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Using Minecraft to Integrate Common Core Activities across Elementary School Curriculum

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Abstract

Minecraft, an open world sandbox game rich with educational possibility, has been a growing sensation among elementary age children across the US. Though there has been some experimentation in a number of schools across the United States, there has been no mass movement to embracing Minecraft as a virtual learning environment. With advances in the fields of Virtual Learning Environments and the new wave of educational thinking known as the “Maker Movement,” the modern educational field has an opportunity for radical new ways of teaching. Using an elementary school as a model in the Monterey Bay area, I surveyed a number of elementary classrooms, to determine the student’s and teacher’s interest in bringing Minecraft to the classroom. Research showed that a majority of kids and teachers alike, were excited and eager to see Minecraft brought into their school to assist in their learning through the Common Core State Standards Initiative.

Keywords: Minecraft, Common Core, Sandbox Game, Virtual Learning Environment, Maker Movement

Using Minecraft to Integrate Common Core Activities across Elementary School Curriculum

For the last two years, I have been working on a project to bring technology education to kids in afterschool programs through Minecraft. I have worked with these kids on projects such as, ancient architecture, video production, community building and even mathematics. During this time, I have personally witnessed dozens of students deeply engage with Minecraft as a learning platform. Over the course of my work, I began to theorize that Minecraft could become the next step in education to deepen students engagement and learning in all aspects of education. As I have worked for the last year writing Minecraft curriculum, I wondered how this could work with the Common Core State Standards and if, with proper alignment, Minecraft could become an avenue of teaching in the classroom of the future.

Minecraft was officially released in 2011, and in just five years, has become the second best selling videogame of all time, falling behind only the now three decade old leader Tetris (Peckham, 2016). However, what sets Minecraft apart from the other games that fall on this list, like Tetris and the third place spot, arguably given to Grand Theft Auto V, is that Minecraft, for all intents and purposes, isn't just a game. Minecraft could be better described as a virtual, sandbox, learning environment. The world of Minecraft is an endless, and completely changeable environment displaying, physics, logic and creativity with each button click. Now sold on computers, all major consoles and even as a phone and tablet app, it is difficult for any student to go through a day at school without running into the game in some form.

With such a massive reception, it isn't a stretch to assume that many school teachers have already heard their students talking about the game in their classrooms. Discussing buildings they have created or worlds they have built. It is no surprise that Minecraft is already invading

schools. However, where many other video game have become more of a source of distraction to students, Minecraft provides a unique opportunity to schools, to provide a new medium of learning to their students. With the expanding federal release of the Common Core State Standards in the United States, this is an excellent opportunity to utilize the interest in Minecraft that students already have, to increase interest, participation and hands on learning in all areas of Elementary Education.

This paper seeks to answer, how can teachers in an elementary school setting integrate Common Core activities across their curriculum using Minecraft? And through this question, will further answer, What is Minecraft? How did Minecraft come about? Why is it such a prominent force for consideration to be used for educational purposes? Are there any studies that have been done on the use of Minecraft as an educational tool in the classroom and across a curriculum? If so, what are their advantages and disadvantages? Has Minecraft been integrated into any existing school curriculum initiatives? If so, how has it been implemented in other settings with regard to access and regulations? With the recent implementation of the Common Core Standards in schools, how can teachers incorporate them into activities within the Minecraft environment? And how can they track the results of their activities? And finally, are there any resources available for teachers if they want to integrate Common Core driven activities across their elementary school curriculum? The paper will look into research surrounding technology in the classroom, and Minecraft in particular as an Educational Tool both in schools and other educational environments, to determine the current climate and reception to the use of Minecraft. The project will also detail the concerns of teachers and address each issue, such as access and regulations or result tracking, with a solution. It will also provide a series of resources for

teachers seeking to bring Minecraft into their classroom. With technology ever expanding, and the educational field moving more and more towards STEM education, it is becoming equally important to create new and exciting methods of education for students and teachers alike.

Review of Literature

In beginning the research for this project, it became necessary to split my focus between two areas of study. The first area was Minecraft and its use in the classrooms so far. The other area was the common core standards. It became necessary to look into how teachers had incorporated, not just Minecraft, but an video games or video game related teaching strategies into their classroom, in an effort to fully grasp the research that has been completed in this field. While many teachers have had similar experiences, there was also a need to address the issues that teachers have faced also.

