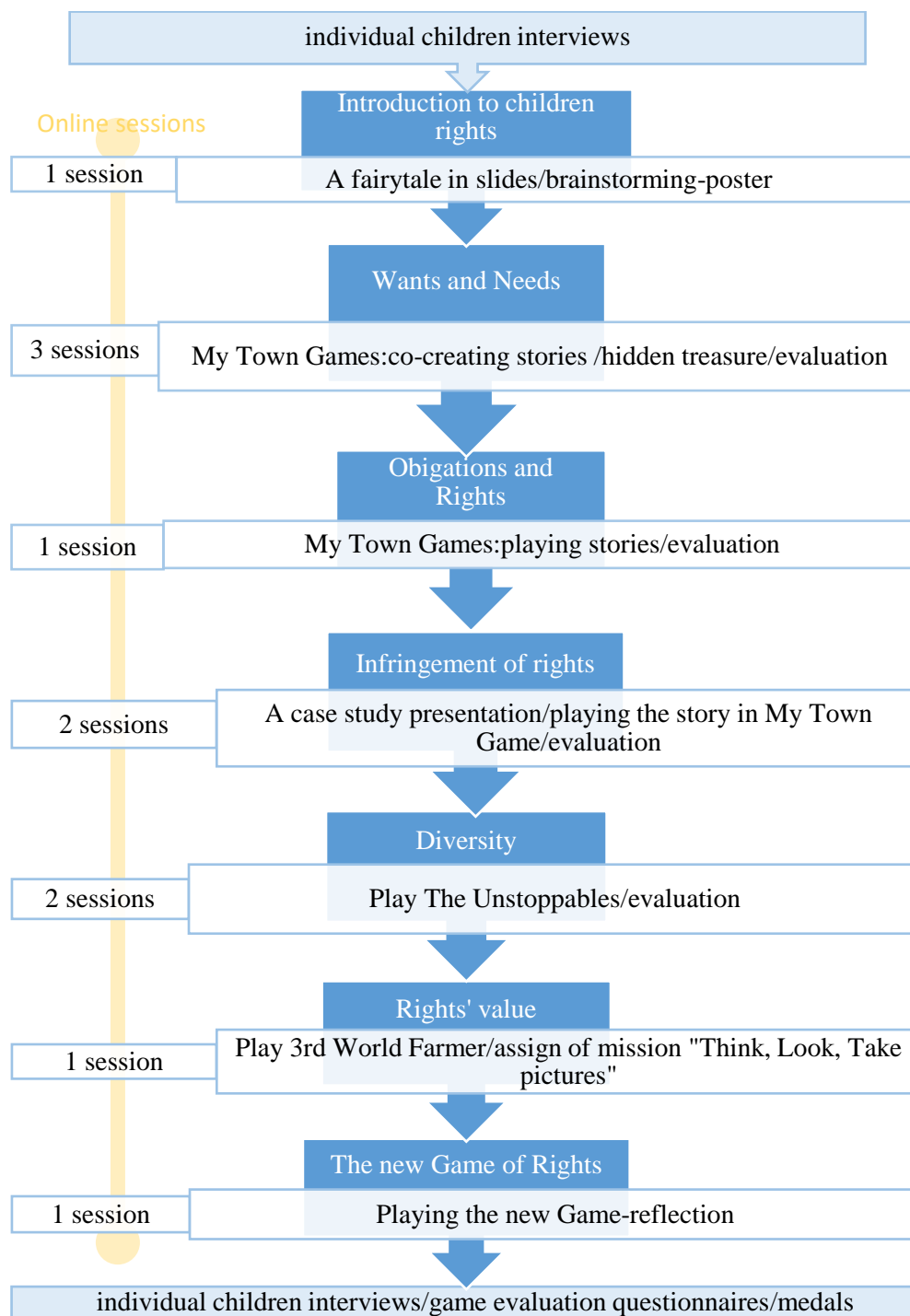
6 Research Implementation

6.1 Overall research process

As the research effort started before Covid-19 physical classes lockdown, students had been free playing the games My Town for two weeks when they were still at school during October 2020. They practiced playing the game and taking screenshots using a tablet, in groups of 3 children each. All students were excited by the first experience with the game, as shown by individual interviews that took place at school. The distance learning processes started in November 2020. In virtual classes, students completed the Smileyometer. Upon returning to physical classes, in January 2021, students completed the Fun Sorter and Again Again Tables and were re-interviewed.

