

A MILLENNIAL CASE STUDY OF LITERACY IN MINECRAFT BASED ON THE FOUR RESOURCE MODEL FOR READING

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Submitted in fulfillment of the requirements for the degree of
Bachelor of Education (Primary) (Honours)

Faculty of Education
Avondale College of Higher Education
2017

KEYWORDS

Minecraft, Four Resource Model, Generation Alpha, literacy, reading, multimodal.

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LIST OF ABBREVIATIONS

BYOD -	Bring Your Own Device
FRM -	Four Resource Model
GA -	Generation Alpha
ICT -	Information Communication Technology
PA -	Phenomenological Analysis
PC -	Personal Computer
TFC -	Twenty-First Century

STATEMENT OF ORIGINAL AUTHORSHIP

I certify the work contained in this thesis has not been previously submitted for the award of any other degree or diploma in any other institution. Furthermore, to my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference has been made in the text.

Signature: 

Date: 18 October 2017

ACKNOWLEDGEMENTS

The completion of this thesis would have not been possible without the support and guidance of several individuals. First and foremost, I would like to thank my supervisor Sherry Hattingh for her guidance throughout this project. The invaluable feedback, positive attitude, encouragement and dedication you provided during this journey is sincerely appreciated. I would also like to extend this gratitude to Phil Fitzsimmons, whom started my research journey.

To those who assisted me with the editing of this manuscript, particularly my grand-parents, Patsy Taylor and Associate Professor Allan Taylor as well as my father Scott Taylor, I appreciate your time and willingness to read my work and offer feedback. I could not have completed this research without you.

Most importantly, I would like to thank my family. To my parents Scott and Sharon Taylor, thank you for your endless love and support. You have both always believed and encouraged me to pursue my dreams, work hard and aim high. To my beautiful sisters Breanna and Olivia Taylor, I am so blessed to have you both as my best friends and cannot thank you enough for your love and encouragement. To Jasper Liston and Renwick Simpson, thank you for the constant banter at home. These moments brought laughter to a year of very hard work. To the Turner family, thank you for your love and support throughout my studies and everything you do for me. I am truly blessed to have you all. To my boyfriend Patrick Turner, thank you for your love, understanding, belief in me and for being my rock throughout this process. This thesis stands as a testament to my entire family's unconditional love and encouragement. Finally, I would like to thank the respondent, guardian and participants involved in this study for their time and commitment.

CHAPTER ONE: INTRODUCTION

Technology is ubiquitous. Today we live and adapt in a world where rapid technology developments are forced upon human lifestyle. Elements of reading and verbal communication appear inhibited as devices fulfil the extent of societal language and communication needs. In general, social media platforms provide opportunities for instant connection and communication around the globe.

International companies, such as McDonald's, attempt to meet this comprehensive shift in technology and method of digital communication. Previously stores focused on quality service to patrons through verbal communication as a method of processing orders. Today customers communicate, process and pay for orders without the need to speak because of programmed touch-screen devices and phone ordering applications (McDonald's Australia, 2017). These innovations have resulted in a hybrid of interactive screen time, particularly for children both in and outside the twenty-first century (TFC) classroom (Hiniker, Schoenebeck, & Kientz, 2016; Kervin, Verenikina, & Rivera, 2015).

Students born in the TFC (since January 2001) are growing up in a digital world (Merchant, 2015). Academics outline these students as “infused with technology from the prenatal stage” (McCoog, 2008; Merchant, 2015, p. 3), which suggests that a child's constant interaction with modern devices rewires their brain (Prensky, 2001). As a result traditional teaching and learning methods are proving ineffective (Prensky, 2001) causing a paradigm shift towards digital education. This reformation of the education approach (Cheng & Mok, 2007; Downes, 2002) aims to incorporate real life learning experiences that make connections between student's home and school life (Siemens, 2014).

Children are in continuous engagement with technology devices at home. This study investigates a child's technology practise after-school, and how it may impact learning and development. In particular, the focus is on iPads due to the dramatic upsurge in the popularity of this device since the 2011 Bring Your Own Device campaign (henceforth termed BYOD) (Clark, Twining, & Chambers, 2014). This campaign created a "digital education revolution", which required students to bring a portable electronic device to school (Clark et al., 2014, p. 80). It also increased the use of downloaded applications at home and school (Clark et al., 2014). For this study the application Minecraft was selected for review, due to its recent popularity. Lastly, this investigation is based on literacy, in particular the reading of information through various modes as the core to education and everyday life. Thus, the integration of an applicable literacy model, the Four Resource Model (FRM), which regards the diversity of reading, was essential for this study.

1.1 The Millennial's

In society distinctive age groups are classified by their net generation. Table 1.1 synthesises the work of authors Geck (2006) and Holroyd (2011) for a specific outline of generation dates and current ages. This table provides an accurate and relevant contextualisation for the participants within this research, with the terms Generation Alpha and Generation Z referred to regularly throughout the study (Geck, 2006; Holroyd, 2011).

Table 1.1

Generation Dates and Current Age in 2017 (Geck, 2006; Holroyd, 2011)

Generation	Years	Age in 2017
Generation Alpha (Millennial's)	2010	0 - 7
Generation Z	1995 - 2009	8 - 22
Generation Y	1981 - 1994	23 - 36
Generation X	1965-1980	37 - 52
Baby Boomers	1947-1964	53 - 70

Organisation of humanity into years of birth provides generalised information about the age group, culture, context and time period they were born (Howe & Strauss, 2000). The various context of each generation provides different technology experiences, which is insightful for the evolution of electrical devices. This research is based on a Generation Alpha (GA), who in this study will be referred to as the respondent and their parent as the guardian, as the respondent's birth year correlates with a technologically rich society, where technology has been "embedded ... in everyday practices" (Baron, 2008, p. 3). The selected respondent for this research was born in 2010, the first year of GA. This year also coincides with the release of the first Apple iPad (Apple, 2017). The selection of a respondent who has lived their entire life surrounded by technology and entered a gaming era (Gee, 2007) may produce rich, intricate and unique data on digital reading and literacy development. This may occur through their interaction with games and technology that other generations could not provide.

1.2 Applications and Minecraft

Tablets are highly intuitive, lightweight and small portable devices with an easy touch screen interface (Neumann, 2016). Academics emphasise the simplicity of these devices stating “children as young as two years” self-sufficiently use tablets and their applications (Neumann, 2016, p. 62). An application refers to the programs or software that can be downloaded onto a device through online stores, such as Google Play and App Store (Apple, 2017; Google, 2017). Studies demonstrate there has been rapid expansion in digital game/application purchases and gaming platforms over the past thirty years (Selfe, Hawisher, Ittersum, & SpringerLink, 2007). This growth is also seen in educational facilities, despite limited knowledge on the impact these devices and applications may have on a child’s reading development (Neumann, 2016; Neumann & Neumann, 2014).

