Masters of Arts in Education Action Research
Papers

Education

12-2020

Minecraft and Montessori: Connecting In-class and Remote Students During COVID-19 Restrictions

Dawn Lessoway

Minecraft and Montessori: Connecting In-class and Remote Students During COVID-19
Restrictions

Submitted on December 14, 2020

in fulfillment of final requirements for the MAED degree

Dawn Lessoway

Saint Catherine University

St. Paul, Minnesota

Advisor _____   Date _____

Acknowledgements

"Remember to surface, endeavor to dive" Veda Hille

Abstract

The purpose of this study was to find out whether playing Minecraft: Education Edition would help in-class and remote students make personal connections. This action research project took place in a Grade 3, 4 and 5 public Montessori school during the COVID-19 pandemic of 2020. Of the 23 students, 14 were present in the classroom, while nine others were transitional learners with separate online teachers. Students were asked to reflect on their interactions with other players through interviews, journals and surveys. Parents participated by completing a pre-and post-survey. Students reported an increase in friends and acquaintances matching quantitative data collected by the teacher. Remote learners did not make as many connections as in-class students, likely due to technical difficulties with software and scheduling differences. Implications around the game's colonial mission, racial and gender bias as well as environmental sustainability, need further research.

Keywords: Minecraft: Education Edition, pro-social, remote learners, Montessori, prepared environment, prepared guide

"Your mute button is on" is a statement that most elementary teachers in the year 2020 probably never want to hear themselves say again. Trying to connect with students over the internet using programs such as Zoom while fending off fears around the pandemic was an exhausting but essential process. This digital distancing felt impersonal, inefficient, and was not what many teachers felt they had 'signed up for.' Face-to-face contact was determined to be so vital to children's mental and physical well-being that the British Columbia government set school openings as a priority for September 2020 (Province of British Columbia, 2020). Our Provincial Health Officer, Dr. Bonnie Henry, stated many times that the unintended aspects of shutting down schools could have lifelong repercussions (Nair, 2020).

Despite school districts opening across the province September 2020, only 60% of my students returned at the opening of the school year. The rest of my students joined a remote-learning program that offered three return dates within the school year. Given that nine of my students were still learning at home, I wanted to know the best ways to connect to these physically distanced learners. Feeling comfortable in a school setting and having friends is a necessary foundation piece when striving for higher-level thinking (Belson, 2018).

I wanted a platform to foster connections between students, thus prompting the question of whether or not using the digital game of Minecraft would bring students together for a shared experience through collaborative project creation. I wondered if barriers could be broken down by playing in a digital world. In order to set about testing this action research question, I set up a pro-social environment using Minecraft: Education Edition for in-class and at-home play in group sessions.

This study was conducted in a class of 23 students, nine of whom were remote learners. This public-school classroom consisted of grade 3, 4 and 5 students, following the Montessori multiage philosophy. Extended family groupings in Montessori schools support natural leadership opportunities and foster independence. Another important aspect of a Montessori classroom is a well-prepared environment and use of specialized materials. Students are encouraged to share their skills and help other students while the teacher is working with small groups. Natural relationships are often formed between students when working side by side, but this was impossible when some students were not physically present.

The students in this classroom were chosen through a randomized lottery system and come from either mixed-heritage or non-white families. Fifteen of the students had or were attending English Language Learner classes with languages at home ranging from Mandarin, Cantonese, Urdu and Arabic. While most students had known each other since Kindergarten, two students were new to the school, and ten were new to the classroom. The other students had been in my classroom already for one or two years. Three students had documented learning disabilities or other special needs testing including Autism. Other needs in my classroom included speech and language difficulties, counselling and other unlabeled areas of concern. Due to the varied nature of my student's needs, and their various locations, I wanted to find a way to help students connect to each other that was inclusive, interesting, and just challenging enough to require help from their peers.

Theoretical Framework

Montessori philosophy is the foundation upon which all of my pedagogical decisions and actions are based. The child's greater purpose and role in community is

inspired and guided by Montessori's well-defined vision of inclusion and natural interaction between all children. The prepared environment (Lillard, 1996) is one of the principles of the Montessori philosophy wherein students become self-actualized learners within the natural boundaries of a well-organized physical classroom with a focus on hands-on materials with layers of mastery. As such, the teacher is no longer the constrainer of behaviour, it is the environment and the built-in control of error in the materials that guides the child (Lillard, 1996). Montessori's planes of development states that children aged 6-12 have not only developed the ability to think abstractly but are more socially minded than their younger counterparts and therefore very interested in the human cultural world around them (Lillard, 1996). Montessori's great lessons are presented as stories that not only teach about ancient cultural discoveries but encourage the child to understand that they too have a role in this human discovery process as part of their cosmic task (Lillard, 1996).

This paper will also include the framework of gamification as a concept that meshes well with Montessori philosophy including immediate feedback (control of error), fun (cosmic task), scaffolded learning (child-driven), mastery, progress indicators (material mastery in Montessori), social connection and player control (child-centered learning), intrinsic learning, and identity exploration through avatars (cosmic task and freedom of movement). If an environment is well organized and children are allowed to move freely within this space with care and attention to the spaces around them, then natural bonding can occur between children who are eager to watch each other's work with materials and often, help with concepts or suggestions. The focus of this paper is to find ways to increase affinity between students in order to build a stronger community.

According to Montessori philosophy, the teacher is less of an explicit instructor but more of a guide and through the teacher's work to prepare a positive working space, children will be able to learn about each other naturally through movement and exploration of ideas (Lillard, 1996).

After being separated for many months due to Covid-19 restrictions or as new members to the classroom, I was looking for ways to help bring students together as a cohesive community by creating a prepared environment that involved students interacting while having fun. Involving students from previous years as role models and student leaders was a key component in further creating connections. In the attempt to create a truly inclusive environment, I included recent learnings in anti-bias and anti-racist education from course work as well as an awareness of colonial actions with an eye to sustainable environmental decisions.

Review of Literature

Humans are social creatures. Early hominids may well not have survived the harsh environments of nature's bitter chill and dangerous predators had these soft-skinned, clawless upright creatures not had three gifts: the hand, the heart and the mind (Dorer, 2016). Walking upright allowed Homo Habilis to carry their young to the best sources of food while allowing them to stay together to scare away predators (Dorer, 2016). Humans still rely on each other to meet their needs, connecting to each other through empathy and perspective taking. A much-repeated refrain during the British Columbia 2020 Covid-19 pandemic self-isolation period by the Dr. Henry, Provincial Health Officer for British Columbia, was "Be kind, be calm, and be safe" (Llana, 2020) along with the well-repeated refrain of "We're all in this together" (Pelley, 2020).

The students who are required to stay at home during this pandemic are likely not feeling the same sense of togetherness (Rising, 2020). Children longing for recess, gym, and their friends are experiencing a sense of loss, as evidenced in their messages to me, their teacher. Prior to Covid-19 isolation, our classroom had a sense of flow and routine based on intrinsic motivation, student leadership and meaningful community projects that ultimately led to demonstrating empathy for others. Maintaining this sense of community or re-establishing the connection once back in the classroom is the focus of this literature review with the aim of considering both in-person, as well as online interactions. The literature will show that students who have built a natural affinity with each other by working towards a common purpose will become role-models for new students, thus building an empathetic community. It is the purpose of this literature review to look at different philosophies and methods that encourage teamwork and perspective-taking to encourage self-actualization. The topics will include a review of the importance of peer connectedness and how peer connectedness manifests in the Montessori or traditional physical classroom setting as well as in a digital setting. Following this, an examination of ways to strengthen community through both philosophical and methodological methods in order to discover the efficacy of a variety of practices during the specific context of a pandemic and extended periods of student physical isolation.

Importance of Peer Connectedness

During traumatic communal experiences, new vocabulary and systems of thinking become common, and one of these is Maslow's hierarchy of needs, modified with the words "toilet paper" written across the base of the triangle (TwoEyeHead, 2020). While making fun of the world's sudden deep desire for a vast quantity of bathroom supplies,

this revised image is indicative of our physiological and safety needs, after which the need for social and belonging is ranked third. Only after all these needs are met can higher-level thinking and learning begin to happen, and even now, schools are acting to support students in the recognition that hunger and fatigue can no longer be ignored (Belson, 2018). Schools re-openings were forced to take into account the importance of Maslow's hierarchy and focus on relationship needs. In an article by Rising describing the various stages of a disaster, the last stage is known as the reconstruction phase (SAMHSA, 2020) when people will feel the need to rebuild. Schools will be a major centre of this reconnection, backed by Aldridge's (2016) work in the area of school climate, which states that students learn resilience when surrounded by a supportive community.