The whole intervention comprised 11 online sessions through Webex meetings (Figure 8). Each online session contained one or two 30-minute activities with a 20-minute break. Another 15 minutes were usually needed for the evaluation by the children. Sessions were held once or twice a week.

individual children interviews

Online sessions

Introduction to children rights

1 session | A fairytale in slides/brainstorming-poster

Wants and Needs

3 sessions | My Town Games:co-creating stories /hidden treasure/evaluation

Obigations and Rights

1 session | My Town Games:playing stories/evaluation

Infringement of rights

2 sessions | A case study presentation/playing the story in My Town Game/evaluation

Diversity

2 sessions | Play The Unstoppables/evaluation

Rights' value

1 session | Play 3rd World Farmer/assign of mission "Think, Look, Take pictures"

The new Game of Rights

1 session | Playing the new Game-reflection

individual children interviews/game evaluation questionnaires/medals

Figure 8. *Overall structure of the research intervention and games used*

6.2   Game-based learning activities

The subject of rights was initially introduced to the class through a fairytale. Students submitted their ideas, made a poster in teamwork and the rights issue was dealt with in five modules. No children's rights-themed games were found, so social content games were chosen to teach relevant concepts. Each game was used in a different way.

In the first module students faced their wants and needs in relation to their rights. The teacher shared her screen while running the game My Town: Home DollHouse. She started acting out a story, encouraging children to continue the story, by taking a role. One story was about a joyous day of a happy family. The students narrated moments of the

characters doing what they liked. The teacher played the game following the students' instructions according to their narratives. Another activity was the game of Hidden Treasure. Each student held a game object as a secret wish and guided the others to guess what it was. Students drew on the screen and circled their hidden desires to reveal them. Another story was about a little boy placed under the protection of a family. Every student took the role of a family member and catered for one basic need of the poor child. Students had again to instruct the teacher how to play the game and drew on the screen to highlight the real needs. By gathering these icons, two separate collections were formed for the wants and needs of children.

In the second module the concept of obligation was approached regarding rights. My Town: Home DollHouse was shared again, for students to co-create short stories. Every short story was about what happens when someone forgets an obligation (Figure 9).

Figure 9. *Screenshots of the stories "A happy day" (up) and "obligations" (down)*

In this module each student used the My Town: Play & Discover Pretend Play Kids Game on their own mobile device. Students created storytelling scenes and took screenshots to contribute to a group slide show (see Figure 10).

Figure 10. *Screenshots of students' play on their own devices, on the theme of every right leading to an obligation*

The third module dealt with the violation of the child's rights. A case study on child abuse, Shiva's Story, was at first presented in a slide show. After that, students created the same story's scenes, by playing My Town Game on their own device at home. They took screenshots to complement a new "Shiva's story" presentation (Figure 11).

Figure 11. *Slides of "Shiva's Story" with screenshots of students' play and their comments*

The fourth module dealt with issues of diversity and was supported by The Unstoppables game. It started with the presentation of the four heroes' special difficulties and abilities. The Unstoppables game environment was shared, and students had to select which character the teacher should play every time under their instructions. They had to work together to find the solution in each mission and assign it to a player according to each one's special abilities.

The concluded fifth module focused on the value and interconnectedness of rights. The 3rd World Farmer simulation brought up these matters through the game of survival that the characters needed to play. Students had to take various aspects (food supplies, state of health, education etc.) into account to decide on how to improve family life (buy medication, go to school, grow food, or raise animals, build a water well, send a family member in town to work, rent their field to store chemicals for a fee or rent their field to military installations).

Next, each student took part in a mission called "Think, Look, Take pictures" for creating a new game of rights. Every student had to take photos of something related to one right. Their photos were collected and grouped in cards for a new tabletop game. About 6 cards were collected for each right.