Due to the paradigm shift in education, applications such as Minecraft, a three-dimensional Lego-like game, have been implemented into classrooms for educational purposes (Bos, Wilder, Cook, & O'Donnell, 2014; Cheng & Mok, 2007). Since its release in 2011, Minecraft has become one of the most popular applications in the world. Nebel, Schneider, and Rey (2016) state that over 21 million copies of the game have been sold for mobile devices. In 2017, Minecraft was ranked the number one downloaded paid application on both Google Play and App Store (Apple, 2017; Barron, 2013; Google, 2017). The prevalence of this application and its integration into classrooms with little research raises concern, specifically in regards to the potential impact the application may have on student literacy and reading acquisition.

Research acknowledges a gap between literacy education and applications used in the classroom (Bebbington, 2014; Nebel et al., 2016). However, the research field has failed to address this gap. This study aims to investigate through a GA’s

perspective the literacy elements used in the application Minecraft through the FRM framework (Luke & Freebody, 1999).

1.3 The Four Resource Model (FRM)

Luke and Freebody (1999) conceptualised the foundations of literacy into a simple framework known as the FRM. The framework consists of four reader roles, namely: (1) code breaker, deciphering textual meaning, (2) text participant, engaging semantic proficiency, (3) text analyst, modelling critical expertise, and (4) text user, exhibiting pragmatic competence (Luke & Freebody, 1999; Serafini, 2012). The FRM was selected for this research as an academic model that is appropriate and flexible to the new technological age because of its theoretical framework and contemporary use in education facilities (Luke & Freebody, 1999; Simandan, 2012).

1.4 The Researcher Perspective

A fundamental component to this study is the researcher's perspective and how this contributes to the investigation. Born in 1995, I am a "digital native" or Generation Z (Geck, 2006; Holroyd, 2011; Nikirk, 2009, p. 20). Despite exposure to computers and coloured television, my philosophical worldview does not align with academic papers in regards to youth exposure to technology and application use for learning. This is due to my current, limited understanding of applications and disinterest in gaming. This perspective is impacted further by my childhood experiences.

During my childhood, technology usage had boundaries. There were restrictions on what I watched or played, and the duration of these activities. I would often be engaged in verbal communications with other children, and outdoor play

with neighbours, siblings and cousins. This face-to-face interaction rarely involved technology. My reflections demonstrate shared quality time that required children to develop social skills, patience, respect and self-control at a young age.

I compared this experience and background to children today. GA's appear to be engrossed in gaming devices, oblivious to their surrounding environment or company. Bliton's (2013) study of parents delineated they hand their children a tablet device just to keep them "occupied for an hour so [they] can eat in peace" (p. 1). I worked in a small café and experienced this behaviour particularly during school holidays. On 13 March 2017 I documented an experience in my research journal about approaching a table with one adult and three children. I noticed the children were...*absorbed in their own iPad*. The children just grabbed...*the straw and continued playing [the] application*. This was the first time I significantly noticed the way technology absorbs the attention of youth in social settings. This made me query whether this behaviour affects children's holistic literacy development.

As a prospective primary educator I am interested in knowing whether the application Minecraft contributes to a player's literacy development. Every researcher brings unique bias, assumptions and prior experiences into investigations, and this can occur unintentionally. Lack of awareness in regard to potential bias can cause greater harm than good to a study. Thus, I documented my opinion regularly in regards to youth, technology and gaming exposure as a subjective awareness of my personal impact on this study.

1.5 Research Approach

Investigation questions were specifically designed to clarify the missing information and extend current knowledge. The aim of this study was to understand

through the eyes of a child, whether or not aspects of Luke and Freebody's FRM are apparent whilst playing Minecraft. The nature of this research required a qualitative study of questioning through survey, semi-structured interviews, observations and reflections to understand the full content. This collected data was then coded through the process of interpretative phenomenological analysis (Larkin, Watts, & Clifton, 2006). The core research question driving this study was: *What facets (if any) of Luke and Freebody's Four Resource Model emerge whilst a seven-year old interacts with the popular application Minecraft?*

The above research question was formulated based on interplay between emic knowledge and academic literature. The following sub questions divide the central inquiry into topical explorations deepening the field of knowledge and guiding the investigation:

1. What is the community scope on technology use, and does this number correlate to gaming?
2. Does Minecraft support the diverse nature of the term "literacy"?
3. Can praxis of the FRM be applied to Minecraft as a multi-literate context?
4. During a GA's exposure to Minecraft, are there variables that may enable or inhibit their literacy experience?
5. Using the aspects of the FRM, does Minecraft provide effective literacy development to youth during regular game play?

The above questions were addressed through a single descriptive case study method to help understand the "complex social phenomena" (Yin, 2009, p. 4). The respondent's perspective was constructed through one observation and semi-structured interview session within the respondent's natural home environment. The

collected data from this interview, the researcher's observations and reflective journal were analysed using interpretative phenomenological analysis to evaluate and report data in a "thematic form" (Larkin et al., 2006, p. 104). To ensure the rich, intricate data was reliable and trustworthy, all data was correlated via triangulation and member checking, ensuring I did not alter or distort the respondent's perspective (Larkin et al., 2006). Further data collection included a small-scale population survey, which helped provide a broader, community vision on the various perspectives and attitudes towards societal use of technology and gaming.

1.6 Chapter Summary

In this chapter Minecraft and the FRM were outlined as the research focus. It was acknowledged that TFC lifestyle, particularly in prosperous economies, have embraced a technology-mediated focus. These proliferations in technology have resulted in literacy altering in response to societal demands, despite limited academic evidence supporting its integration into the classroom (Ludwig, 2003; Thorne, Black, & Sykes, 2009). The purpose of this investigation is to spark inquiry into research on GA and the reading involved in popular applications such as Minecraft. Chapter Two will present a review of the literature, providing a clear scope on educational changes and academic perspectives regarding reading and literacy across technology.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The literature examined for this research was situated at the intersection of TFC education, multi-literacy, children perspectives and video game studies. TFC lifestyle is dynamic, and in response education is required to sculpt and adapt to the confronting, fast-paced paradigm that has transpired (Noweski et al., 2012). Education is challenged to facilitate the acquisition of critical literacy-related competencies and provide experiences that embrace the proliferating technology and multimedia demands, which contemporary society encounters (Noweski et al., 2012; Seely-Flint, Kitson, Lowe, & Shaw, 2014). This chapter provides a synopsis of what has been, and not been, researched in regards to GA, the FRM, TFC education, technology devices and video game use. This exploration exposes core notions and literature gaps throughout empirical research. These gaps highlight the need for an investigation of Luke and Freebody's sociocultural perspective of reading from the voice of a child, in relation to video gaming through Minecraft.

2.2 The Education Evolution

The education system endures a continual process of amendment. These phases of evolution are understood to be based on societal changes and cultural demands during a given period of time (Acosta, 2016). Contemporary alterations are focused on making learning inside the classroom relevant and connected to children's experiences and interests outside of the learning centre. Academics question whether this is evident in the teaching and learning strategies of the TFC.