Like Maslow, Maria Montessori also identified the different needs of the child but was able to elaborate on each state from an emotional and physical developmental perspective called The Planes of Development that spread from birth to adulthood (Lillard, 1996; Montessori, 2007). Montessori recognized that the second plane, a stage called childhood, from age 6 to 12, is one in which the abstract mind is developed, and there is a deep desire to understand human culture (Grazzini, 2004; Lillard, 1996). This second plane is also characterized as a time for socializing with a need for moral order (Montessori, 2007; NAMC, 2007). Montessori (2007) suggested that teachers meet this need through Cosmic education, which involves the telling of stories meant to expand on the larger picture of the universe and our role as humans.

Community Presence

Manifestation of Pro-Social Montessori Community in a Classroom Setting

Some experienced Montessori teachers will tell you that they can determine a well-oiled Montessori classroom based on a thirty-minute observation. However, this gut instinct needs better defining for the non-Montessorian and should be based on two key components: the prepared teacher and the prepared environment as well described by Long's (2017) dissertation. Long (2017) listed the following as important in a school with positive community interaction; a multi-aged classroom with a low teacher to student ratio with a focus on mastery of work using hands-on materials allowing freedom of movement and choice. Philosophically, the teacher is a guide who allows self-actualization to occur through meaningful activity based on intrinsic motivation, and not teacher coercion (Long, 2017). During Long's observation (2017) of preschool-aged children, she witnessed students pass through different stages of leadership ability which included a final stage where children were able to demonstrate inhibition by stopping themselves from helping other children when it was clear that the other child would learn more by handing a problem themselves. In another setting, Montessori philosophical methods were studied by Palm (2019) in a middle school, and both trained and non-trained Montessori teachers agreed that student's negative behaviour was reduced when peer-orchestrated learning was introduced, allowing for increased student engagement and teachers who met students at their developmental level.

Manifestation of Community Presence in a Digital Community

As students have not been able to maintain a presence at a physical school, teachers have been forced to continue their teaching online. A meta-study conducted by

Stephenson (2019) noted specific characteristics as useful in the endeavor to create a digital sense of community. As in most classrooms, an atmosphere of safety needs to be established with the teacher as a role model and moderator (Stephenson, 2019). Face-to-face interaction is also essential (Stephenson, 2019), as indicated by the popularity of a previously unknown program before Covid-19 called Zoom, which allows many video participants to see each other on screens. Stephenson (2019) also presented information by Moore (2014) that indicated that smaller groups allow for more intimate conversation and a greater sense of role in the community. Stephenson (2019) concluded, however, that while most studies could verify essential aspects of an online social community, few could teach us just how to achieve this sense of community.

Methods of Community Building

Possible Philosophical Foundations to Further Strengthen Community

Finding affinity and making connections requires social skills such as empathy, resolution skills, emotional vocabulary and social negotiation techniques (McGrath, 2015). While there are many programs out there to build these skills such as Dr. Nelson's Positive Discipline or CASEL (Collaborative for Academic, Social and Emotional Learning) curriculum, McGrath attempted to make materials for Montessori classrooms based on the three-part card system. McGrath's (2015) results were inconclusive as there was difficulty finding teachers who were willing to implement these cards in their daily routines in preschool-aged classrooms.

Non-Montessori teachers also attempt to bring skills and tools into the classroom by encouraging a variety of viewpoints by eliciting responses from students in a safe environment (Parker, 2016). Parker (2016) ultimately concluded that whatever topic a

unit of study focused on, encouraging connections to the children's own lives was the most powerful way of soliciting student participation. From these two studies, it is apparent that supportive atmospheres and building language skills helps students express abstract ideas to better communicate and connect with others.

Methods and Activities to Strengthen Community

Maria Montessori (2007) believed that children aged 6-12 are very interested in the social world and want to know their role in the community. Class meetings, as proposed by Angell, are well-structured consensus-based activities that "build positive social interactions and group harmony" (2004, p.99). Angell (2004) continues further to promote the practice of democratic participation and parliamentary rules as a skill needed in later life, which necessarily includes strengthening children's empathy and reach for fairness (real or perceived) during conversations around problem-solving. Angell (2004) noted, however, that children, though able to demonstrate perspective-taking, still tended to over-rely on rule-setting.

Another method to help students with negative interactions, as proposed by Raven (2018), is restorative practices which not only help problem-solve but further build relationships through shared understanding. Raven's work (2018) was focused on creating a nurturing campus using mediators and strong relationships with teachers. Teacher-training for this program is essential and the results were successful in that students not only felt a greater sense of ownership, but academic levels increased as well (Raven, 2018).

Not all learning opportunities need to be around negative student interactions, however. Instead, encouraging a growth mindset by using the BC Core Competency

language to help students envision their own potentiality was proposed by Calman

(2017). Calman (2017) worked with high school students on real-world activities to learn

how to become leaders in the community while using the Core Competency language.

Calman (2017) determined that the core-competencies, which focus on Communication,

Thinking and Personal & Social Skills, were meant more for student self-assessment and

that there were only four specific statements geared towards leadership. Having a

common language, however, helped increase communication and goal setting amongst

students (Calman, 2017).

Establishing good communication while in the same school building is a common

issue for teachers and administrators; ensuring good communication and community

orientation in a remote learning situation is completely different, and unprecedented.

Building a pro-social community while online was the main topic of Woodbridge's

(2017) master's thesis with a specific focus on using Minecraft to determine the amount

of connection between players. Woodbridge noted that "online … social places are

important sites of community" (2017, p.5) and confirmed previous researchers' findings

that the social aspects may be the most important part of multiplayer games and a

modern-day equivalent to social gathering places (2017). Most importantly, setting up the

game of Minecraft to promote pro-social behaviours such as explicitly setting pro-social

norms and turning off violent aspects of the game allowed each player to self-determine

their role and how they wanted to contribute to the group goals (2017).

Conclusion

Transition and change of any sort are difficult for human beings; Buddhist

philosophy is founded on the notion that humans cling to permanency, and it is this desire

that causes much suffering known as dukkha ("Dukkha", 2020). Instead of avoiding change, studying the effects on humans mentally and physically to acknowledge hardship can instead lead us to building paths to resiliency and ultimately accepting change. Children need to practice flexible thinking skills, and without them, can suffer emotionally and academically when they experience multiple transitions, often reducing the efficacy of the whole classroom at the same time (LeBoeuf & Fantuzzo, 2018).

In a physical classroom setting, I believe that I have proven that Montessori philosophy provides a robust environment for students to naturally find affinity with each other and build the relationships that are so necessary to achieve self-actualization, or as Montessori would have called it, our cosmic task. Class meetings, restorative practices, and use of the BC Core Competencies as a common language are all methods I currently use and have found effective. I had been hoping to find details that would improve my practice in these areas but found no new-to-me information that inspired change.

Furthermore, it would be irresponsible to ignore the elephant in the room, which is the fact that separation from classmates after imposed isolation will not mean 'business as usual' in September 2020. Whether or not we find ourselves still teaching remotely or in some alternate setting, children will need to heal by reconnecting and re-establishing friendships. While the irony that my initial intentions were to study the ability of outdoor orienteering to build community in order to help my students connect, Woodbridge's compelling argument has convinced me that that Minecraft, with controlled settings, would be an excellent way to help students build a community (2017). This decision was further backed-up by a conversation with an office administrator who, when asked how her son was connecting with his friends during the pandemic, responded with one word:

Minecraft (Firth, 2020). Twitter has been no less enamored with Minecraft, when, while most parents are bemoaning trying to homeschool their children during this pandemic, Jen Arbo noticed that her child completed schoolwork with as little effort as possible only to rush to play Minecraft where the child spent "an hour sketching out how to build a honey shop in Minecraft. Researching how much space bees need, what is the best material to construct it out of, etc." (@jenarbo, 2020, April 23).

In these 150 characters, Arbo described the hope of all teachers: that students are so engaged with a self-chosen task that they find the energy and the determination to solve problems. In further confirmation that testing the efficacy of Minecraft to connect students was a good idea, my school administrator listened to less than one sentence of my proposal and affirmed my choice as a creative way to connect students while acknowledging that student health and well-being is the foundation of our current efforts to provide a continuity of education at these difficult times.