Minecraft as an Educational Tool

Minecraft's humble beginnings are well catalogued online, and in print following the tale of it's creator Markus "Notch" Persson. Persson developed the game in his free time after work, uploading the game to the web for free in a beta version to determine if it was worth continuing (Goldberg & Larson, 2013). The game quickly took off and soon afterwards Persson began to charge for the game as hundreds of people began to download and play the game. Over the course of its development, Persson listened to players, adding to the game engine based on their feedback. Additions included various physics controlled blocks, the logic inspired "redstone" mechanic that acts as a means of basic programming within the game, and more advanced world generation techniques. After millions of downloads, dozens of updates and an official release, Minecraft is now a household name, and the second highest selling game of all time (Peckham,

2016). It is this user based modification, and the widespread reception phenomena that makes Minecraft such a fantastic option for education.

A common issue recorded in various studies to using Minecraft or any other virtual learning environment is the teacher's inability to join the student in the Virtual World while simultaneously using effective classroom management techniques (Carron, Pernelle, & Talbot, 2013; Smeaton, n.d.). This concern was addressed in a study by Professors Rodkroh, Suwannatthachote and Kaemkate, for the 2013 IADIS conference. The study, Problem-based Educational Game Becomes Student-Centered Learning Environment, put forth the idea, that instructors would take on the role of facilitator, "a role shift that support students throughout the problem-solving process" (Rodkroh, Suwaannatthachote & Kaemkate, 2013, p. 339). In this role, the teacher would not be an active presence in the world, but rather a guide in the real world, hinting the students towards their task or goal. This frees the teacher up to wander in the classroom, directly assisting individual students or helping to shift the entire class in a direction.

The role of teacher becoming facilitator is a popular method of instruction in the virtual education field, along with the introduction of problem or task-based learning. The idea behind this format of education is to present a challenge to the students and allow them to do the critical thinking through trial and error exploration in a minimal consequence space. According to Cobbett (2013) in her study, "Technology and Cognition Merge with Challenge-Based Learning Cycles Online," this type of learning, "stimulated student thinking, engaged students in learning new content and competencies, and empowered them to take control of their own learning," (p. 344), and therefore increased not only student engagement with the material but also created a more meaningful educational experience.

Though these are radical ideas compared to the current thinking in teaching, there is a rather large body of evidence to support incorporating these changes in education. This shift in research and thinking is commonly known as the “Maker Movement.” As discussed by Niemeyer and Gerber (2015) in their journal article, “Maker culture and Minecraft: implications for the future of learning,” the ideas behind the Maker Culture are similar to the ways that students are interacting with video games, “taking new knowledge, making it their own, and collaborating with others who are doing the same” (p. 219). However, the basis for this shift in mindset is not far from those that drive the current standard of education. Niemeyer and Gerber (2015) cite Vygotsky’s now 30 year old constructivist theories as foundational in the movement. Further still, Schifter and her colleagues link the mindset surrounding Minecraft to Piaget’s Constructivist theories, claiming that Minecraft offers the user the opportunity to, build their own knowledge through direct interaction with the environment of the world (Schifter, Cipollone & Moffat, 2013). The foundational theories in child development are tracked through these alternative methods of education, and seem to show more genuine and lasting educational outcomes.

At this point in time, not much specific research has gone into the benefits of a gamification of the modern classroom experience. Though there is a push to do so, resistance still occurs. In her 2014 journal, “Fact or Fiction?: Video games are the future of education,” Malykhina (2014) points out that while perhaps beneficial to kids who do not respond well to traditional education, lower funded or schools with more crowded classrooms may struggle to adopt the system do to its reliance on specific technology which can cost a lot of money,

as well as require teachers to undergo further training to work with the system. While these are valid concerns, many schools across the United States already have technology at the school site which is capable of running Minecraft due to its simplistic graphic style.

Furthermore, as Smeaton (n.d.) points out, that teachers who are beginning their teaching careers at around 22 years of age, could possibly already have experience with Minecraft and may, in fact, be some of the early adopters of the software in their classes, eliminating the need for more training.