Over a hundred years ago, American philosopher, John Dewey, argued learning centres are based upon the teaching concept "fact fetish", which focuses on rote learning and

out of context memorisation (Shaffer, Squire, Halverson, & Gee, 2004, p. 7). This information is important as contemporary education claims learning facilities are moving away from this method of teaching implementing modifications to meet present-day needs, demands and student interests (Shaffer et al., 2004). However, studies such as Shaffer et al. (2004), Burnett (2016) and Cash (2017) debate the authenticity of this claim. Cash (2017) acknowledges that contemporary education still appears to focus on memorisation and factual teaching. Therefore, when education declares they are altering teaching techniques to suit the needs and cultural demands of society, it is important to question whether changes have really occurred to the method of teaching. Or whether education is still based on Dewey's fact fetish with mere amendments to the tools used to teach.

It is clear society has entered a digital age. Burnett (2016) describes this as a phase of "technological evolution" (p.17), which requires educational institutions to provide current equipment and digital learning experiences. Siemens (2014) explores significant learning trends and concludes that education has been slow to acknowledge the impact of new learning tools and environmental changes on learners in today's digital society (Siemens, 2014). Cash (2017) emphasises that teaching practices need to deviate away from factual based teaching methods and equip children to "think differently, cogently and flexibly to thrive in today's world" (p. 2). This means the focus needs to be on multimodal literacy.

2.3 Literacy in Twenty-First Century Education

The definition of literacy is in a continual phase of deliberation (Seely-Flint et al., 2014). The expression of the term is understood to be shaped by ideologies, cultural and social influences, which alter between individuals (Drewry, 2017). For a literacy model to be valued in contemporary education, it is required to understand, appreciate and support the diverse and complex nature of the term.

Despite the increase of multi-literacy and multi-modal tools, there has been concern that visual literacy skills are not explicitly taught in primary education (Arthurson & Cozmescu, 2007). Arthurson and Cozmescu (2007) designed a visual literacy framework that was guided by the FRM for all levels of primary education. The visual literacy framework was intended to direct primary educators on how to employ a successful scaffold for multi-literacy education (Arthurson & Cozmescu, 2007). Harvey's (2016) investigation of visual literacy examined books and articles in an attempt to identify the difference between print and digital literacy in education. Whilst Harvey's (2016) study concludes that there is inadequate research in regards to literacy studies and education, the investigation acknowledges contemporary education is immersed with the challenge of providing experiences that embrace the innovative literacies of today. This is particularly evident with the continual increase of advanced information and communication technology (ICT) in education, with teachers expected to use it as a strategy to enhance holistic learning in various content areas (Pérez-Sanagustín et al., 2017).

Educators are impelled to direct students towards diverse modes of meaning making, which have broadened the context of digital literacy (Ohler, 2013) and widened the gap between print and digital texts (Harvey, 2016). Leu et al. (2011) emphasise that new literacy skills using ICT are critical in this online age. They state reading comprehension has developed to include more than isomorphic or print-based reading, which means that teaching practises are required to expose students to multimodal tools and provide new reading and learning experiences (Leu et al., 2011).

Pedagogical innovations such as digital storytelling (Ohler, 2013) and gaming for learning (Conole, Laat, Dillon, & Darby, 2008) embrace multimodal practices in an attempt to positively impact student technology and literacy competence. Gee (2003) states that video games expose people to new literacies and semiotic domains. The multi-modality of these

games includes words, representations, visual symbols and diagrams to communicate distinctive meanings. Since Gee's (2003) paper, game studies appear to focus on negatives such as game addiction, depression and violence (Granic, Lobel, & Engels, 2014). Hence, Granic et al. (2014) conducted a study providing a balanced perspective focusing on positive effects for cognitive, emotional, motivational and social domains. Granic et al. (2014) believe this is necessary as 97% of children and adolescents play video games for "at least one hour per day" (p.66). This demonstrates that the modern world encompasses different modalities of language communication and digital reading, which require people to be more understanding and knowledgeable of the variety of different semiotic domains that exist. As Gee (2003) outlined, language alters drastically between each genre, which can provide a diverse range of learning and literacy experiences for gaming. Gee (2003) states that the semiotic domains individuals are exposed to during gaming are relevant to student learning and literacy beyond the video game itself. Daniels, Brooks, Babson, and Ritzhaupt (2010) also state that gaming is not limited to the boundaries of the application or device.

Semiotic social spaces, informative books or videos, interactive online worlds and affinity spaces exist internally and externally to games (Daniels et al., 2010; Gee, 2007). YouTube is a particular source that gamers refer to as a method to learn, imitate techniques and emulate a creative place where they can share their work with others. Video game forums such as YouTube provide mass distribution of content to wide audiences. Lastowka (2011) outlines that Minecraft provides little to no aid or direction for players, thus YouTube has been a valuable external resource and tool for Minecraft players. A recent 2017 YouTube search for "Minecraft" showed 174 million videos, which is a significant growth since the 2011 Lastowka report for Minecraft showing only two million responses (Lastowka, 2011). Additionally, studies such as Niemeyer and Gerber (2015) and Nebel et al. (2016) both explore Minecraft and learning, focusing on YouTube as an external learning resource. These

studies highlight that YouTube enables players to work with digital tools to create prototypes for varied audiences. These filmed designs foster “collaboration and sharing” (Niemeyer & Gerber, 2015, p. 7) opportunities which can be used by novice gamers for tips and inspiration to enhance their experience (Nebel et al., 2016).

These digital, online environments create communities of people with similar interests and/or questions (Daniels et al., 2010). It also enables them to connect, communicate and develop through informal learning experiences (Daniels et al., 2010). Whilst Daniels et al. (2010) study was limited to a small sample, it accentuates the increase of technology in society and the necessity for research to explore the connections between literacy models and technology (Bebbington, 2014). Bebbington (2014) makes specific reference to the need for researchers to incorporate prominent theories of literacy, or well-known models into reading studies. This again highlights the gap in literature requiring further research. Thus, it is prudent researchers in the digital literacy domain incorporate theories of learning to provide a holistic approach for multimodal texts (Arthurson & Cozmescu, 2007). These technological tools need to support literacy as a method where meaning is created and exchanged (Arthurson & Cozmescu, 2007; Drewry, 2017; Seely-Flint et al., 2014).

2.4 The Four Resource Model

Technology, as a core sculpture of contemporary literacy, requires attention for the enhancement of both teaching and learning. Chun, Kern, and Smith (2016) offer an extensive view of technology and outline how it can be incorporated into teaching practice. This view (Chun et al., 2016) together with Simandan’s (2012) exploration of the FRM to map plans for literacy lessons, delineates the need for literacy principles to withstand continual sculpture and remain applicable to present-day and future technology innovations. Chun et al., (2016) and Simandan (2012) both applied the FRM as an adaptable, distinguished theory of literacy

learning. These researchers believe this model supports the concept that literacy is built upon individual ideologies, which can be altered to meet social and cultural needs (Chun et al., 2016; Simandan, 2012).

As a researcher interested in literacy, it is evident academics emphasise the need to apply a literacy framework that adapts to the semiotic domains of modern society, whilst effectively meeting education demands and the nature of the term *literacy* (Seely-Flint et al., 2014). Luke and Freebody (1999) believed that literacy had “become a continual millennium problem” (p. 9), which needed to be addressed through an alternative framework that could be applied in multi-literate contexts. They highlight the need for educators to deviate away from single method solutions to decipher literacy problems, and head towards critical, flexible notions of literacy, such as the FRM (Luke & Freebody, 1999).