Methodology

Preparing for the research project involved preparing the environment, the teacher and the students. Having had no prior experience with Minecraft, I felt that I needed to have a base understanding of the game, establish a positive environment, train some students to be mentors and determine best methods to collect data and determine variables. Coming to the game without much knowledge of the workings meant facing a tough learning curve but it also gave me an outsider's perspective. After a few weeks of playing with the game along with my students I felt that I had a better sense of my role as host, the potential pitfalls of the game and the need to have a collective understanding around the understanding of a pro-social community.

Preparation of the Environment: Montessori Philosophy in a Digital World

Minecraft is an online digital game that is run by a host, myself in this case, and has a variety of available settings that control the conditions of play, including the ability to turn off creatures that attack (peaceful mode), starting with an unlimited amount of resources (creative mode) and other settings such as constant daylight mode. These settings are similar to a Montessori classroom where educators are encouraged to create a prepared environment that encourages meaningful movement, natural interaction between students, and well-organized materials that build upon each other in terms of difficulty. Minecraft is a game where players can build structures using combinations of elements they have found in a world that can be explored on land, swimming through oceans, walking through forests and primarily by digging underground.

The Prepared Teacher (Host) and Prepared Students

My experience with the Montessori philosophy began when I was a young teen helping my Mother and her parents committee start an elementary Montessori school in the public system. I helped hand laminate materials and learned a lot about the philosophy. After taking my training and then running a classroom for two decades I was excited to learn about universities such as St. Catherine that used a form of research called 'Action research' to collect data. I had used a similar technique myself many times whether experimenting with using desks or tables, completing curriculum outdoors or using class meetings and restorative justice to resolve problems between students. Because these mini experiments did not follow formal procedures, I was eager to learn how to apply more traditional methods of evaluating interventions. I did not dream that I was going to be researching Minecraft in a Montessori classroom, however, and realized

that I very much needed to become familiar with the program and how best to implement it; in other words, to prepare both the environment and myself in this inquiry around digital play and personal connection making.

 To begin with, I wanted to create a sense of leadership and confidence among my returning students, I held Minecraft practice sessions with students in the preceding school months to ensure that returning students of all skill levels and genders had a sense of accomplished skill level in the game before mentoring new students. This practice time allowed me to become familiar with the game and fully appreciate my hosting responsibilities. This experimental time was necessary to learn the game's vocabulary and understand player interaction and intent. I was able to change the settings that I felt could positively change the experience for a beginner such as turning off player damage so that students who accidentally got caught in lava or some other typically dangerous situation would not experience frustration.

In survival mode, players mine for iron, red stone and diamonds as well as many other objects to create other materials. In many ways, Minecraft recreates a real-world process where wanted items must first be sourced or traded. I chose survival mode over creative mode, where items are automatically gifted because I wanted to introduce some hardship to encourage interaction between students. In other words, I was hoping to establish a reasonable level of adversity in order to encourage teamwork.

I initially planned on using Woodbridge's information describing four basic player types: achievers, explorers, socializers and killers, based on Bartle's 1996 work on MUD (multi-user dungeon) players. In the end, I chose not to categorize students because students just learning how to navigate through this complex world would not be able to

express themselves fully. I wanted to understand these different roles for myself so that I could better understand student motivation as well as get a glimpse into my own biases.

One of the other fundamental assertions in the Woodbridge paper was that the Minecraft world allowed for creative self-expression. By giving myself time to practice supporting students before my actual research started, I realized that as a host I very much became part of the game's environment and I could encourage exploration or quash what I determined to be destruction. From these observations I was able to establish a baseline of pro-social behaviour to help us create a code of conduct for online play. Students participated in this collaborative document outlining appropriate behaviour and were encouraged to use as a guideline for their choices.

Determined Variables for Data Collection

In determining which variables to focus on when determining the efficacy of using Minecraft to bring students together, I chose to use the theme of pro-social activity. Deciding which activities were pro-social was not always clear to me as I was aware that some of my biases would counter the typical behaviour of characters in an online game. For example, in the classroom, I would consider going through someone's desk to be anti-social. However, in Minecraft, characters often enter other player's homes and wander around collecting ideas for their own buildings. Additionally, in some game variations, players need to 'sleep' on beds to get the program to change to daylight. After being invited to 'sleep' at one student's home, I balked and changed the setting to constant daylight. Though a friendly invitation, I felt that sleeping on beds in the same room would not be appropriate for any teacher and student in any setting.

When in doubt, I asked the students how they felt about another student's actions and thus used this collective advice to determine whether or not this behaviour was pro-social. Students quickly agreed that entering homes was acceptable but taking inventory from the chests in the homes or destroying or changing any part of the homes was unacceptable. One area that disturbed me, and I was aware of as a bias, was players grouping together to destroy something they had built or found. While teamwork is pro-social in of itself, the resulting destruction was not. I found myself better understanding the philosophy of cults, and the need to belong to a gang or dystopian group leads to destructive action. It was difficult to explain this group mentality to the students when it was so enticing to be included as part of the group.

Another determination I made early on was to focus on the difference between a friend and an acquaintance. I have witnessed students over the years claim that they have no friends and then run off and play with others or sit in class and chat with the people around them, and more importantly, ask other students for help when needed. As I did not research friendship and how children determine who is a friend and who is not, I decided to let the students decide for themselves in the student survey by asking four questions (Appendix A). Question number one in the student survey specifically asked, "Please list your friends in the classroom." Question two, three and four then asked for names of students not already listed as a friend but about whom they played with, communicated with and asked for help (Appendix A). I did not use the word acquaintance here as I determined that this vocabulary was too complex and vague.

Classroom Setting and Intervention Application

When I first began looking into interventions that would help efficiently connect my students at the beginning of the school year, it was beyond my comprehension that some of my students would not even be in the classroom. Global pandemics are nothing but interesting though dangerous, while also creating unique study settings that would never have been authorized. In this case, out of a class of 23 students, nine students were enrolled in a voluntary transitional program and taught remotely in a temporary situation wherein they were given three chances to return to school over the school year. The limitations of this study timewise meant that I was not be able to collect data from students after returning to the classroom to see if they felt more comfortable as a result of this intervention, though I was able to assess their reactions while still at home. Having remote learners participate in this study as my students also means that our interactions took place not just in Minecraft but also in Zoom, where students could see and hear each other. This was beneficial to students who experienced frustration typing in the chat room and could, instead, talk with their teammates in breakout rooms. Zoom also mimicked the in-person conversations that would have happened naturally in the classroom.

Data Collection Procedures

This study began with a letter or email home to parents/guardians explaining the purpose of using Minecraft to create a sense of community between students. Parents who wished to share their experiences, thoughts and comments were invited to sign a form. The process of gathering consent and explaining the process took considerably longer with parents whose students were learning remotely as connecting over email. At the same time, I asked students to fill out the first of four surveys asking both open-ended

and multiple-choice questions about who they perceived their friends to be and how

helpful they felt other students in the classroom were, along with other questions of less

relevance to my paper but that may have proven relevant (Appendix A). Upon receiving

consent from interested parents, they too filled out a survey asking the same questions as

students but did so online.

Once I had collected baseline data, I then created a code of conduct around online

behaviour by consulting with students (Appendix B). We discussed the concept of

citizenry and how being members of a community gave us both rights and

responsibilities. At this point, I asked for input from students familiar with Minecraft for

suggestions about boundaries they thought were necessary. We then read the book *What*

can a citizen do? by Dave Eggers to reinforce the idea that everyone is welcome,

everyone can contribute something unique, and everyone needs to be respectful of others'

decisions and level of participation. We also held weekly discussions about BC's Core

Competencies and which statements would be a good goal or focus for playing Minecraft

that week.

Once I felt that we had established a shared sense of purpose, we downloaded

Minecraft to iPads and practiced logging in; I gave very little assistance to students as I

wanted to see if other students would help each other even before playing. After everyone

was on, I opened the server and gave out the code. I purposely asked students to sit at

their own desks for two reasons: the first being that I wanted to hear their conversations

and the second, that I wanted to avoid pre-established friendship cliques for the first

session. To record the number of times students helped each other during each Minecraft

session, I used a tally sheet that recorded names, and examples (Appendix C) as I was

curious to see if there was any correlation between students being helpful and increased connections between students. I also watched my screen to see which students were grouping and sharing resources or construction tasks.