Common Core Standards

Despite the evidence to show the benefits of technology and more specifically Minecraft driven activities in classrooms, the new Common Core initiative in the United States, raises the question of how we can use this new shift in education to capture these new standards. The six core standards reflected by the Common Core State Standards Initiative are written on the official website as,

Research- and evidence-based. Clear, understandable, and consistent. Aligned with college and career expectations. Based on rigorous content and application of knowledge through higher-order thinking skills. Built upon the strengths and lessons of current state standards. Informed by other top performing countries in order to prepare all students for success in our global economy and society. (“About the Standards,” n.d.).

These core standards are reflected throughout the educational paradigm shift to a facilitator of virtual learning. These guiding principles for the standards that outline curriculum under the Common Core Initiative, seek to guide students towards clear, intelligent, critical thinking skills through research and evidence. The very same goal of the “Maker Movement” and Virtual Learning educational model.

The ELA and Literacy Standards of the Common Core Initiative are set up in such a way as to increase literacy, in reading, writing, speaking and listening (“English Language Arts Standards,” n.d.). This very same thread of deepening literacy skills was seen facilitated through Minecraft in Schifter’s study. The assignment in their research given to students was to create a narrative piece in Minecraft through a “machinima” style video (Schifter, Cipollone, & Moffat, 2013). This sufficiently meets the requirements for reading and writing in scriptwriting and acting for the piece, and the speaking and listening requirements through the creating and screening of the final product. The ELA and Literacy Standards, “Lay out a vision of what it means to be a literate person who is prepared for success in the 21st century” (“English Language Arts Standards,” n.d.), and the maker movement claims that the 21st century is one that takes place in both real and virtual spaces.

However, the Common Core Initiative puts further emphasis on mathematics. The standards seek to allow students to explain and “justify, in a way that is appropriate to the student’s mathematical maturity, why a particular mathematical statement is true” (“Mathematics Standards,” n.d.). Ensuring that math activities align with these standards, especially in a virtual environment can be tough. However, Bingham and Ray (2013) sought to make this easier on teachers. They worked to develop an “Alignment Rating Scale” to determine if apps and the activities within them aligned with the Common Core rollout. This scale assigned a value of 2 to apps that clearly outlined a Math Standard, a 1 to apps that marginally outlined a standard, and a 0 if it did not display a standard, (Bingham & Ray, 2013). Using this scale as a model, the alignment of activities to Common Core Standards becomes considerably easier.

As the field of virtual learning environments expands, so too does the research needed to support the field. Therefore this paper seeks to expand that research through surveys and interviews, as well as a cumulative review of each study brought together into a single analytical goal. Following in the footsteps of previous journals, this project will approach the topic openly, seeking only to further the field of virtual learning environments to better the current educational model in the United States.

Methods and Procedures

Following the line of study already conducted in Minecraft's use in a classroom environment, the research for this project hoped to uncover new results. The extended research for this project was completed in three parts. Beginning with an intensive literature review to deepen the researcher's knowledge of the field, and to more fully understand the Common Core standards. This was followed by an anonymous survey of students at the elementary school level, and finally a series of interviews of teachers from the surveyed classrooms. The goal of this research was to further test the interest in Minecraft for both teachers and students in elementary schools, and to address direct concerns from these parties. There was an intended fourth portion of research for this study however, due to complications, this was removed from the final project. This will be discussed further within the problems and limitations section.

Methods

The first part of the extended research was a blind survey of students. Students were instructed to complete the survey honestly and anonymously. While teachers and the researcher were present during the surveying session, they did not inform or assist the students in any way. The survey (Appendix A) asked students if they had played Minecraft before, in an effort to get

an idea of exposure to the medium. It then asked them to rate their comfortability with Minecraft on a scale of one to ten. Friendly, Minecraft related labels were found at the ends of the scale to help the participants understand the scale and feel more comfortable in assessing and answering the question. The final question of the survey asks students if they think that Minecraft can be used for learning in schools, and then asks them to elaborate on why or why not. The surveying session took place in three separate sittings, on three different days in different classes with each session. Participants were given 10 minutes to complete the survey. At the time of receiving the survey, students were asked to complete it, and upon finishing early, were given the option to write their favourite memory on the back of their survey, to put more context towards their response to the researcher.