The FRM upholds four practices that are of significance and can be addressed concurrently (Arthurson & Cozmescu, 2007; Luke, Freebody, & Muspratt, 1997). Luke and Freebody (1999), Cochrane (2009), Iyer (2010), Simandan (2012), Kaur (2012) and Jaeger (2017) value the FRM as a scaffold that redefines the conventional view of literacy aiding in the teaching of reading skills. These researchers view the four practices of the reader as code breaker, text participant, text user, and text analyst, as methods that effective readers employ (Simandan, 2012). These dimensions are summarised in Table 2.1 and expanded upon in the following subsections (Luke & Freebody, 1999; Simandan, 2012). Table 2.1 clearly differentiates the components of the FRM by outlining the purpose and applicability of each phase through example of functional questions.

Table 2.1

Overview of the FRM as guided by Luke and Freebody (1999) and Simandan (2012)

	Code Breaker	Text Participant	Text User	Text Analyst
Core Question	<i>How do I crack the code?</i>	<i>What does this mean to me?</i>	<i>What do I do with this text?</i>	<i>What does this text do to me?</i>
Purpose	Decode through grammar, punctuation, spelling, text structure.	Make meaning through real life connections and discussing content.	Using text functionally by understanding its purpose, targeted audience, structure and meaning.	Critically examine a text by asking questions and understanding influences.
Function Question/s	• What words are interesting or new? • What words are familiar? • Are any words difficult? • Do any words have similar meanings?	• Did this text change your perspective about this topic? • Can you predict what might happen next? • Does this remind you of something else?	• What genre (text type) is the text? • How does this text influence the reader? • How would the language change if this topic was composed in a different text type?	• Is there bias in the text? • How does new knowledge change your opinion? • Are there any concepts that need to be understood before reading this text?

Despite the increase of technology devices, novel papers exploring the FRM continue to provide either a generic description of the framework or limit their study by applying it to print-based texts (Jaeger, 2017) or standardised examinations (Cartwright, 2002). TFC education has seen learning facilities continue to apply the malleable FRM to embrace critical-literacy and multi-modal practices without adequate academic research. It is prudent that academics conduct research using the FRM in manners that meet the “social and cultural interests” (Luke & Freebody, 1999, p. 5) of shifting contemporary society to ensure teachers understand the appropriateness, including advantages and disadvantages of particular educational resources (Iyer, 2010). Hence, the focus for this research aims to provide this.

The case study of three middle school students by Rush (2004) indicates the FRM provides well-rounded instructions for the classroom in regard to comprehension and critical literacy. Iyer’s (2010) constructivist, grounded theory research in India with focal group

interviews of forty pre-service teachers, found there is a need to develop critical literacy and understand the cultural and social context impacting education (p. 4427). The FRM was implemented into a teacher-training program to seek comprehension and meaning making through various curriculum areas (Iyer, 2010). This investigation, whilst based on adult participants, provides deep insight into the need for learners to develop critically and contextually through the FRM.

The FRM promotes more than decoding texts (Derouet, 2010). It breaks boundaries by encouraging diversity, valuing reading visual cues and verbal models of texts, as well as supporting interaction and connection between the individual and the text (Derouet, 2010). Derouet (2010) examined the use of the FRM as a framework for the analysis and discussion of picture books in the primary school years. This research reiterated the benefit of the FRM in both verbal and visual modes, accentuating its connection with TFC education and its apparent multi-modal focus (Derouet, 2010). The emphasis was on middle primary (Years Three and Four) due to the concern that literacy interventions typically focus on emergent literacy. This highlights the need for studies to concentrate on students in Years One and Two, which this study achieves through a GA's perspective. Simandan (2012) summarises that the FRM has been used effectively worldwide to assist recording the strengths and weaknesses of all literacy learners. This aims to ensure appropriate teaching strategies are implemented into the learning environment to develop diverse skills and knowledge (Simandan, 2012).

The FRM is recognised for excellence due to the interrelation of the model and its focus on the student learning process for reading (Hinrichsen & Coombs, 2013). Hinrichsen and Coombs (2013) focused on gathering information to provide a reinterpretation of critical literacy by reviewing each element of the FRM. Their paper also examines the holistic application of the framework in TFC education and technology. Drewry's (2017) study

acknowledges the techniques by Luke and Freebody are based on practices that apply to a multitude of contexts for teaching and learning. The theory provides a synopsis of the multi-literate requirements for reading in the multimodal world (Drewry, 2017; Luke & Freebody, 1999). In commonality, studies that embrace the FRM appear to select the framework due to its ability to conceptualise literacy to appreciate the full context and unique definition of the term. Literacy is everywhere, and its diversity ensures there is no single method to teach it. Hence, the application and implementation of the FRM looks different in every classroom as it meets the social and cultural interests of the environment it is applied to (Luke & Freebody, 1999). As studies repetitively outline, the FRM is a framework that encompasses each element in unison rather than in isolation (Damber, 2012; Derouet, 2010; Drewry, 2017; Seely-Flint et al., 2014). It is a model that is beyond the “teaching and learning of isolated skills” (Drewry, 2017, p. 18) that encompasses sociocultural models, emphasises authentic (Durrant & Green, 2000) life-long learning experiences, and new literacies (Comber, 2001). However, for holistic understanding, the skeleton of the FRM is broken down into each of the four elements explaining what is expected of a reader .

2.4.1 Code breaker. The reader as a code breaker examines a text’s construction and fundamental features (Luke & Freebody, 1999). Researchers commonly recognise that breaking the code of texts involves making connections with spelling, the alphabet, letter/sound relationships, sentence structure, grammatical and punctuation awareness, and intonations (Ludwig, 2003; Luke & Freebody, 1999; Simandan, 2012). Whilst this can be applied to TFC education, Luke, Woods, and Dooley (2011a) emphasise the need for contemporary readers to be engaged with written and visual sources such as hyperlinks, lexicon, orthography, icons, as well as accurately reading and managing screen locations. Derouet (2010) reinforced Luke et al. (2011a), stating the need for TFC learners is to be visual code breakers and recognise that viewpoint and position can have significant influence

on meaning. However, Ludwig (2003) and Simandan (2012) outline the importance for readers to encode and interpret multimodal texts in response to contextual influences. Arthurson and Cozmescu (2007) indicate coding for visual literacy requires the reader to explore colour, position, style, and the relationship between the written and visual source. Whilst Derouet (2010) states visual code breaking encompasses the use of line, colour, viewpoint and positioning of images throughout a picture book as a method of influencing the meaning conveyed. Table 2.2 demonstrates the focal areas literature presents in regards to code breaking. This table provides a synopsis of where the majority of studies are situated. This visually adds to my research by explicitly outlining areas of negligence in academic literature that need to be addressed.