The new Game of Rights was created and played by the group of students in the last session of the module, as a reflection activity. The game was about a child-hero who runs on rough terrain to collect diamonds (Figure 12). Each player rolled some dice at home. The child-hero advanced as many steps as the number on the dice.
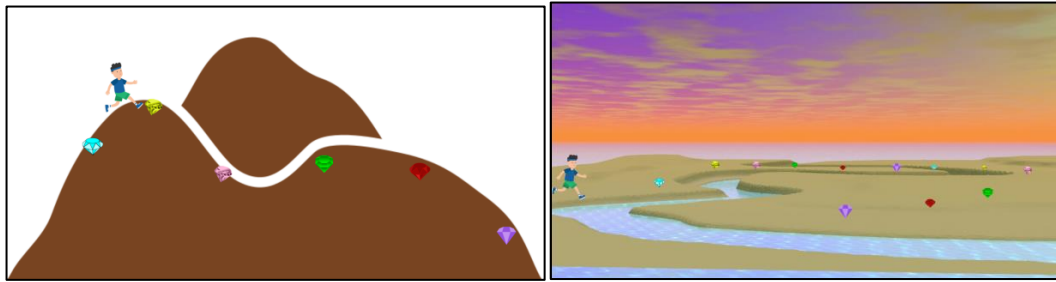
Figure 12. *Slides of The new tabletop Game of Rights: first (left) and second (right) round*

On each diamond the hero stood, a linked slide was opened with the set of cards of one right. For example, the first diamond was linked to the right of Health slide (see Figure 13). The player then had to choose a card and justify their choice.
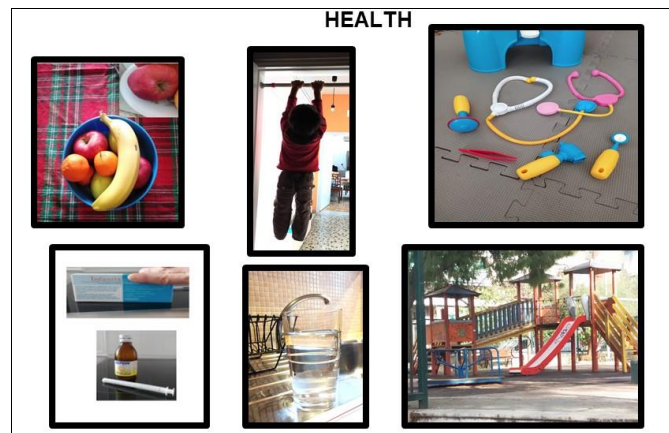
Figure 13. *The slide with cards for the right to health*

This game activity was structured in two rounds. The goal was to get all the cards and the game ended when all presentation slides were empty. For every card, the player won one red heart, noted in a publicly visible table (Figure 14).

♥	HEALTH	CLEAN ENVIRONMENT	EDUCATION	INFORMATION-COMMUNICATION	FREE EXPRESSION	PROTECT-CARE
Student M.G			♥		♥	♥ ♥
Student P.M	♥				♥	
Student A.D						♥
Student D.KO	♥		♥			♥ ♥
Student D.KA			♥	♥ ♥	♥	
Student A.T	♥	♥		♥ ♥		
Student L.D						♥
Student A.S	♥ ♥ ♥		♥ ♥			
Student P.M		♥ ♥ ♥				
Student G.K		♥		♥ ♥		
Student Z.P		♥			♥ ♥	

Figure 14. *Table of students' won hearts for every right*

At the end, students counted their hearts and saw which right each child was to get a medal for. Medals were created by the students themselves; every student created their own medal and wore it when children returned to school.

7   Results of the research intervention

7.1   Children's perspectives about rights

Interviews were conducted to examine variation in children's views on their rights and to answer RQ1:

"*After an educational intervention in kindergarten, using digital games, do preschoolers' knowledge, attitudes and values about children's rights to survival and development, protection and non-discrimination differ in relation to their initial perspectives?*"

The most common student answers are reported herein.