The second part of the research was a conducted, verbal interview of the teachers of the classes previously surveyed. Each teacher was interviewed alone in their classroom at the end of the school day. They were told to answer openly and honestly, and that their responses would be recorded. These were not anonymous interviews, and each teacher signed to signify this. They were asked each question (Appendix B) directly by the researcher, who expanded on the questions slightly to deepen responses, though not going outside the bounds of the questions listed in the appendix.

Participants

The participants of the initial survey portion of this research were three separate classes, at the same school. Classrooms chosen were all in the fourth through fifth grade range. There were a total of 59 students surveyed from each of the three classes, all through the same procedure. The participants of the Interview stage of research were three teachers from the same

elementary school as the students surveyed. They were, Ashley Siemensma, a fourth grade teacher. Kelly Garcia, a fourth grade teacher. And Ryan Olson, a fifth grade teacher. None of the participants of either stage were compensated in anyway and their participation was voluntary in nature.

Results and Findings

Upon completing the research, surveys and interviews, the data was analyzed and organized. The transcripts from each teacher interview were typed for further analyses and accurate citation. Each survey response sheet was counted, and checked for accuracy and completion. The research into the background of Minecraft's use in the classroom helped to address the benefits that Minecraft provides, as well as the current direction of thought on how best to implement Minecraft in an educational environment. Further study shows how some schools have already incorporated Minecraft into their programs and how it has been approached at the individual student level. The independent study performed for this paper in survey and interview form, seeks to show the engagement of current elementary school students and teachers, and how their view of Minecraft can shape their learning.

Results

The initial intensive research showed that the utility of Minecraft has not gone unnoticed in the education community, with many studies and experiments into its use as an educational tool have already gone underway. In his recent study, "Minecraft as a teaching tool - A statistical study of teachers' experience using Minecraft in the classroom," Smeaton (n.d) looked into the reported outcomes of Minecraft's use amongst early adopters of the game in their classrooms, and his results are impressive. According to the study, 94% of those surveyed responded they

saw an increase in participation with Minecraft facilitated activities, as well as 88% were more likely to finish classwork and 54% to finish homework. (Smeaton, n.d.).

With little experience in this topic, many teachers may struggle to wonder what this new role may look like in practice. Fortunately, the few early adopters of the “Maker Movement” and of minecraft as a virtual learning environment have been eager to spread their findings in an effort to grow a more widespread community. Much of their work to break ground on the potential uses of Minecraft are openly available. For example, Gallagher’s book, *An educator’s guide to using Minecraft in the classroom* (2014), details many ideas and activities teachers who are new to Minecraft can try out. Tromba, a principal of Monroe Middle School in Oregon outlines the process he used in his Minecraft implementation in his article, “One Block at a Time with Minecraft,” highlighting a perfect example of the teacher as a facilitator model in letting the kids take responsibility for their own learning, (Tromba, 2013). In her own study, Treckles (2012) sought to develop methods to assist in creative writing assignments through virtual worlds such as Minecraft. She outlines how teachers can assist their students using effective prompts to begin a PBL lesson. Teachers should ensure that the problem is “clear, interesting, relevant, promotes teamwork in some way, and stimulates self-directed learning,” (Treckles, 2012, p. 5). There are even articles, such as Murray’s “Minecraft in the Classroom Teaches Reading and More,” which has a series of tables that link Common Core Reading and Math Standards directly to activities within the game (Murray, 2009).

While many of these articles deal with the base game of Minecraft, Gershenfeld’s (2014) Scientific American Journal entry delves into the world of modded Minecraft. The modded

Minecraft scene is an even bigger expansion to the already limitless base game of Minecraft. With hundreds if not thousands of mods available online, Minecraft can be tweaked and controlled to reflect exactly the game a teacher needs to teach any lesson. In his article, Gershenfeld speaks specifically about qCraft (Gershenfeld, 2014), a mod which adds elements of quantum physics into the world of Minecraft. While not the deep and convoluted science that backs many of the top quantum physicists in the world today, qCraft serves as a basic introduction to the field of quantum physics for anyone who plays it.

The survey for this study, closely mirrored the concepts modeled by studies in the past. In total, there were 59 responses from the students surveyed. Twelve students indicated that they had never previously played Minecraft before, while 47 had played in some form previously. Forty percent of the students identified themselves as being completely confident and comfortable with Minecraft rating themselves a ten on the scale, while 13% indicated they were entirely uncomfortable with Minecraft in any form (Figure 1). The rest of the students were distributed relatively equally around the scale with a slightly higher distribution at near completely comfortable levels.