Table 2.2

Academic Focus for FRM Code Breaker

Code Element	Literature
Word Deciphering: <i>Phonological awareness, syntax, spelling and structural/grammatical patterns.</i>	(Baloiloi, 2014; Cartwright, 2002; Cochrane, 2009; Damber, 2012; Drewry, 2017; Honan, 2008; Iyer, 2010; Jaeger, 2017; Kucer, 2009; Ludwig, 2003; Luke, Woods, & Dooley, 2011b; Neumann & Neumann, 2014; Rush, 2004; Serafini, 2012; Serafini & Youngs, 2013; Simandan, 2012).
Visual Cues <i>Colour, position, style, line, relationship between written and visual</i>	(Arthurson & Cozmescu, 2007; Drewry, 2017; Serafini, 2012; Simandan, 2012).
Auditory codes <i>Verbal communication, sound</i>	(Baloiloi, 2014; Cochrane, 2009; Damber, 2012; Drewry, 2017; Simandan, 2012).
Multimodal Application <i>Navigation, positioning</i>	(Drewry, 2017; Luke et al., 2011b; Serafini & Youngs, 2013).
Context <i>Social and cultural context</i>	(Drewry, 2017).

In Table 2.2 it is evident there is less literature for each of the code elements moving down through the table. It is interesting to notice that despite the dramatic increase of

technological devices in the learning environment, there is limited analysis for multi-literate texts. Studies need to embrace visual features and recognise decoding beyond words by exploring the process of reading through multimodal applications and features such as auditory codes, visual cues, and contexts.

2.4.2 Text participant. A reader as a text participant in the TFC is expected to be able to read, comprehend, interpret, and evaluate visual features and symbols to make meaning for both print and digital texts (Serafini, 2012). This is understood to be a semantic practice, concerning meaning in language, with studies focused on comprehension and meaning making from visual, spoken, written and multimodal texts (Ludwig, 2003). However, text comprehension appears to be the more pertinent aspect of literacy research (Fawcett, 2014; Freebody & Luke, 1990; Shreve, 2006). For digital texts this can include the reader having active participation, a personal connection, collaboration, and opportunities for creative and graphic design (Luke et al., 2011a, 2011b; Seely-Flint et al., 2014). The reader should then make links to prior knowledge and experiences and compare this to real life familiarities (Luke et al., 2011a). A large proportion of academic research, as evident in Comber (1993) and Unsworth (2001), focus on text participant experiences in the classroom to build holistic reading programs and a space for critical literacy (Wilson, 2002). Few papers explore text participant qualities using digital texts, where most of these occur in the classroom without the integration of a child's perspective.

2.4.3 Text user. To be classified as a text user, the FRM expects contemporary readers to extend their tacit and explicit understanding through the use of external resources. The reading process needs to be broader than decoding. Kist, Doyle, Hayes, Horwitz, and Kuzior (2010) made clear observations on the environment of a Year One classroom and the behaviours of the twenty-four students in the class (Kist et al., 2010). This paper emphasises the need for reading to be broader than decoding, which connects to the FRM as a social

practice. Apart from outlining that the young generation are digital text users noting that from ages eight to eight-teen they spend more time on ICT than on “any other activity” excluding sleeping (Kist et al., 2010, p. 63), this article failed to provide a clear connection to any technology source or literacy model. Conversely, Denning, Griswold, Simon, and Wilkerson (2006) provide visual and typed examples of students as text users. These text users were required to use either a tablet, personal computer (PC) or laptop, and either a pen or keyboard (Denning et al., 2006). Again, this study is similar to others based on the use of technologies in-class, as it did not provide significant opportunity for student perspectives. Luke et al. (2011a) outline that this includes making connections to prior knowledge, proficiencies, interests, and social and cultural experiences whilst working with direct texts and virtual literacy occurrences. In particular, Gee (2003) indicates for TFC literacies a text user needs to engage with symbol representation, virtual design and multimodal codes. TFC text users for digital texts need to be in a continuous transaction in order to apply information from digital, visual and spoken texts (Luke et al., 2011a). Luke and Freebody’s FRM indicates readers need to extend beyond proficiency in regard to code breaking, meaning making and becoming text users, to encompass text analysts (Luke et al., 1997).

2.4.4 Text analyst. Being a text analyst involves readers being involved in critical thinking and understanding authors’ intentions. Lewison, Leland, and Harste (2015) outline materials and a procedure of how to integrate the concept of text analyst into literature; however, due to the questions it appears the scaffold is mainly applicable for print-based texts. For example, questions include: “How would this story be different if it were told from the perspective of ____ rather than ____?” and “What did the author want me to believe after reading the text” (Lewison et al., 2015, p. 190). These questions are difficult to shape to current multimodal texts used in contemporary literacy classrooms. Luke and Freebody (1999) and Serafini (2012) also emphasise the need for a reader to be involved in critical

thinking. In studies that explore the FRM, questions appear to be systematised to direct student responses, integrate the use of simple print-based texts or confine the study to the boundaries of a classroom. Hence, research is growing in one isolated area rather than expanding its domains into areas such as critical literacy through the voice of a child.

2.5 Critical Literacy through the Voice of a Child

The FRM is a critical literacy framework that can be applied to all readers (Luke, 2000). In Luke (2000) readers are separated into two main categories: foundational and competent readers. This information is not outlined in other studies but is of importance for researchers to consider as it helps to ensure the investigation provides reliable and relative information on the respondent(s). In brief, a foundational reader does not recognise key words or mistakes, whilst a competent reader is able to identify words, test predictions and self-correct where required (Luke, 2000). It is important the researcher understands the reading stage of the learner to ensure the reader is appropriately assessed. Interestingly a large proportion of studies attempt to understand the literacy perspective of a learner without personal discussion with a child.

The majority of literacy studies, except for Jaeger (2017) and Harris (2017), fail to provide the opportunity for children perspectives. Derouet's (2010) study is broad in terms of its focal age and makes connections between picture books and the FRM without the perspective of a respondent. Similarly, Simandan (2012) excludes the view of the respondents as he reviews and applies literature to formulate a precedent for a Year Seven literacy class. It is concerning that research aspires to elicit literacy techniques that are relevant to student interests, needs and progress, without consultation with a child in regards to the way they perceive or use a literacy tool. Rather, the focus of research regarding the FRM in education is generally based on the theoretical aspects of the FRM (Simandan,

2012). These studies analyse the effectiveness of a resource through adult assumptions, educator perspectives and structured questions that do not enable a child to express their thoughts, emotions or opinions (Arthurson & Cozmescu, 2007). This approach does not provide the same illumination to the study as one that incorporates a child's viewpoint (Harris, 2017). Children's voices are scarce, with most researchers in literacy education using "adult-centric lenses" (Harris, 2017, p. 22) rather than enabling a child's voice to be heard (Orellana & Peer, 2013). Standardised testing appears to be the main occasion where a child's opinion is perceived as important; however, this is just to critically assess, examine and compare the student's response to uniform results (Cartwright, 2002; Rush, 2004). Harris (2017) states that for best literacy education and practice, researchers need to conduct studies through the "lenses of those directly experiencing" (p. 23) what is being taught and how it is being imparted. Thus, when exploring literacy models in recent education, students in schools should have their holistic and unique perspective valued. Harris (2017) highlights that children are key informants; therefore educators need to consider children perspectives during decision-making. However, the study by Harris (2017) conducted in a Year One classroom with twenty-eight students, conformed to the typical boundaries educational studies focus within: the classroom. Whilst the study helps to reduce the literature gaps in regards to children's perspectives, it fails to provide an alternate outlook or understanding of a child's regular lifestyle or home routine due to the boundary of the school location.