We played Minecraft in the classroom together for about one hour, followed by an optional session later in the afternoon where all but one student regularly participated. After playing, I asked students to list who had helped them in Minecraft and who felt that they had helped others.

There were two sessions of gameplay a week. The first was held on Fridays for in-class students, and a second session on Saturdays for all students including the remote-learners. The second session was held on Saturdays from 1:00 pm to 2:45 pm over a Zoom call. The procedures were much the same: I started with a review of the Code of Conduct and then opened the server for play. I was able to use the same tally sheet to count pro-social activities and asked the same follow-up questions as in the in-class session. In both sessions, I needed to remain attentive to listening to students and following the online chat/reporting session as it would alert me to inappropriate behaviour. When students made poor choices, I made sure that we would then immediately discuss and figure out a solution. Although being a host plays a crucial role in assuring a sense of fair gameplay, the students were very much active participants in discussions around consequences and fair conduct.

Following each session, students were asked to fill in a survey asking the same questions as in the original survey. They were then asked to write a journal entry, either in their paper books or online, using the district's remote learning software Scholantis. Though questions varied from week to week, the main focus was on whether or not

students felt they were part of a community and being helped when needed or able to

offer help. Questions ranged from "Did you work or play with anyone you haven't before

or gotten to know anyone better?" to asking how they incorporated a Core Competency

goal into their play. Part way through the research, I asked students how they might

expand their friendship circle to involve others. By the end of the study, students were

given the opportunity to participate in eight Minecraft sessions followed by a verbal

survey, four reflection journals, and four surveys. Parents were invited to share comments

by email and answer two surveys. Both the results from the parents and from the students

were then analyzed to determine whether or not Minecraft was an effective way to

connect students to each other.

Analysis of Data

The purpose of this study was to determine the efficacy of using Minecraft:

Education Edition to help students connect in both in-class and online interactions. The

23 students involved were in Grade 3, 4 and 5 in a public Montessori classroom. The data

collected was both qualitative, using journal writing (Appendix D), and one-to-one

discussions, as well as quantitative which involved the use of tally sheets (Appendix C)

and surveys (Appendix A, E). Ten parents responded to a letter asking for permission to

use their comments in this paper and volunteered to participate in a survey that was made

available pre- and post-intervention (Appendix E). Theses initial surveys were given to

parents before the students started playing Minecraft and again at the end of the four-

week intervention period.

During the intervention, scheduling conflicts prevented remote learners from

playing on Fridays, therefore in-class students played on Fridays and Saturdays, and

remote students played once a week on Saturdays. Students were asked to complete

surveys once a week, the first of which was given before play started in order to collect

pre-intervention data. Of the 23 enrolled students, 14 were in-class, and 9 were remote

learners.

Attitudes about Using Minecraft to Connect to Other Students: Pre and Post

Intervention

Parent Attitudes

Parental acceptance of this project was key to its success as remote students

required their parents' help to set aside the time, download, and play Minecraft. The

initial parent survey given before starting the intervention asked the question, "What have

you noticed about your child and our project playing Minecraft together? Has the

experience been positive or negative? Do you have any stories to share about Minecraft

and your child's sense of belonging in this classroom?" (Appendix E). Of the 10 parents

initially surveyed, four parents did not know what to expect; one mentioned a negative

experience when their child played in the previous term, one parent had no comment, and

the remaining four had previous positive experiences. Two families had not previously

allowed their child to play online games. The positive experiences included the previous

year-end celebration held online. The parent whose child had one negative experience

said their child enjoyed the game overall and was excited about playing.

In the final survey, seven of the original ten parents responded. All seven of these

parents noted that their child had a positive experience and did not mention any negative

experiences. Being able to talk and play with classmates and meet new people was

mentioned as a benefit by one parent. The parent of one of the students who had never

played online before said that their child loved the fact that they could play and talk with friends. Another parent mentioned how excited their child was to play on Saturdays, even the Saturday they were away on vacation. Yet another parent mentioned how their child "feels like she's part of the class, like a team member in Minecraft so she doesn't want to miss a session…I'm also hearing new names of classmates so learning more about who's in her class and who is helping her" (Final parent survey, October 9, 2020).

Five parents specifically said thank you to me as the Teacher for spending personal time to help students to have fun, one of whom went to the extent of writing me an email. Another parent, after mentioning that playing together over Zoom was a great way for students to connect, added the comment that Minecraft could not replace the physical connection that they knew their child needed. Three parents noted names of other students they had observed helping their child and one parent noted that their child was upset for the students who were unable to connect on weekends due to technical difficulties. By the end of the four-week study period, all the parent respondents felt that their child had benefitted from the intervention.

Student Attitudes

Of the 23 students in my classroom, 57% were returning students. These students were familiar with behaviour expectations when playing Minecraft. The new-to-me students were mostly Grade 3 students, but also one Grade 4 and one Grade 5. When asked whether playing Minecraft would help them get to know each other better, 78% of the students said no or maybe, meaning that even returning students were doubtful that they would make friends by playing Minecraft. By week two, however, the students who answered no or maybe dropped to 20%.

Figure 1

Student Response to Whether or not Playing Minecraft Builds Friendships
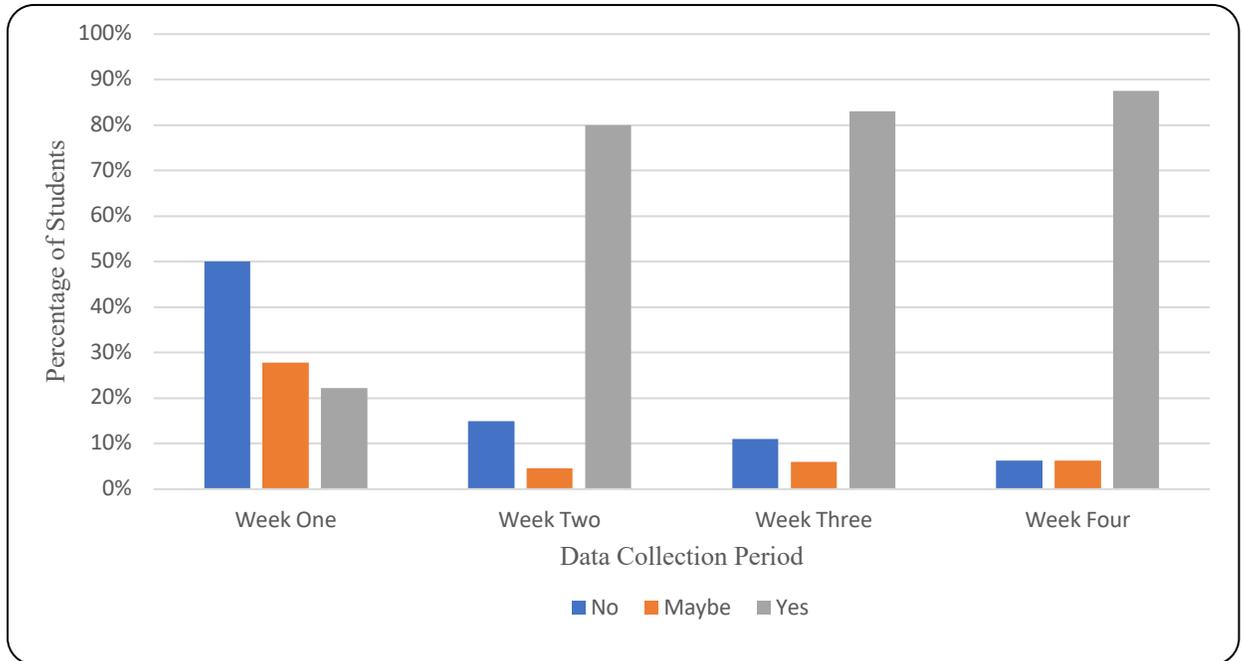
Note. Figure 1 Negative responses in week two were 15%, week three 11% and down to 6% by week four.

In their first survey, one student summarized the thoughts of many by saying that they "already pretty much know everyone" (Student Conversation, Week One). They felt that playing would not help build friendships because playing on a screen meant they would "focus on the game" and not each other (Student Survey, September 16, 2020). After the first week, however, students began mentioning specific names, and what they appreciated about the other students: "**** was very nice because he gave me things, he helped me mine and he gave me food" (Student Journal, September 19, 2020). Also mentioned was a student that "was helpful he teached (sic) me how to make a crafting table" (Student Journal, September 19, 2020). Other students offered to help by

teleporting others or helping bring supplies and materials or making suggestions to make the game more friendly by turning off damage.