In response to the use of Minecraft in schools, an overwhelming 84% majority of students believed that Minecraft would be a beneficial learning tool in schools, while only nine students responded that it would not be. Only three of these nine responded as having any experience with the game. Of those who indicated that they felt Minecraft was useful in schools, 18 saw it being useful in Math. Fifteen saw it as an effective creativity or art tool. Two saw applications in Geology. One indicated that they could possibly learn Geography. Seven responses could not be classified as any single response, resulting in a Miscellaneous category,

covering responses indicating learning facts directly about the game, generic “things” or Real World Survival. And the final seven indicated that Minecraft would be usable in multiple subjects including Math, ELA, Creativity, Art and Logic (Figure 2).

The teacher interview responses seemed to follow a similar trend to the student majority responses. Each of the three teachers had heard of Minecraft and agreed that Minecraft definitely had a place in the future of education. When asked where she thought Minecraft could be used in her classroom, Ashley Siemensma replied, “I definitely see it used in geometry... we did a lot of area and perimeter recently so I think it would come up a lot” (A. Siemensma, Personal Communication, 25 October, 2016). In fact, each of the three teachers brought up Minecraft’s potential use in the teaching of mathematics with Area and Perimeter and with Geometry. Some also thought there was potential with geology. There was further agreement on the potential concerns of Minecraft being brought into the classroom. All three teachers brought up a concern for student behaviour during a potential Minecraft learning block, with fears that they may get overexcited. However, Ryan Olson went further saying, “But you know, I think after they would kind of smooth out after a while. It would be mostly management” (R. Olson, Personal Communication, 1 November, 2016).

Discussion

This research aligned with the author’s expectations based off of initial literature review in preparation for the study. The student and teacher interest in the project followed the idea of thinking that is leading to the “Maker Movement.” They are seeking a more enriching and exciting method of learning, and technology interaction that is critical thinking based. The common concern amongst both students and teachers was that of classroom management, with

many of the student's worried that their peers would be distracted by the game and not focus on the learning. The teachers also agreed that students may become over-excited. However, despite these concerns a wide majority of students and all of the teachers agreed that Minecraft would be exceptionally beneficial in schools, not just in Math but in science and language also.

The ideas many of the students had, regarding the use of Minecraft as a visual representation and contextual window through which to view area and perimeter, align with Bingham and Ray's "Alignment Rating Scale" (Bingham & Ray, 2013). Falling quite easily into the Common Core Standards for math. Interestingly and somewhat unexpectedly, many of the surveyed students spoke specifically about how their creativity would be expanded given the task of building certain buildings. Though this is somewhat loose, it does seem to tie back to task driven learning. Building in Minecraft, while quite simple, can become an insurmountable task while alone. But to complete a project such as a recreation of the students own school would require measurements, careful planning, teamwork and communication. With a teacher working to facilitate the continued progress of their project, this would be an ideal example of a week long challenge based learning cycle, as defined by Dr. Shelley Cobbett, (Cobbett, 2013).

As much research has been done into the fields of virtual learning environments, the "Maker Movement," and Minecraft as a teaching tool, there is much more research to be completed. There has been no conclusive reports of the benefits of these methods, only case by case study outcomes. Deeper studies into the lasting effects of lessons taught in the gamified method will be a big push in the field over the next few years, should the trend continue as it has been. This research also brought up the issue of expanding tech and tech support to schools with

less funding or technology availability. Even with a push to roll out a minecraft based virtual learning method, without technology in the school, the plan could not be implemented.

Despite these areas of deeper study, both the previous literature and the results from this study make it clear that there is a desire and an opportunity to see a shift in the future of education. Preliminary studies show that this shift could result in deeper more authentic connection to the material, as well as an avenue for some students who struggle with the traditional methods of education. The research for this project showed directly from students a willingness and ability to begin their own self-guided education by coming up with ideas to utilize Minecraft to further the areas of schooling they may be struggling with.