As for what a right is, before the intervention 10 children answered "don' know." The verbal skills of children of this age certainly limit the formulation of such a difficult term. However, after the intervention, 8 children tried to describe it in various ways. Five used specific examples of rights: "*the right to play*" or "*clean water*". The most descriptive answers were focused on physical and emotional consequences for them: "*to be able to stay somewhere and not be kicked out*". But there were also cases that concerned the consequences of their own actions in relation to others: "*rights are all good things for us ... good deeds, good food*", "*when I can do something, and no one forbids me*".

When questioned "*who has rights*" students did not respond or report some specific persons before the intervention. After the intervention, 10 children mentioned universality: "*all people*" or "*all children of the world*".

Before the intervention, students cited rights mainly as examples of recreation and creative expression. Their answers showed that the concept of rights was determined according to their wishes and habits. After the intervention, they brought more types of rights in their answers. The rights in care and protection, in education and in freedom of choice and expression were added: "*to say one's opinion*". Some children also mentioned their obligations: "*to arrange one's toys*".

As for the value of the rights of the child, in the beginning, most students did not say anything or answered, "*because that's the way it is*". After the intervention, the importance of rights for all children was linked to emotional security, protection, and one's well-being: "*they are important for children to be able to live*", "*so they will not be upset*", "*children also need to do things... to run, to play, to have fun…*". The children's responses concerned both their survival and their psychological and social well-being, elements that constitute the concept of well-being in their lives [52].

When asked, "*Can someone take away some right from you*", most of the students' initial answers showed a misconception about the revocability of rights: "*Only for my own good*", "*cannot enter the house to get them*". After the intervention most students tried to explain the catholic, inherent, and irreversible nature of rights: "*Rights are invisible, no one can take them*", "*Rights are within us*", "*It is not possible. Everyone can have rights.*".

The children also discussed whether they would support a child's right to some exemplary stories. Before the intervention, the children did not fully support the child's rights in each story. They mostly used emotional terms to defend their rights and thoughts, based on the child's vulnerable age. Some change in children's attitudes towards rights emerged in post-intervention discussions. After the intervention, most children defended all the stories' child rights. The concept of obligation towards rights was brought up more frequently: "*he has to try to do his homework by himself, so he learns how to do*", "*parents must take care of him, it's their job*", "*she has to speak and say what*

she likes and they have to listen". Also, there were many responses regarding development rights as meeting basic needs: "*he needs to go to school, to grow up*", "*because she's good at painting, she has the right to choose*".

7.2 Contribution of gaming activities to children's rights education program

Children's evaluation of gaming activities and their interaction elements were analyzed to indicate how games can enhance the learning process to answer RQ2:

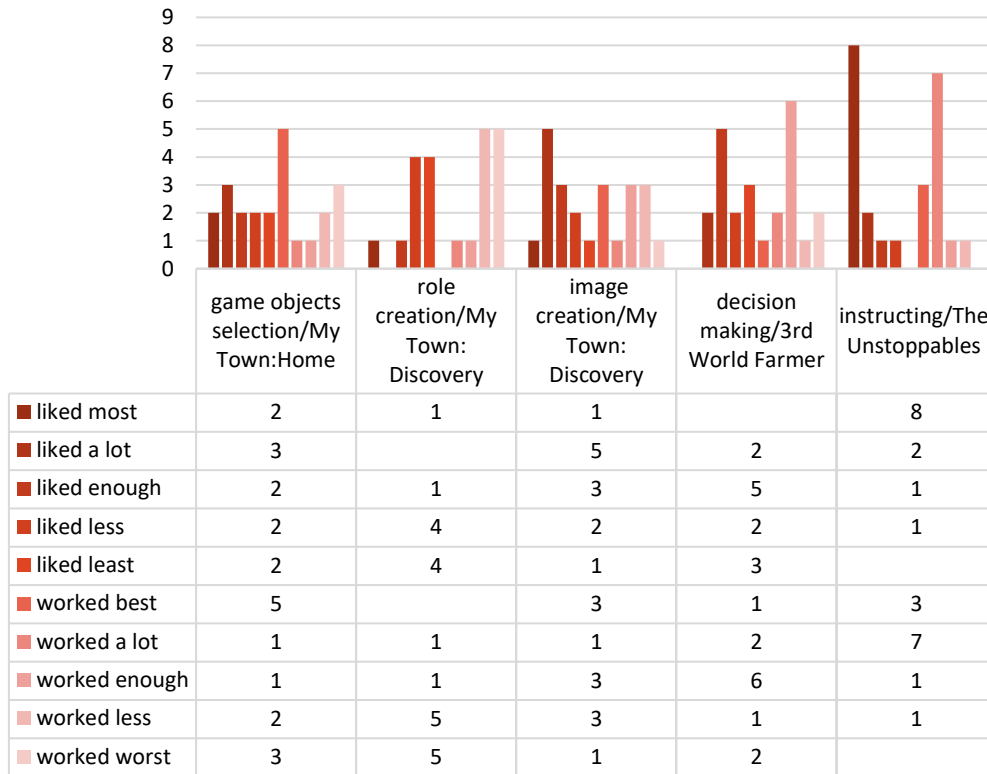"*How can digital games contribute to children's rights education in kindergarten?*"