Remote Students. Remote students (i.e., students who played from home) had a more difficult time playing together as they had issues logging into the same game or world. However, those who were able to login were able to make a few new connections over Zoom in the same breakout rooms. One student was having difficulty and was particularly grateful for help and suggestions from another remote student. In later surveys, this student mentioned the name of this student as a friend. Other remote students were not as successful making friends and some even stopped playing because it made them feel too sad to be apart from the others, "I'm just going to stay in the room with you, Ms. Lessoway. I feel too upset that I can't join them." (Teacher Observation, September 26, 2020). When this child was asked whether or not they wanted to go into a breakout room to chat, they shook their head and said "No, it would be too depressing." The power of this child's emotion around being unintentionally left out was a disappointing moment for me as a teacher but one that further impressed the power of inclusive game play.

Of the nine remote students, only six of the remote students answered the first survey, three of whom were new to my classroom. Of these six students, 83% initially indicated that they did not think that playing Minecraft would help them make friends. By the second week, students had almost completely changed their minds and that negative response dropped to 17%. One student who responded with "not sure" in the initial survey said, "Yes, I think playing Minecraft helped me know them better like how good they are at it and how I can help." (Student Survey, September 26, 2020). All of the

four students who responded to the final survey felt that playing Minecraft had helped

them get to know others better. One remote student who had played last term and had

originally responded "no", affirmed that Minecraft did help make friends "Yeah cuz (sic)

we are playing and helping each other and making new friends" (Student Survey, October

3, 2020). Playing while chatting on zoom and using break-out rooms seemed to create an

atmosphere of intimacy between the students because they could chat freely.

In-Class Students. By week two, in-class play had changed: students began

inviting each other to their desks so they could talk and work on projects together while

wearing masks. Students responded more affirmatively to the question of whether or not

they could make friends by playing Minecraft. Students shared their achievements and

who had helped them "Playing Minecraft helps me to get to know people better. I can

know people better by helping people build their homes, helping mine things and giving

advice" (Student Journal, September 25, 2020). Another student was surprised by another

child's generosity "I never knew that *** was so helpful!" (Student Journal, October 9,

2020). The student who had previously stated that students would just focus on the screen

had also changed their opinion, "Yes (playing Minecraft helps you to know other students

better) because when you help them, you spend time with them, which (sic) you can get

to know them" (Student Journal, September 25, 2020). Finally, when one student

expressed frustration as to why I was asking them to list their friends every week, and I

explained, the child's face lit up and said, "Yes! I have definitely made new friends this

way!" (Conversation notes, October 9, 2020).

Being Helpful Makes Friends

After playing Minecraft, students wrote about their playing experiences in journals. When asked how they made friends, they wrote about who they played with and their favourite activity. Working on projects such as building houses together was common practice throughout the four weeks. Students became familiar with the game and became self-sufficient or learned to help others. The emphasis also changed from giving other students gifts such as valuable minerals, to sharing ideas such as how to build glass ceilings or attract chickens to a fenced in yard.

Figure 2

Actions That Helped Me Make Friends
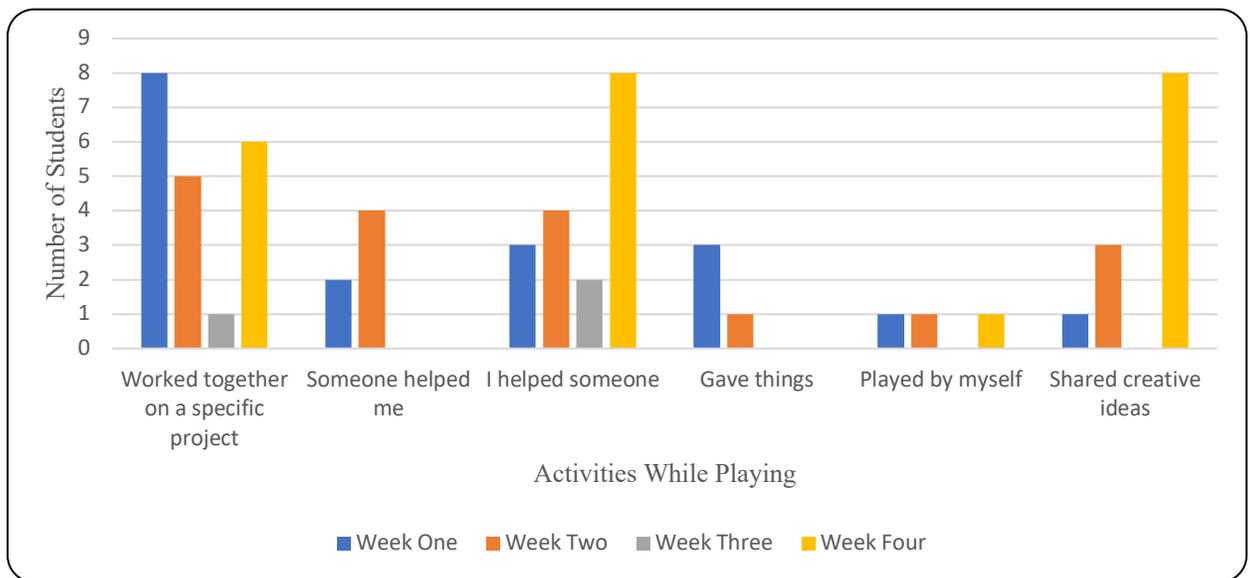
Note. Week three's results seemed to vary from the other weeks. Upon checking my notes and the student's journals, indications were that students were upset about the actions of one child who had done something they should not have (they acquired an enchantment table from creative mode). The student who listed themselves as "played by myself" was also listed as the most helpful student by classmates, parents and by me, indicating that they were actually interacting in-person instead of online.

I also collected data to find out if students who were helpful made more connections by asking students if they had helped someone that day and asking them to

list students who helped them. I kept a tally sheet of students I observed being helpful as well. When I asked students whether they felt the classroom was a helpful environment in the initial survey, 86% of students said that the classroom met or exceeded their expectations in terms of being helpful. This number varied over the next few weeks between 90% and 100%. When asked how others were helpful, however, responses were not explicitly focused on Minecraft, even though we had just finished playing; with the exception of two students, the examples of others being helpful were vague or focused on helping others with spelling or classroom instructions. I suspect that helping other Minecraft players is a built-in component of play, meaning that students do not recognize themselves as extending extra energy or going above and beyond what is expected by helping each other when playing together.

Figure 3

Student Self-reported: I Helped Someone Today in Minecraft
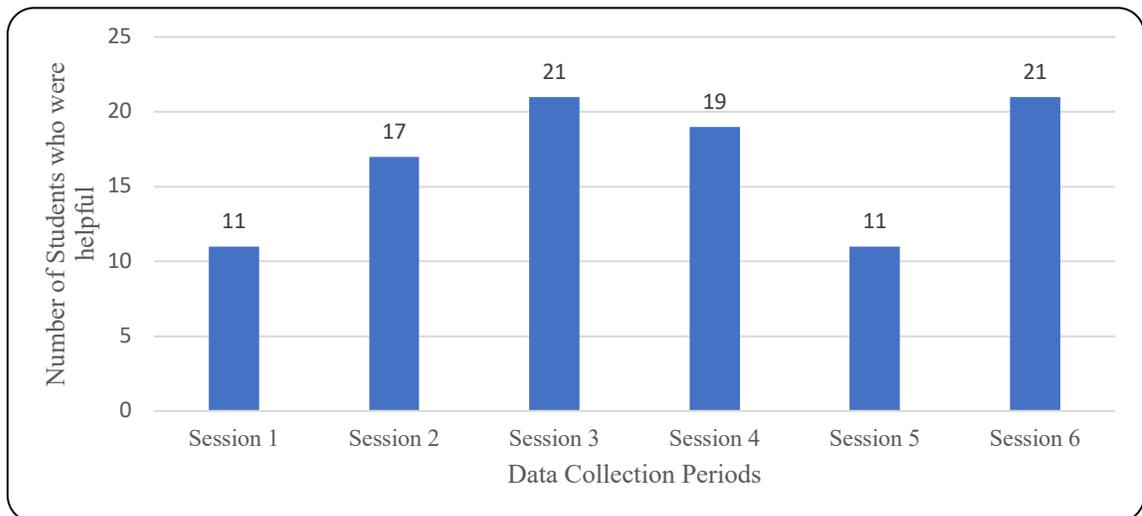
Students listed other students who were helpful after each Minecraft session. Most of the students had their names listed between one and seven times; two students were never named as being helpful while two others were listed between 12 and 15 times each.