Problems and Limitations

The execution of this study was not without its issues. Setting aside time constraints and communication issues, the main factor working against this project was working with the school's technology department. Whereas the principal and teachers at the site were more than willing to assist with this project, getting ahold of the IT department became impossible. After a multitude of emails, and phone calls, the final section of the research study was abandoned. Unable to implement a working test curriculum without Minecraft software on the computers, the final test of student and teacher Minecraft facilitation was canceled. It occurs to the researcher that this would be a problem for any school that does incorporate a Minecraft facilitation unit, due to the reliance on technology and the software being readily available.

A further problem with this project was scheduling appointments for surveys and interviews of a more significant population. Initial contact with the school attempted to reach six teachers, two from each grade level from third to fifth. However, as the study continued, it

became increasingly difficult to make appointments beyond the three classes that were completed. This was due in part to testing going on during the research period. As well as difficulties in communication with many of the other teachers.

The project was further limited by the small scale of the testing zone. Due to limitations in time and transportation, the surveying was located at a single schooling location. If carried out again, the survey would be better suited to a wider range of locations, from a variety of socio-economic backgrounds.

Recommendation

At the conclusion of this study, an overwhelming majority of data shows that Minecraft has not just interest, but also possibility to greatly improve the quality of student learning. Based on this research, the adoption of Minecraft at a national level, would have undeniable benefits. Though it is not feasible to envision the complete replacement of traditional education with Virtual Learning Environments, given the student and teacher willingness and excitement to embrace the project, and the positive outcomes that the early adopters have noticed, a district initiative to incorporate Minecraft for a once a week virtual learning session for grades three and up, would provide multiple benefits. Lessons during these sessions would be grounded in the Common Core Standards, but could explore any of the traditional areas of elementary education driven by Problem Based Learning Cycles and facilitated, not guided, by the teacher. By embracing the “ Maker Movement,” and utilizing teachers in a new role of facilitation to create an environment where students are not only encouraged, but also inspired to take responsibility for their own learning in challenge based cycles, schools will see an increase in engagement, learning outcomes in all areas of education. With a wealth of examples for Minecraft’s use,

through books, web repositories, and sharing centers online, teachers and schools have access to a multitude of examples of what a Minecraft facilitated Virtual Learning Environment can look like.

Conclusion

The field of Virtual Learning environments has been expanded and shaped by a large body of researchers over the last few years. Ranging from small studies at single locations to determine how students react, to large scale national surveys to find out how other teachers have been tracking their results. As the field expands, it opens up new and exciting possibilities in the educational pathway of the next generations of students.

Researchers are exploring new avenues of teaching methods based off of traditional theorists such as Vygotsky and Piaget. Avenues such as the challenge based learning cycle of Dr. Shelley Cobbett, expanding the student's connection to the material by making them responsible for their own learning. Similarly, the work of Dr. Catherine Schifter, shows how games such as Minecraft can reinforce student critical thinking, by allowing them to build their own knowledge of the virtual world through interaction with it. All of these ideas and theories play together in the "Maker Movement" phenomena sweeping across the nation and seeking a fortification of deeper critical thinking skills.

As the "Maker Movement" begins to change the minds of teachers and students alike, so too, does the adoption of the National Common Core State Standards Initiative. A government program that seeks to also deepen critical thinking skills through a strong foundational skeleton of basic standards that curriculum adhere to. As the standards roll out, many teachers are compiling activities and ideas to use the virtual worlds, such as Minecraft

to facilitate the teaching of these standards. Minecraft is perhaps one of the best suited virtual learning environments, given its widespread attraction to kids and adults alike. With modifications to the game such as Minecraft.edu, a specifically educationally driven version of Minecraft that seeks to make facilitation of the Minecraft environment even easier. The Minecraft.edu website also hosts a connection center where many teachers have shared their ideas on how to facilitate lessons in the virtual world, (“Examples by Subject,” n.d.).

This project has sought to show the reader that there are a multitude of benefits and approaches to the adoption of Minecraft in education. Teachers are supported in a growing community of thinkers seeking to push the limitations of the current education system. There are programs and databases dedicated to helping craft new and revolutionary teaching methods through the virtual platform. And research shows that many teachers are already excited to adopt Minecraft, as even with limited experience with the game, they can see its benefits. Research further shows that a majority of students want to see Minecraft in their classrooms as a tool for learning, in math, language arts, and many other subjects. Through the use of Minecraft, teachers will have a new means of fostering a deep and invested interest in their students for learning, while aligning their activities to the Common Core Initiative.