Students noted their level of fun in Smileyometer after every gaming activity. After playing My Town: Home DollHouse in online sessions, 11 students stated that it was brilliant and one that it was very good. About playing in My Town: Discovery on their home devices, 9 students stated that it was brilliant, 2 that it was good and one that it was very good. The Unstoppables was assessed as brilliant by all 12 students. 3rd World Farmer was evaluated brilliant by 10 students, good by 1 student and not good by 1 student (Figure 15).
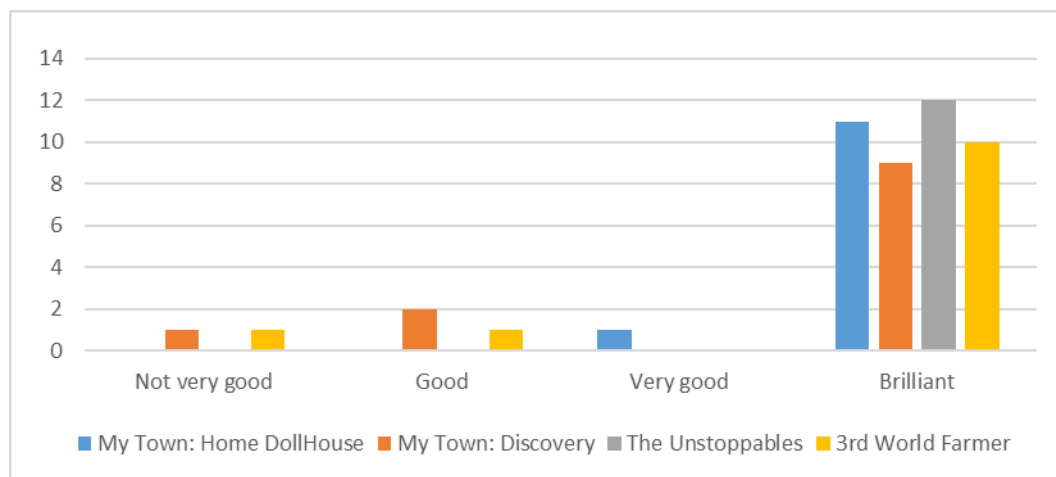
**Figure 15.** Students' fun rating of the games used

After the intervention, students also completed the Fun Sorter (Figure 7) and Again Again Tables. The completion of the tables concerned the preferences of the children among the activities in games.

The Unstoppables was the most favored activity for most students (see Figure 16). Activities in My Town Games came second, and 3rd World Farmer came last in their preferences. Selecting game objects, creating images at My Town Games, and instructing for The Unstoppables were considered better working activities by most students. Most students encountered difficulty when creating roles on their home device in My Town: Discovery. As students mentioned, "*I did not have the time to find what I wanted*" or "*I had to see the ads to get what I wanted*". Students felt they needed more time to complete their tasks.

	game objects selection/My Town:Home	role creation/My Town: Discovery	image creation/My Town: Discovery	decision making/3rd World Farmer	instructing/The Unstoppables
■ liked most	2	1	1		8
■ liked a lot	3		5	2	2
■ liked enough	2	1	3	5	1
■ liked less	2	4	2	2	1
■ liked least	2	4	1	3	
■ worked best	5		3	1	3
■ worked a lot	1	1	1	2	7
■ worked enough	1	1	3	6	1
■ worked less	2	5	3	1	1
■ worked worst	3	5	1	2	