I also collected information about who I witnessed being helpful and had similar data to the students, however I realized that what I considered being helpful, may have differed from the students. It is possible that there were some variations between myself and the students because I purposely excluded behaviour I considered anti-social (e.g. destructive behaviour) as being helpful, whereas students may not have disregarded such behaviour as outside the confines of friendship.

Helpful Students and Friendship Gains

To follow-up on my hypothesis that helpful students had the potential to gain more friends, I counted the number of students who were both listed as a friend, and students who perceived that their friendships had grown. I then compared this list of eleven students to tallies about each student's level of helpfulness.

Table 1

Did Students Who Were Helpful Make more Friends?

Student	**Teacher** tallied times they were helpful and selected students were helpful more than ½ of the sessions	Other **students** thought they were helpful – five or more times (mean average of class)	Were listed as a friend by other students (showed clear growth in friendship #'s)	Students who felt they had more friends
Student 1		X	X	
Student 2		X	X	X
Student 3	X	X	X	
Student 4	X		X	
Student 5	X	X	X	X
Student 6	X	X	X	X
Student 7	X	X	X	X
Student 8		X	X	X
Student 9	X	X		X
Student 10	X	X		
Student 11	X	X		X

Note. Students #3, #4 and #10 started out with a lot of friends (higher than the class average) with Student #10 having the highest number of friends to start off with (thus unlikely to increase much)

Students who were deemed the most helpful either already had higher than the average amount of friends or made more friends over this four-week period. One student explained that Minecraft was a way to talk to more people "because they need my help and I talk to them to know what to help them with" (Student Survey, October 2, 2020). When asked, however, how they were helpful to other students, only two students used Minecraft as an example and instead spoke of helping during other daily activities "I help people with work, but I have bad spelling" (Student Survey, October 2, 2020). In the table above, only two of the students successful at increasing their numbers of friends were remote learners, leading to the conclusion that in-class students made the largest increase in relationships.

Increase in Friends or Acquaintances

To find out whether or not using Minecraft: Education Edition was a way to build connections and friendships between students, I gave students the same survey once a week (Appendix A). The first question I asked was for the name of friends in the classroom. As shown in the figure below, students did increase their number of friends over the four weeks.

Figure 4

Average (Mean) Number of Friends (Whole Class Including Remote Students)
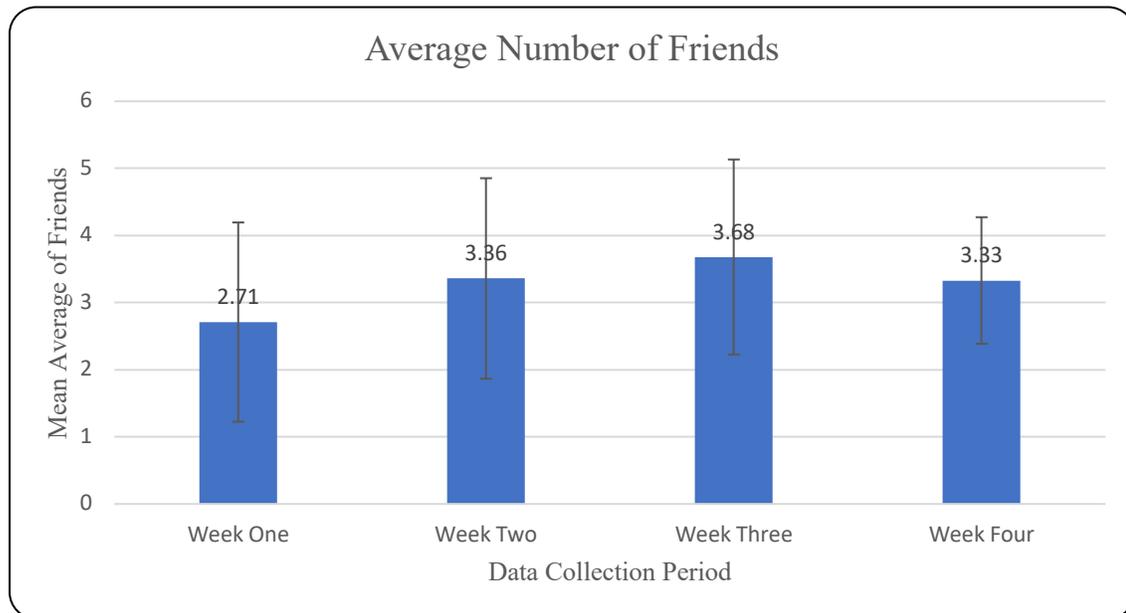
Note. Figure 4 The remote-learning students did not show up as friends amongst the in-class student lists. Additionally, the number of friends as listed by the remote students did not increase by very much and mostly included other remote students.

I also compared students who started with the low number of friends at the beginning of the intervention to see if this group of students would also show an increased number of friends. I took out all the students who listed three or more friends in the initial survey and was left with seven students with two friends or less.

Figure 5

Average (Mean) Number of Friends Amongst Sample Set of Students
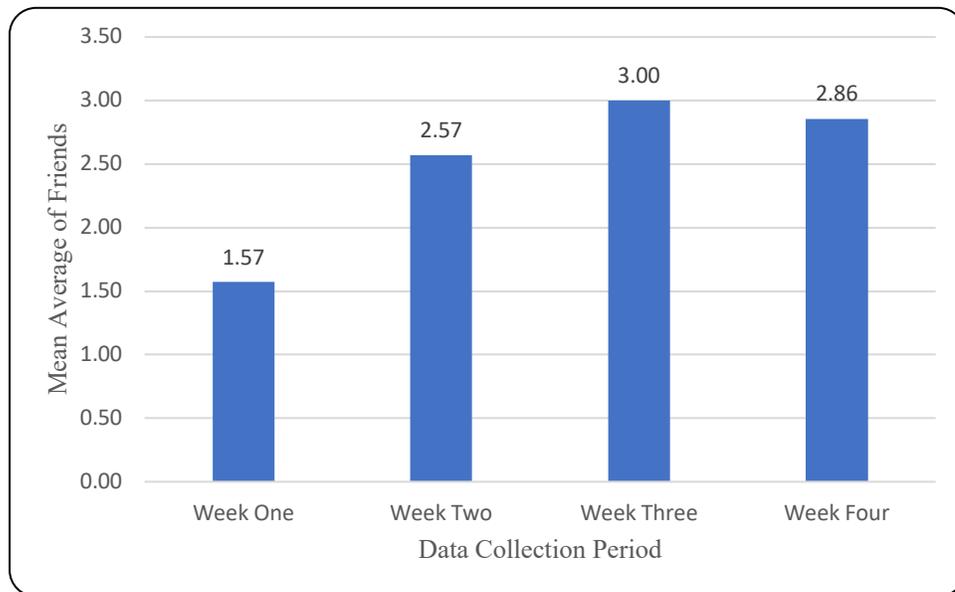
Note. Figure 5 includes a special-needs student (new to the school) and one remote student, both of whom succeeded in increasing their total number of friends which I consider to be a huge success.

This paper distinguishes between friends and acquaintances. In the student survey I asked students to list their friends. Then I asked students to list other students outside of their friendship circle. These questions increased the field of connections and brought up new names. It turned out to be very important to ask all four questions as one student was repeatedly listed in the fourth question as someone who was very helpful but was only listed as a close friend by two students.

Action Plan

This research paper looked at the effectiveness of creating a pro-social community with a classroom of separated students. I used a game called Minecraft: Education Edition that has open-end objectives and allows players to explore and create in a world together in very creative ways. Many in-class and some remote students developed

friendships by working together, helping each other, and sharing ideas. Despite the fact that my classroom consisted of three grade levels, it became apparent that skill, expertise and willingness to contribute soon outweighed age and grade. Students could play together in a new world that did not have any previously built foundations; they were all starting from the same point. Students who had less experience asked questions without hesitation and were accepted into groups of builders. Inexperienced students could ask questions online or in the classroom, and student experts were eager to help them.