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Appendix B

Teacher Interview

Name: _____

1. How comfortable are you with technology in the classroom? _____

2. Have you heard of Minecraft? _____

3. Have you played Minecraft? _____

4. Do you think Minecraft can be used in the Classroom? _____

5. Do you think you have any lessons that could be used in Minecraft? _____

6. What concerns would you have with using Minecraft in a classroom? _____

Figure 1

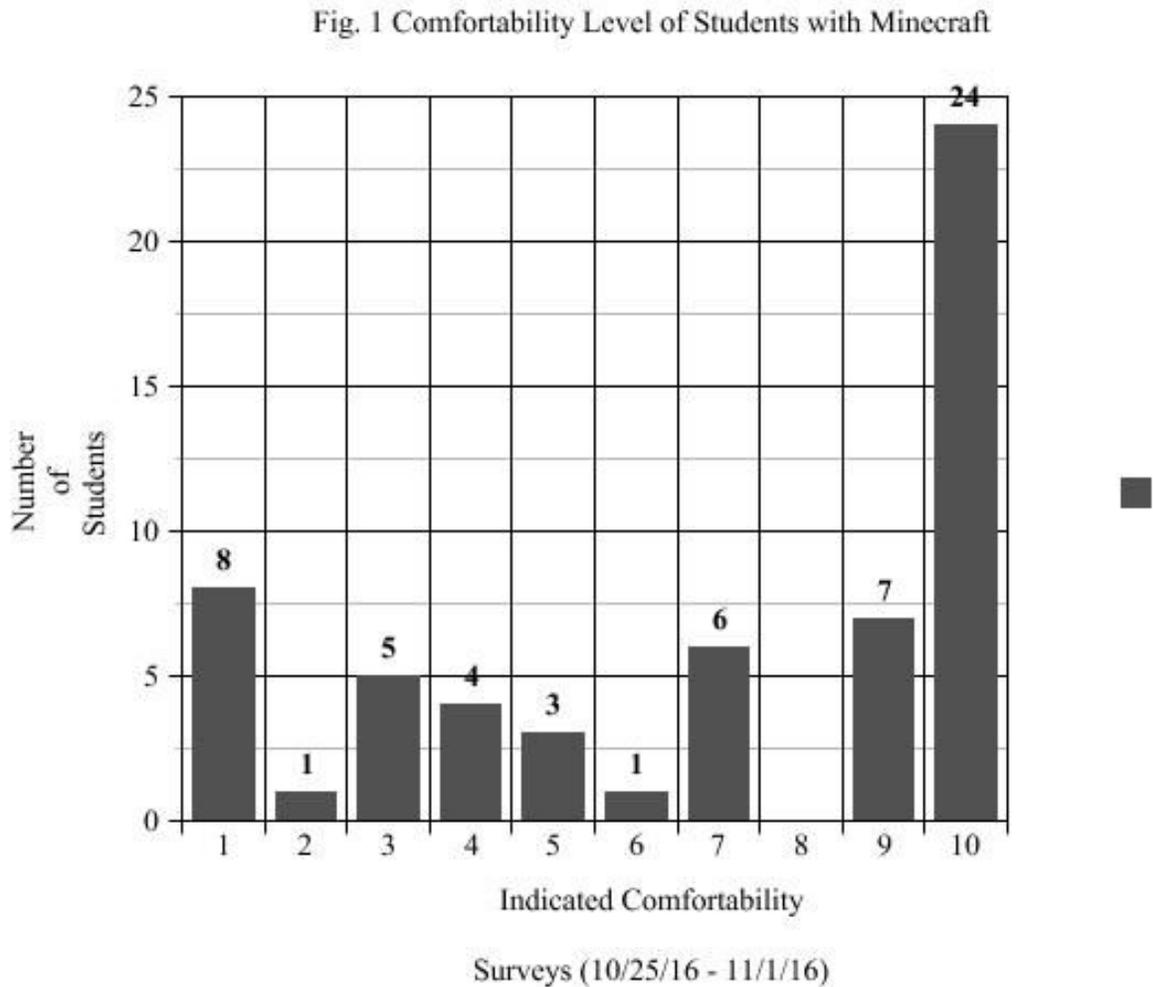


Figure 1. Comfortability level of students with Minecraft. This figure displays the student survey responses to their comfortability with Minecraft.