Figure 16. *Activites liked and activities working best-worst, according to students' evaluations*

Again Again Table results (Figure 17) showed that most students would play all games again, whereas 3 students stated that they would not play 3rd World Farmer, 2 they would not play My Town: Home and 1 would not play My Town: Discovery again. Those students provided justifications encompassing "*It's a bit boring ... I would like more rooms*" (My Town-Home, Windows edition); "*It has a lot of ads and stops all the time...*" (My Town-Discovery, Android edition); and "*It's difficult*", "*It's very sad*" (3rd World Farmer).
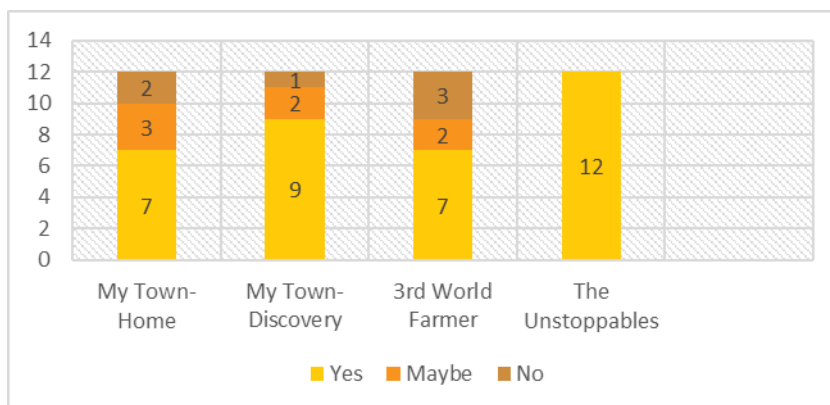
Figure 17. *Play again evaluations by students*

Verbal reactions and productions of the students were observed and highlighted their interaction with game elements. Students identified, discussed, and expressed various emotions.

In My Town Games students' freedom to navigate and select among a variety of objects motivated their exploration ("*he should go upstairs ... open the closet*"). The elements of the game's realism satisfied their curiosity and caused a feeling of joy and surprise ("*He ate it for real! Can he eat the potatoes too?*" Students also felt satisfaction when they collected points or found hidden things ("*We won something!*", "*I found another heart!*").

During online sessions, students felt time pressure to play the game and share their screenshots at the same time. Consequently, many students played the game asynchronously and shared their snapshots later in time. Also, 2 of the students did not download any game in their home device, so they took part in the session by painting activities.

Student engagement was also evident in screenshots of their gameplay in My Town: Discovery. They searched and discovered more hidden spaces. They chose game objects and created scenes according to the message they wanted to express (Figure 10). They also used the function of emotional facial expressions and shaped the faces of heroes according to the feelings they felt for them: anger for Mrs. Diana (exploiter); sadness, frustration, fear for Siva (victim). They chose heroes with different characteristics across gender, age, height, skin color, hair. They added themselves to the game scenes as fair people, personalizing the character of the game. They also noted, with the help of their parents, their own words as defenders of a child's rights. Some students also wrote a version of their own for the story they played (see Figure 11).

The Unstoppables game's plot aroused students' curiosity, feeling of suspense, exploration, satisfaction, and team spirit. The increasing level of difficulty intensified the challenge and excitement felt as they progressed. In addition, children expressed a lot of emotion for the characters and encouraging comments to the other players: "*Will they find her dog?*" or "*I love Melissa!*" and "*This is difficult... no, we will keep trying*", "*oh, we did it!*".

Children also expressed emotion in 3rd World Farmer about the heroes of the story and their own activity. They said they had a great time playing the game and explained this satisfaction due to caring and responsibility feelings that emerged: "*We helped those people*", "*I had to think*", "*It was difficult, but I did it*".