When the students found themselves in difficult situations, they appreciated help from others but felt more connection when they were the ones who offered help. Creating a community extolling hard work and expertise is one I would like to continue to replicate and extend in my classroom setting. I want to continue finding ways to connect students around common causes and provide opportunities to help each other. Finding a task or platform that envelopes students with all sorts of skill levels (e.g., I have two students with dyslexia who could support others when playing Minecraft without needing to read) will be difficult and an area for further research. If one were to repeat this project, I suggest adding a data tool to measure the sense of belonging and confidence of students at the beginning and end of the intervention to see their levels increased. An article by Vocke (2020) about the efficacy of community and social-skill building in Minecraft further demonstrate the flexibility that Minecraft offers players people who can follow their own agenda (Woodbridge, 2017) while interacting with others.

As a researcher, I had an agenda: creating the sense that our classroom was a helpful community while increasing friendships. I was intentionally not explicit about these goals with the students. Much like Montessori teachers who wait for children to

figure out the main idea of a lesson or the Point of Consciousness, I asked leading

questions in my surveys and looked for examples of how friendships and connections

moved from the Minecraft world to classroom interactions but did not outright ask. For

example, I happened to overhear a conversation one day about some students who

planned to build a grass fort underneath a fallen tree branch, "just like they had in

Minecraft." If I had not been there for that conversation, the students would not have

shared it with me as they did not know I was interested in hearing more about

cooperation resulting from Minecraft activities. Were I to repeat this experiment, I would

tell the students about my goal at the beginning of the study. Another area of research

might focus on comparing the use of implicit versus explicit questions in surveys to draw

out connections from different age groups.

Another desired outcome was to encourage students to accept acquaintances as

friends. I found that it was easier for students to accept someone as an acquaintance with

whom they had never worked with or helped before, than accept an acquaintance as a

friend. An area for further research would be whether or not prolonged playing together

or those with expertise gained more friends and break this barrier. The fact that this

intervention was held at the beginning of the year when students are eager and prepared

to make new friends may have affected the outcomes. Attempting to increase friendships

later in the year when friendships were already established might be more difficult and

therefore another area for further research.

There were many barriers during this intervention. Remote students had difficulty

logging in when we were on different routers. Playing over Zoom on the weekends meant

students could easily see and hear each other, but it was too loud. This necessitated the

use of break out rooms, which meant I was constricted in my ability to observe and problem solve to one room at a time. I noticed that one student who helped everyone in the classroom was constrained to helping only students in one break-out room. Additionally, students began to report other students they felt had broken the code of conduct, turning the atmosphere into a more reactive than helpful and creative environment. Future researchers with the advantage of increased user knowledge of online video communication applications such as Zoom, might be able to find ways to work around the noise issues and barriers caused by the break-out rooms.

     Another issue that arose while playing was the subtle colonial and racial aspects of the game. When starting the game for the first time, players are dropped into a land that is seemingly unoccupied. Upon further exploration, however, there are established villages. Once a player visits these villages, the villagers disappear, generally not to be seen again, which mimics extermination by disease events in North America. In terms of racial issues, the avatars or skins that students choose cannot be changed, as noted in Andersons 2017 paper. Minecraft's 2020 version, however, has over 118 avatars to choose from and has a greater variety of outfits, skin colour choices and genders. More concerning in the 2020 version is the appearance of villagers whose faces have longer noses and less sophisticated outfits than the player outfits, drawing connections to stereotypes of racialized characters. Future researchers could look at whether or not students relate to these characters on equal terms or view them differently.

     A disturbing incident occurred during the study around these indigenous inhabitants or villagers. One group of my students decided to build hotels and staff them with villagers that they spawned, essentially creating a group of slaves. Although each

player has an agent (i.e., a helper robot) that can be used to automate tasks, students felt

no compunction about using human figures. The students and I discussed their disconnect

to these characters, as did the newcomers when occupying North America and the First

Nations people. The students were quiet and seemed somewhat stunned when they

realized what they had done and quickly began to brainstorm ways to make the situation

more equitable, including paying the villagers with emeralds. Further investigation into

this topic led me to a conversation with Woodbridge, who introduced me to a video

focused on this topic called *Oops! I did a colonialism in Minecraft* (Olson, 2019).

No less concerning was the willingness of my students to destroy the pristine

habitat of the Minecraft world. While it is possible to explore the world in peaceful mode

without killing animals, mine for minerals or cut down trees, most players enjoy building

and making things which requires materials. Unless students were in creative mode

where they have an infinite amount of inventory, students needed to find these materials

using the environment around them without any obligation to replace or repair the land.

Not wishing to accept this unstainable use of resources, I talked to students about

replacing trees that they cut down and fill holes so that wandering animals would not get

trapped. There is more information and research needed for teachers who want to

promote sustainable practices in Minecraft.

I feel there is a lot more potential in this game to educate students about

renewable resource use than I was able to explore. The newest edition has a farming

focus and beekeeping activities, which ties into a more ecologically friendly theme.

Projects in a high school classroom run by a teacher named Michael Wolfe focus on

using solar power and sustainable harvesting techniques. I hope that with increased

awareness of pro-social player interactions and increased sensitivity to biome use in the

digital world, perhaps some of this online practice will come to fruition in the real world.

Experimenting with Minecraft as an addition to the classroom has been an

engaging journey and one that the students are very eager to continue, including starting a

world for the remote students to play in during the upcoming winter break. Despite a few

setbacks and concerns, Minecraft has been a strong imaginative outlet with so many

possibilities, including exploration of other theme worlds with specific learning missions.

References

Aldridge, J. M. (2016). Student's perceptions of school climate as determinants of

wellbeing, resilience and identity. *Improving schools, 19*(1), 5-26. DOI:

10.1177/1365480215612616

Anderson, E., Walker, J., Kafai, Y., Lui, D. (2017). The gender and race of pixels: An

exploration of intersection identity representation and construction within

Minecraft and its community. *Proceedings of ACM Foundations of Digital

Gaming*. August. DOI: 10.1145/3102071.3102094

Angell, A. V. (2004). Making peace in elementary classrooms: A case for class meetings.

Theory and Research in Social Education, *32*(1), 98-104. DOI:

10.1080/00933104.2004.10473245

Arbo, J. [@jenarbo]. (2020, April 23). Kale spent about 7 minutes conjugating a verb and

writing the Minimum Required Sentences before launching into an hour of

sketching out how to build a honey shop in Minecraft #youdoyou [Tweet].

Twitter. https://twitter.com/jenarbo/status/1253402442156453889

Belson, S.I. et al (2018) Reconsidering Maslow: The role of the school health policy in a

holistic approach to child health and wellness. *Journal of Education and Social

Policy*, *5* (4), 9-19. doi:10.30845/jesp.v5n4p2

Calman, S. R. (2017). Giving students voices: A design for a youth leadership program at

a British Columbia High School. [Master's thesis, Royal Roads University].

http://dx.doi.org/10.25316/IR-437

Dorer, M.J. (2016). *The deep well of time: The transformative power of storytelling in the

classroom*. Parent Child Press.

Dukkha. (2020, December 12). In *Encyclopaedia Britannica*.

https://www.britannica.com/topic/dukkha

Eggers, D. (2018). *What can a citizen do?* Chronicle Books LLC.

Firth, L. Conversation, (2020, April 23) RC Grauer Elementary, Richmond, BC.

Grazzini, C. (2004) Maria Montessori's cosmic vision, cosmic plan, and cosmic

education. *The NAMTA Journal, 38*(1), 107-116.

https://files.eric.ed.gov/fulltext/EJ1078117.pdf

LeBoeuf and Fantuzzo (2018). Effects of intradistrict school mobility and high student

turnover rates on early reading achievement. Applied Developmental Science

22(1), 43-57. http://dx.doi.org/10.1080/10888691.2016.1211481

Lillard, P.P. (1996). *Montessori Today.* Schocken books.

Long, R. F. (2017). Prosocial activity in a Montessori primary classroom: A case study.

[Doctoral Dissertation, Simon Fraser University]. SFU Summit – Institutional

Repository. https://summit.sfu.ca/item/17688

Llana, S.M. (2020, March 19). *A health officer with a fan club? Meet Canada's Dr.

Bonnie.* The Christian Science Monitor.

https://www.csmonitor.com/World/Americas/2020/0319/A-health-officer-with-a-

fan-club-Meet-Canada-s-Dr.-Bonnie

Montessori, M. (2007,1948). To educate the human potential. (3rd ed.) AMI. Montessori-

Pierson Publishing Company.