Figure 2

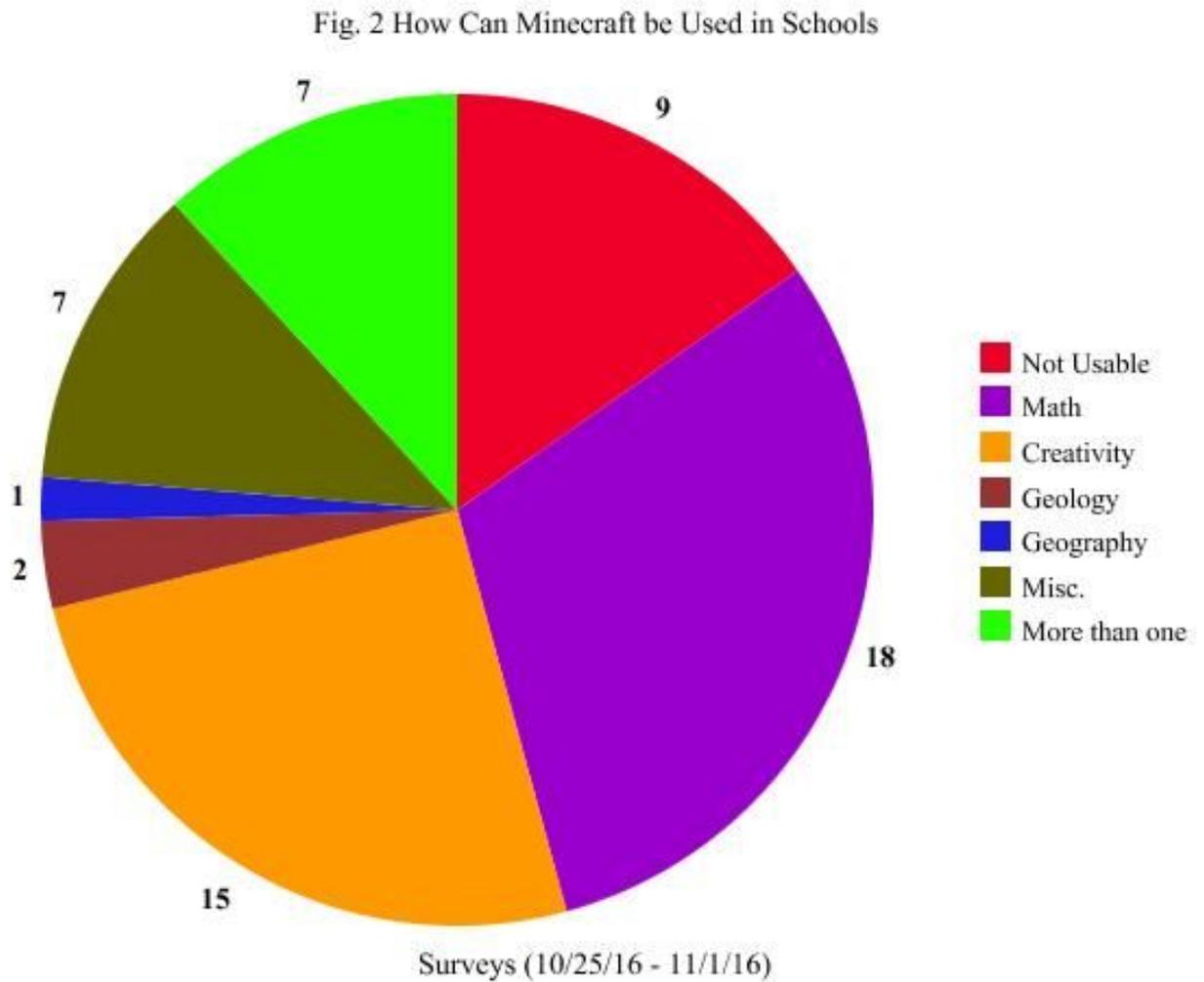


Figure 2. How can Minecraft be used in schools. This figure shows student survey responses to question number 3, asking if they felt Minecraft was useable in schools and how.