2.6 Technology-Based Classroom

According to Olson (2010), video games encompass computer, video, touchscreen and handheld devices that enable individuals to move, react or alter components within the game system. Currently, most undergraduates were born around 1990 (Generation Y and Z), the introduction of the video game era (Greenberg, Sherry, Lachlan, Lucas, & Holmstrom,

2010). Since this time, video capabilities, graphics and the way individuals interact with devices has drastically altered. It was not until 2010 that the popular intuitive, touch screen interface known as the iPad was invented (Apple, 2017). Thus, GA were the first generation to have lived their entire life exposed to this advanced form of technology (Merchant, 2015).

Twenty-first century classrooms have demonstrated a focus on incorporating ICTs as tools to engage students in the learning process (Burnett, 2016; Shaffer et al., 2004). However, it appears there is a fundamental disparity between education and the realities of life in a global and high-technology based society (Shaffer et al., 2004). Evidence suggests electronic devices and games are a normal component of today's childhood, therefore to connect with student's out-of-school context, they should be incorporated into learning facilities as educational tools (Shaffer et al., 2004). Studies acknowledge that technology, and specifically video games, may change the landscape of education if incorporated appropriately (Shaffer et al., 2004). However, this expects teachers to integrate these devices with limited knowledge or academic evidence on a child's perspective of how they interact with these devices or particular applications. More recently, the national testing scope in Australia is forcing a change. The standardised National Assessment Program – Literacy and Numeracy (NAPLAN) test commenced digital trials throughout 2017 (O'Mara, Laidlaw, & Blackmore, 2017; Robinson, 2017). The National Assessment Program is completing extensive research and trials; however, this alteration generates a constraint for schools to have sufficient digital resources (Robinson, 2017). Research indicates that for these tests to be extensive, a high proportion of schools require students to complete the tests on mobile devices. Ironically, these mobile devices were blamed for the decreased writing skills evident in test results from the 2016 NAPLAN, due to claims that digital immersion inhibit writing development (O'Mara et al., 2017; Robinson, 2017).

It is evident that educators are being forced to integrate pedagogical tools to meet the ICT standards of TFC education with inadequate knowledge on how teaching and learning through technology can transform education (Beauchamp, Burden, & Abbinett, 2015). Statistical investigations suggest that screen based play engages students of various ages, not just upper primary or high school students (Kervin et al., 2015). Young children are increasingly operating game consoles, laptops and touch screen devices for communication and play (Burnett, 2016; Kervin et al., 2015; Merchant, 2015). However, it appears research typically disregards children's perspectives. This is reinforced by Bartholow and Anderson (2002), who focused on the impact of violence in games with forty-three undergraduate students. This gap in academic research is perplexing. Whilst Years One to Four students of primary school appear to be a focus for literacy models, as soon as technology is included, they seem to become a minority group.

The overview of schools notes that students in primary school use tablet-style devices (Beauchamp et al., 2015) whilst those in secondary use a combination of both laptops and tablets in their study (Clark et al., 2014; Olson, 2010). This information provides a glimpse on the contemporary tools children engage with at particular academic ages. Since the 2011 Bring Your Own Device Campaign (BYOD) emerged in Australian Schools as part of the "digital education revolution" (Clark et al., 2014, p. 80), there has been significant increase in portable, electronic devices such as tablets. However, Pruet, Ang, and Farzin (2016) who investigated 213 Year One students in North Thailand indicate tablet use in primary education appears to have been introduced with "limited empirical evidence on the [academic] effectiveness of a tablet" (p. 1131), warranting the need for further investigation.

Much focus has been in the context of the classroom; however, it is evident GA's use of technology extends beyond this. There is a strong argument for the need to survey the literacy experiences GA may have in their natural home environment, through analysis of the

applications GA select to play (Kervin et al., 2015). This is supported by Schramm, Parker, and Lylē (1961) who believe that humans need to remove themselves from the “unrealistic concept of what technology does” to children and “substitute the concept of what children do” (p. 169) with technology. The 1961 philosophy is imperative to this study as it acknowledges that there is continual demand to research what children do with technology, such as mobile devices (Cohen, Hadley, & Frank, 2011; Merchant, 2015). Therefore, emphasising the need for this study to explore tablet devices from the perspective of a child for inclusive knowledge.

2.7 Video Games, Children & Educational Connections

Tablets are appealing to children due to the lightweight, portability and interactive touch-screen nature of these devices. Merchant (2015) analysed children between 14 and 22 months interacting with tablet applications. The study argued that children are “infused with technology - from the prenatal stage” (Merchant, 2015, p. 3). These devices expose children to various semiotic representations and new media. Furthermore, these devices and applications present visual and auditory codes, all of which are embodied with social and cultural practices and connect to contemporary literacy understanding (Drewry, 2017; Seely-Flint et al., 2014). This recent knowledge requires academics to review literacy in applications from a different perspective (Merchant, 2015).

Until recently, academics focused on the potential harms of electronic devices (Bartholow & Anderson, 2002; Olson, 2010) specifically the exposure to inappropriate content (Gee, 2003). Due to the increased prevalence of touch screen devices and gaming in education, research is emphasising gaming as a method to teach academic skills. However, as soon as education, literacy and technology are intertwined, the only significant research involves studies that are isolated to the classroom. Thus, the home context is excluded,

children's individual perspectives are not valued, and the focus does not include students in Years One to Four of primary school.

As educators implement games for learning, even those that claim to be educational should be closely examined first to ensure they are implemented with fundamental research and a strong academic base (Shaffer et al., 2004). Interestingly, Shaffer et al. (2004) indicate that most educational games are produced in the “absence of any coherent theory of learning or underlying body of research” (p. 188). The educational games selected to play in class may not represent the same engagement students are permitted with applications external to the educational environment. This sparks inquiry into the contemporary applications youth are selecting to play at home and why. This may hinder the social and cultural context of literacy and mean students do not relate to the applications, particularly if they do not provide context or purpose and are based on factual teaching (Shaffer et al., 2004). Therefore, it is important for research to understand children's perspectives on game choice and the context involved. Education should then be based on this knowledge ensuring the classroom encompasses reliable, purposeful applications that relate to student interests.

2.8 Minecraft

Minecraft has grown in popularity since its release in 2011. In 2013 the Minecraft Pocket Edition topped the App Store for the first time. Since then, various editions have been released and more than 100 million copies on various video game platforms have been sold (Foerster, 2017). Nebel et al. (2016) literature review on Minecraft identified that Minecraft is played on multiple devices. They indicate that Minecraft for mobile devices were the most popular in 2016 selling over 21 million copies, followed by PC's (19 million) and Xbox's (12 million) (Nebel et al., 2016). Kawsar and Brush (2013) state that the difference between game popularity on devices is due to game controllers and their impact on the game.