McGrath, B. (2016). *Building social/emotional curriculum for Montessori primary*

      classrooms. [Master's thesis, Saint Mary's College of California].

      https://search.proquest.com/openview/4df1f9cc9dd5d261aeb34d98790daf4e/1.pdf

      ?pq-origsite=gscholar&cbl=18750&diss=y

Nair, R. (2020, September 10). *A very different classroom: B.C. schools seek new normal*

      as school year starts. CBC. https://www.cbc.ca/news/canada/british-

      columbia/back-to-school-sept-10-1.5717574

NAMC. (2007, July 3). The second plane of development; Ages 6-12 – Montessori

      philosophy. NAMC Montessori Teacher Training Blog.

      https://montessoritraining.blogspot.com/2007/07/montessori-philosophy-second-

      plane-of.html

Olson, D. [Folding Ideas] (2019, August 23). *Oops! I did a colonialism in Minecraft*

      [Video] YouTube. https://youtu.be/d6i5Ylu0mgM

Palm, M. (2019). *Montessori versus traditional middle school teaching pedagogy and*

      student disruption: A descriptive study. [Doctoral dissertation, University of

      Phoenix]. ProQuest Dissertations & Theses Global.

      https://pearl.stkate.edu/login?url=https://search-proquest-

      com.pearl.stkate.edu/docview/2312892691?accountid=26879

Parker, C. (2016) Pedagogical tools for peacebuilding education: Engaging and

      empathizing with diverse perspectives in multicultural elementary classrooms.

      Theory & Research in Social Education, 44(1), 104-140. DOI:

      10.1080/00933104.2015.1100150

Pelley, L. (2020, March 29). 'We're all in this together': The phrase uniting Toronto in

    long, lonely battle against COVID-19. *Canadian Broadcasting Corporation.*

    https://www.cbc.ca/news/canada/toronto/we-re-all-in-this-together-the-phrase-

    uniting-toronto-in-long-lonely-battle-against-covid-19-1.5508850

Province of British Columbia. (2020, November 30) B.C.'s back to school plan.

    Retrieved December 12, 2020, from

    https://www2.gov.bc.ca/gov/content/education-training/k-12/covid-19-return-to-

    school

Raven,M. (2018). Social justice through restorative practices. [Doctoral dissertation,

    Lamar University]. ProQuest Dissertations & Theses Global.

    https://pearl.stkate.edu/login?url=https://search-proquest-

    com.pearl.stkate.edu/docview/2149672906?accountid=26879

Rising, L. & Slade, E. (2020). Distance learning in times of disaster. Trillium Montessori

    Blog. https://www.trilliummontessori.org/?s=distance+learning

SAMHSA. (2020, February 25). *Phases of disaster*. Substance abuse and mental health

    services administration. https://www.samhsa.gov/dtac/recovering-

    disasters/phases-disaster

Stephenson, S. (2019). Creating a Sense of Community for Distance Education,

    International Journal of Academic Research in Education, 5(1), 1-8. DOI:

    10.17985/ijare.524225

TwoEyeHead. [@TwoEyeHead]. (2020, March 3). *Maslow's new hierarchy of needs.*

    Twitter. https://twitter.com/TwoEyeHead/status/1234982926858670081

Vocke, M. (2020, October 15). *Minecraft group helping children on autism spectrum build social skills.* Global News. https://globalnews.ca/news/7397817/minecraft-children-autism-social-skills/

Woodbridge, K. (2017). *"Whimsical and fun and weird and interesting": Prosocial community in Minecraft.* [Master's thesis, Royal Roads University]. ProQuest Dissertations & Theses Global. (1958951570).

Appendix A

Student Minecraft Community Survey

1. What is your role call number?
2. List the first names of student in this classroom who you consider to be your
    FRIENDS.
3. Are there any other students in this classroom who are not really your friends but
    you COMMMUNICATE with? Please list their names below (please don't write
    down any names you've already listed).
4. Are there any students in this classroom that you PLAY with but haven't listed
    yet? Please write their first names below.
5. Are there any students in this classroom that you haven't mentioned yet that
    would HELP you if you needed help? Please list their names below.
6. Are the students in this classroom helpful? Please choose one of the options
    below (report card language).
    a. Minimally meeting expectations (other students are not very helpful
    b. Meeting expectations (usually helpful)
    c. Exceeding expectations (the students in this classroom help me more than
        I expected)
7. Why did you choose that last option? Can you give an example to explain your
    thinking?
8. Do YOU help others in this classroom? Please choose an option below
    a. Minimally meet expectations
    b. Meet expectations
    c. Exceeds expectations
9. Why did you rank yourself that way? Can you give an example?
10. Please write down as many things you can think of that we do in this classroom to
    help each other.
11. Do you think playing Minecraft has helped you to get to know other students
    better? What do you think about this Minecraft project? Is there anything else you
    would like to add?
12. Thank you for answering this survey! Please finish the survey by filling in the
    date below by writing the month, day and year.

Appendix B

Code of Conduct

I have the right to…	I have the responsibility to…
Wander and explore everywhere but …	I will respect other people's items and their creations (I will not take them). I will ask permission before entering people's homes and not take anything from chests.
I have the right to build and make things but …	I do not have the right to kill or destroy animals or objects. If I cut down a tree, I will plant another one
I have the right to build things and invite others to work with me but …	I need to communicate with the others in my group about our goals. I need to apologize if I make a mistake.
I have the right to trade with traders for anything using emeralds but ….	We need to respect traders and villagers' spaces. Abandoned villages are covered with webs.
I have the right to dig a hole but …	I need to cover it or make a sign making sure that other players don't get stuck.
I have the right to keep animals in fences but need to give them lots of space but…	If I visit someone else's farm I will keep the gate closed so the animals don't escape.
I will invite others to build with me but…	I will not get upset if I'm not invited.

Appendix C

Tally Sheet: Minecraft Pro-Social Interactions

Date _____

Name	Tally Marks	Details/ Observations

Appendix D

Sample journal questions

1. What did you do in Minecraft today?

2. Who helped you? Who did you play with?

3. Did you help anyone?

4. Did anyone help you?

5. What was your favourite activity?

6. Do you think playing Minecraft has helped you to get to know others better?

7. How did you get ideas?

8. What core competency did you use today?

9. Did you do your share?

10. How could you get to know people better?

11. Is Minecraft equal to recess?

12. How have you made friends?

Note. Students needed to write at least three sentences and chose which questions to answer or wrote about any Minecraft topic they wished.

Appendix E

Parent Survey Final: Minecraft Community

Thank you for participating and sharing your ideas. This is the final survey so please write down any and all thoughts about this Minecraft project that you can. PLEASE ANSWER THE FOLLOWING QUESTIONS WITH AS LITTLE ASSISTANCE FROM YOUR CHILD AS POSSIBLE: I would like to know what they have been sharing with you naturally (I already know what they're thinking :D)

1. What is your child's role call number (please ask)
2. Please list (first names only) the names of students you think are your child's classroom FRIENDS below (a friend is someone close to your child). If there are no friends in this classroom, please write "No one". Has your child made any new friends?
3. Please list the first names of students in your child's class that your child COMMUNICATES with (but is not considered a close friend). Do not include the names of students mentioned above. If there are no 'communication peers' in this classroom, please write "No one". Has your child communicated with someone new since starting to play Minecraft?
4. Please list the first names of students in your child's classroom (not already listed) that might PLAY with your child. If no one, please write "No one". Does your child play with someone new now?
5. Please list the first names of students in your child's class (not already listed) that might not be close friends but would HELP your child if they needed help. If no one, please write "No one". Are there new students that your child has gotten to know?
6. Do you perceive your child's classroom to be a supportive and helpful community? Please choose from these sets of words to describe the classroom (report card language).
    a. Minimally meeting expectations (not a very helpful classroom of students)
    b. Meeting expectations (students are generally helpful)
    c. Exceeding expectations (students help each other more than I would expect)
7. Why did you choose the option above? Can you give an example of a time when students did or said something that gave you the impression that this classroom was helpful?
8. How do you perceive your child's level of willingness to help others? Please choose from the words below.
    a. Minimally meets expectations
    b. Meets expectations
    c. Exceeds expectations
9. Why did you choose those words for your child? Can you give an example of a time that they displayed this behaviour?

10. What have you noticed about your child and our project playing Minecraft together? Has the experience been positive or negative? Do you have any stories to share about Minecraft and your child's sense of belonging in this classroom?
11. Is there anything else you would like to add?