7.3 Children's thinking dispositions regarding their rights

Students discussed rights during their concluding reflection activity. Only 7 students sent in photos for the last mission, whereas 11 students played the New Game of Rights in the last session. Their photos' descriptions and comments raised important issues, showcased their preoccupation with right and helped to answer RQ3:

"Which thinking dispositions do preschoolers develop, regarding the rights of the child in a game of rights, after this intervention?"

Firstly, students that took photos developed a strategy to represent the meaning of the right through photography (Figures 18, 19). They arranged some home items to make an image and used items to create a scene or put themselves in as part of the scene. They explained: "*I am at door bar. It's very good for my health. I told my mom to take a lot of pictures of me*", "*I did not have real medical instruments, so I used my toys, it's ok, it means the right to medical treatment*".

Figure 18. *Students' photographs for the right to health*

Figure 19. *Students' photographs for the right to free expression*

They made comparisons and connections between rights. When they had to choose a rights card from a particular collection, they thought about its value and greatest usefulness: "*We definitely need the phone ... we can talk through the computer, too and do a lesson, like we do now*", "*music, doll theater and dancing are also at education and expression rights*", or "*In the playground, the children play and run, exercise is good for their health ... they need it.*" Children also described the photographs and discussed what they meant: "*she is dancing when I'm dancing, I express myself*", "*there are two dolls that are having a conversation and telling their opinion, it means the right to freely express yourself*".

Figure 20. *The slides with cards for the rights to information and communication (left), and to education (right)*

Children also linked personal experiences with rights issues: "*I have a towel with the sign of The Smile of the Child[1]. I can take a picture of it!*" or "*We have a lot of recycling bins; I have seen them!*". They also linked their personal actions with society. For the right to a clean environment, a child sent photos of a home recycle bin and a public one. Children also referred to people with special needs: "*It's a bus, it takes care of some kids with a lot of problems ... they need protection*", "*that is braille, for people who do not see the numbers, they too need to read*".

Figure 21. *The slides with cards for the rights to clean environment (left), and to protection and care (right)*

Worthy to note, at this point, the children did not stop playing the game until after they had won everything and emptied all the collections of rights cards.

8   Conclusions and discussion

8.1   Overall conclusions

This paper presented an innovative educational program to advance CRE for preschool structures, supporting that games can provide a safe environment for preschoolers to experience moral and social issues. Following previous research on increasing social awareness through gameplay, this study showed how games can teach preschoolers about their rights. Socio-cognitive theories suggest that the more rights-related social roles children experience, the more developed their thinking is [9].

Children were interviewed before and after the intervention to examine if their initial perspectives about rights were influenced. Results showed an improvement in students' knowledge about rights after the game-based intervention. Games also raised awareness about the value of rights. The participants had experienced the satisfaction of their needs and desires in families that did not face financial or social deprivation. Therefore, caregiving and freedoms were exercised regularly in their lives. After the intervention, the children explained the social condition that they had taken for granted earlier, using more expressions from the terminology of rights. Both caregiving and self-determination became more apparent in their thinking and more closely linked to the concept of obligation. Thus, there was a level of cognitive development in the concept of rights for

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[1] "The Smile of the Child" is the name of a well-established Greek NGO helping abandoned and ill-treated children.

the children of this research [8]. Gaining more knowledge about rights was the basis for students, even of this age, to attach more importance to human rights, setting the stage for a long-term behavioral influence, as argued in previous research [37].

After long-term mental processes, recognizing a right violation, respecting, and defending another human's right is an ethical attitude that goes beyond legal social function [10]. At 5–6 years old, children's ethics can range from accepting the reciprocity of specific rules in specific situations to rejecting egocentric thinking. The preschooler participants, after the intervention, mentioned more often the universality and irrevocable nature of rights. But their thinking seems to follow the interpretation of social meanings based on the regulatory power of things. They consider the ecumenical and irrevocable nature of rights, as moral rules established in society by adults. They used the terms "*I have the right to have my say, you have the right to have your say*" as a rule in the class or in the family.