In 2017, Minecraft still remains a top application on both Google Play and App Store (Apple, 2017; Google, 2017) highlighting its popularity, particularly on mobile devices correlating with Nebel et al. (2016) statistics. The global attention towards this video game sparked interest for academic researchers, education facilities and multi-million dollar companies, such as Microsoft who purchased the application for 2.5 billion dollars in 2014 (Foerster, 2017).

Minecraft provides endless opportunities for creative design and discovery. The game is described as a simulated landscape that provides players with “a set of tools to manipulate a fictional space” (Lastowka, 2011, p. 10) based on the creative energies of the player. Game players explore the simulated landscape, build and learn strategies of survival through trial and error, as the game does not include instructions (Dezuanni & O’Mara, 2017). The case study by Foerster (2017) examines 103 Year Five and Six students using the application Minecraft for mathematical and Engineering education. Whilst this study provides critical information to learning centres about Minecraft’s connection to Mathematics, it also reinforces the multi-year gap that is prevalent between Year One and Four of education.

Minecraft has been introduced into various education facilities, across multiple academic areas because of its popularity, for example, Geography (Scarlett, 2015; Short, 2012), Sustainable Planning (Brand & Kinash, 2013; West & Bleiberg, 2013), Mathematics (Bos et al., 2014; Foerster, 2017), Science (Nebel et al., 2016; Short, 2012), Physics (Forester, 2017) and Engineering (Bos et al., 2014). The concern is that these academic areas encompass diverse elements of literacy, but there appears to be limited research exploring these areas using appropriate, trustworthy literacy models. As previously outlined, the majority of research is based on students in upper primary (Year Five and Six) (Foerster, 2017), high school or university (Bebbington, 2014; Bebbington & Vellino, 2015; Marcon, 2013). Marsh’s (2011) study of twenty-six students, although exploring the role of literacy in

Minecraft for children aged between five and eleven years (Kindergarten to Year Six) is based on a broad overview of literacy, thus not specifically connecting to a respected reading model.

2.9 Summary

This review of literature interpreted trends from a composition of studies. This evaluation validates the problematic issues prevalent in TFC literacy education, particularly with the increase of technological devices as literacy tools. It is clear from the research that the FRM is a prodigious critical literacy model that is still applied in TFC education, despite its initial implementation in 1990 (Freebody & Luke, 1990). Our technologically rich society makes it difficult to think of literacy teaching without technology incorporated (Merchant, 2015). This presents concern for technology use in the classroom without relevant growth in research using pertinent literacy models in connection to multi-modal tools (O'Mara et al., 2017). Minecraft has become a popular educational tool; however, despite the connections between literacy and gaming, there is no evidence of a connection between a reading model and games. This raises concern as to why Minecraft is evident within the classroom without the necessary academic research supporting its inclusion. In addition, the majority of research involving education, including studies that encompass both technology and literacy, do not appreciate children's perspectives. More studies that encompass the perspective of children, particularly in education need to be conducted. Consequently, this study aims to extend the field of research by exploring TFC learning tools, with an explicit focus on Minecraft whilst centring on the properties of literacy through the FRM. The methodological practices employed to reduce this gap in literature through this study are explored in Chapter Three.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter outlines the philosophical foundation and methodological approach for this study. The execution of the research design and conceptual framework was through a single, descriptive and bounded case study explored through the perspective of a seven-year-old child (Creswell, 2013). The research domains as outlined in Chapter Two, involved collecting data through semi-structured interviews, surveys and the researcher's observations and personal reflections. This methodological approach was selected in order to provide a unique perspective on the research question: *What facets (if any) of Luke and Freebody's Four Resource Model emerge whilst a seven-year old interacts with the popular application Minecraft?*

Research questions and collected data are inherently connected through the overarching research design shown in Figure 3.1 (Punch, 2014). This relationship is critical to the theoretical framework of this study, as it guides the methodological tools and my perspective as the researcher, through a qualitative paradigm. This helped to ensure that deep understanding, intricate details and rich data were discovered in response to the research questions identified in Chapter One. The complex, unique information gathered was dissected through phenomenological analysis, a qualitative method of examination, which will be described later in this chapter.

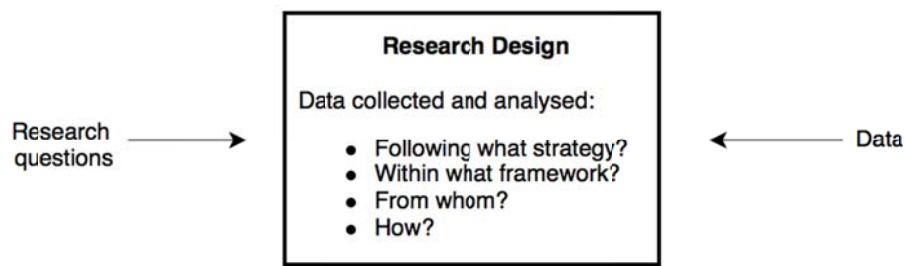


Figure 3.1 Research design connects research questions to data (Punch, 2014)

As Figure 3.1 shows, the research questions feed into the research design and elicit detail through the chosen methods. The selected qualitative methods enable individual perspectives to be expressed, exposing the research phenomenon. Through these methods, I aimed to clarify and fulfil the evidentiary warrant of research that was outlined in Chapter Two.

3.2 Phenomenology through a Qualitative Paradigm

Due to this study focusing on a descriptive case study and a single child's experience, a qualitative methodological approach was imperative. The focus was to establish and describe the perspective of a young child in relation to gaming and TFC reading. This paradigm enabled the research to have emphasis on the subjective experiences of the respondent, which was achieved by maintaining close association with the respondent gathering unique data and revealing the respondent's lived experience (O'Reilly & Kiyimba, 2015). It allowed data to be analysed through an "interpretative nature" as an aspect of qualitative inquiry (Marshall & Rossman, 2016, p. 20), which in this case study is phenomenological analysis (PA).

3.3 Phenomenological Analysis (PA)

Qualitative research is focused on meaning, and how this is attributed to the phenomena (Pietkiewicz & Smith, 2014). The data analysis approach for this research is based on a method that enables the researcher to examine and ‘make sense’ of an individual’s experience. PA was selected to provide an in-depth examination of the phenomena, rather than produce a generalised theory or set of instructions (Hycner, 1985; Pietkiewicz & Smith, 2014). This process is based on collecting and analysing “elicit rich, detailed and first person accounts of experiences” through real-time dialogue in the form of semi-structured interviews (Pietkiewicz & Smith, 2014, p. 10).

Analysis through the flexible PA framework enables the researcher to immerse themselves in the data and to move through emic and etic perspectives. For the semi-structured interviews, my field notes and observations, I was required to:

- (1) complete multiple close readings of the transcript recalling the atmosphere and becoming immersed in the data. I also began to highlight distinctive phrases and make notes about the interview experience.
- (2) transform notes into emerging themes after annotation of the transcript.
- (3) seek relationships and cluster themes by providing each cluster with a descriptive label grouping themes with conceptual similarities.

This coding and thematising process occurred manually using Microsoft Word. The PA process was implemented as a systematic and rigorous analysis to enable theory to be derived from the data collected through the case study method (Pietkiewicz & Smith, 2014).