Gaming activities were evaluated by children through questionnaires. To examine how digital games contributed to this rights-awareness program, comments and products of children were analyzed as well. Digital games proved to be motivating and supportive of this rights distance education program in a kindergarten classroom, after careful instructional planning. None of the games used were created to teach specific rights. Rights issues arose and were discussed, under appropriate instructional management. Students were involved in each game as a group, to promote dialogues, exchanges of views and collaborations, framing the entire program in a climate that expressed the principles of rights, promoted autonomy and equal participation for all children. Combination with traditional and physical activity, such as photography, painting, and especially conversation, were crucial. Both synchronous and asynchronous activities were necessary, so the students had their own pace and space, in their available time, to interact with the game environment on their own devices. Additionally, games offered an environment where children interacted with their parents too.

Immersion in the game environment was advanced by storytelling, role-play, identification, and emotional experiences geared to cultivating empathy. The variety of objects and symbols allowed children to create roles and scenes to express social messages when customizing images. Children faced rights issues and social roles through games, starting with familiar topics from their daily lives and then expanding to unfamiliar topics like hunger and poverty. Under appropriate instructional management, games like 3rd World Farmer, which are developmentally appropriate for older children, could be used in kindergarten. The Unstoppables and 3rd World Farmer were socially relevant games where kids were able to make decisions based on the plot and heroes. They had the opportunity to play roles, cultivate feelings for others, discuss social situations and make decisions considering their rights. In My Town games, there was no script. The kindergarten teacher's role was to raise a concern through a story so that the children were faced with a social issue related to rights.

Photography was a useful tool for involving students in creating a new tabletop game, but also to highlight their reasoning after this intervention. Students commented on their photos, showing how they thought about their rights. As was observed, children were able to make comparisons and connections between the different rights, analyze the meaning of every photograph in relation to a specific right, indicate the purpose of every item in the photograph and pay attention to individual and collective responsibility alike.

8.2   Limitations and suggestions for future research

This research comprises a small-scale study for the use of games in a kindergarten class on certain rights issues. The results cannot be generalized, but still showcase some useful and innovative pedagogical opportunities for introduction of CRE in preschool education. With adjustments, these opportunities could be used in older primary school classes to

prevent bullying or to raise children's awareness of global problems such as poverty, hunger, and refugee flows.

Due to shortage of previous research in preschool education, this project was based mostly in theory or similar research at higher levels of education. In addition, the intervention took place under Covid-19 ripple effects that forced physical classes to close. Since young children were unfamiliar with online navigation, the remote research intervention relied on parental contribution. As time constraints prevented parents from supporting their children, whereas teleworking and mandatory parental inclusion strained their schedules, many children took virtual classes with grandmothers or other caregivers.

Unfortunately, time did not allow for children interviews after every gaming experience to collect more data. Future research, in this respect, could investigate the "fun type" of students. There were also restrictions, due to distance, in observing children at their gaming time. Due to their young age, children's opinions should be examined from multiple angles. Future research could explore, in this respect, students' and parents' views about child rights and digital game use. Additionally, according to previous research [48], family background affects children's rights attitudes. Therefore, to better understand children's attitudes, future research could encompass control activities after a long time to see if children continue to adhere to their shifted attitudes.

In terms of associating students' preferences to specific game mechanics and dynamics, the research reported has allowed to identify a few circumstantial examples, on mechanics of searching, exploring, and collecting, and dynamics of helping the game hero out of a difficult situation. Still, due to the focus of the games used and the overall instructional scenario on reflective rather than reflexive gameplay, and our own emphasis on the emotions and reflections of children players, we have not embarked on a more complete analysis of specific game mechanics and dynamics that may significantly contribute to the players' positive experience. Future work on such analyses could reveal additional findings for designing CRE-focused games. At the same time, as regards analysis of student feedback, which in the intervention reported took the form of works, oral productions, and comments during gameplay, our main concern has been to explore correspondences to emotions incurred and to interest about specific rights. Here again, future work on a fully-fledged content analysis and category encoding effort in similar interventions has the potential to reveal additional insights for game design.

As our findings have shown, digital games, whether serious or for fun, can offer valuable tools in an education for knowledge, attitudes, and human values, as well as in the training of formative orientation [13]. There are many digital games that are developed in such a spirit [30], but there seems to be a need for the development of rights-specific serious games, aimed at preschool children. Such an effort could take stock of the design and findings of the research reported in this paper.

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