3.4 Case Study Method

The focus of this research is on a single child necessitating a qualitative methodological approach. Due to this, it was prudent that this study was conducted as a single descriptive case study (Yin, 2003). To be classified as single, a case study needs to be grounded on one holistic case with careful consideration of the environmental context of the study (Yin, 2003). This case study is classified as descriptive as it focuses on describing the experience in the real life context where it occurred (Baxter & Jack, 2008; Yin, 2003). Employing Yin's (2003) single descriptive case study method enabled the exploration of one young child's perspective occurring in their home environment. This facilitated rich conceptual and theoretical development as a method of generating new thinking and ideas to explore the uniqueness of the phenomena in completeness (Hodkinson & Hodkinson, 2001).

As Burns (2000) outlines, case studies are an effective way to highlight relevant issues for the future that require further investigation. However, in order for a unique case to be recognised, Punch identifies four case study characteristics that are necessary: (1) a bounded study, (2) multiple sources of data and collection methods, (3) natural setting, and (4) wholeness and integrity (Punch, 2005, 2014).

3.4.1 Bounded study. The first characteristic states a case study is required to be a bounded system (Punch, 2014). The circumstance of this case study means it is bounded by a respondent (one core individual and their guardian), time (scheduled interview and observational periods), and place (specific location natural to the respondent). As outlined in Chapter Two, research that examines educational properties of games typically observe case studies within the boundaries of a classroom environment. This study extends the research field by exploring the phenomenon in the respondent's home context, during their free time. The particular

respondent was selected as the family relationship enabled data collection to occur without suspicion from the respondent and allowed for flexible time boundaries. This natural setting helped provide a realistic data source and insight into a child's everyday engagement with technology.

3.4.2 Natural setting. The intention of this research was for this data to be collected in a home setting. This was a core motivator behind the selection of a family member as a respondent. Whilst convenient, this selection ensured my presence in the respondent's house was not unusual, presenting a normal everyday occurrence. This helped the respondent to be comfortable and act in a regular manner, assisting rigour and trustworthiness of the data. A researcher without prior relationship established could impact the respondent's schedule, routine and normal behaviour. Instead, I could spend extended time at the respondent's house when needed to obtain data. Discussion with the guardian provided their perspective on the family's expectations at home and household structure, as well as their knowledge, tolerance and regulations of gaming. This helped to ensure wholeness and integrity was evident throughout the case study.

3.4.3 Wholeness and integrity. Wholeness and integrity are patent to this study. This study is about one 'whole' respondent, my reflections on this respondent and his/her guardian's perspective on his/her gaming. The selected methods enforce wholeness and unity within the case study. Integrity of this study was certified through ethics approval, discussed further in subsection 3.9. Consent and information forms were provided for all participants, as identified in subsection 3.7. To maintain integrity, all limitations are clearly disclosed and discussed in subsection 3.10 with trustworthiness addressed at the end of this chapter. In addition to wholeness and

integrity, this study was required to have multiple sources of data to meet the characteristics of a case study.

3.4.4 Multiple sources of data. Another characteristic of a case study is the need for the research to encompass multiple sources of data (Punch, 2005). For my study I specifically included semi-structured interviews, a survey and I wrote field observations and a reflective journal. These four sources ensured I met Punch's (2005) multiple sources of data as a characteristic of case study methodology. In particular, the reflective journal, documented regularly, recorded my perspective on this whole research experience.

3.5 Reflective Journal

I kept a reflective journal throughout this study to create transparency in the research process and expose my opinions, feelings and thoughts for the reader (Ortlipp, 2008). As Scheurich (1997) proposed, the reflective journal exposes the researcher's baggage and how it shapes and informs the research process. This enabled me to articulate my ideas and critically reflect, identifying the theoretical lens suitable for this research. The reflective journal also encompasses a duration logbook, which includes notes on my experience whilst playing the game Minecraft. These notes are critical as it demonstrates my journey, which contributed to the research design. My reflective journal also includes field notes and observations from the case study interviews.

3.6 Researcher Observations

Observations of the respondent occurred through engagement in the respondent's home setting during the scheduled semi-structured interview. This

helped develop understanding of the natural responses and actions of the respondent. These observations were documented through verbal explanations - picked up by the recording device - and also as handwritten notes. The observations were recorded with the relevant date and time to prevent error. Observations are understood to be the “second central methodological approach” to data collection (Flick, 2014, p. 44) as it encompasses documenting observational field notes and ethnography to contextualise observations. There are notable limitations to the integration of researcher observations, which will be outlined in the limitations subsection (3.10).

3.7 Semi-structured Interview

Semi-structured interviews for both the respondent and the guardian were selected as the preferred method for data collection. Prior to conducting the semi-structured interviews, permission was obtained from the respondent and guardian. Appendix A contains the full version of the semi-structured interview questions for the respondent, and Appendix B for the guardian. Appendix D contains a consent form composed in age appropriate language for the respondent and Appendix F for the guardian.

This method is “well suited for the exploration of the perceptions and opinions of respondents” and enabled me to probe for more information and clarification on particular themes or answers from the respondent (Barriball & While, 1994, p. 330). Semi-structured interviews ensure the respondent and guardian can provide a subjective response through open-ended questions (McIntosh & Morse, 2015). Whilst there are limitations to semi-structured interviews, these will be outlined in the limitation subsection (3.10).

Table 3.1 provides an example of the semi-structured interview questions for the respondent and Table 3.2 for the guardian. For the full version see the relevant appendices stated above. This technique was employed to help expose the personal opinion and beliefs of the respondent and guardian.

Table 3.1

Research Questions - Respondent Examples

- What are you doing?
 - What do you have to do?
 - Why do you have to do that? (Based on the answer the respondent provides)
 - What is happening?
 - Do you play other games?
 - Did you have to learn something to do that?
 - How did you know what to do?
-

These semi-structured questions provided structure ensuring areas of inquiry were met, whilst enabling the respondent and guardian to direct the interview (McIntosh & Morse, 2015). This arrangement allowed the researcher to probe the interviewee deepening their response by simply stating ‘can you explain’ or ‘tell me more’.

Table 3.2

Research Questions – Guardian Examples

Tell me about the respondent's technology usage?

How long has the respondent been playing on the iPad?

Does the respondent ask anyone questions about the games?

How much do you know about it?

Explain that some more for me.

What do you mean by that?

Questions such as the examples found in Table 3.1 and 3.2 demonstrate how open-ended questions aim to elicit unstructured responses to generate discussion (McIntosh & Morse, 2015). The responses to these questions were audio recorded – with permission – using a disconnected mobile device to ensure a reliable, good quality recording of both the respondent and guardian. This audio recording was a safeguard and vital for reliable data analysis. Strict precautions were taken with the device. This included ensuring the device was password locked and stored in a cabinet in a secure room only accessed by the researchers involved. The procedure of phenomenological analysis, using the seven steps outlined by the Framework Method then occurred as outlined below (Gale, Heath, Cameron, Rashid, & Redwood, 2013).

3.7.1 Phase one: transcription. A verbatim or word for word transcription of the audio recordings from the semi-structured interviews was completed following the interview. This was imported to a word processing document with large margins and adequate line spacing to code and make notes during data immersion (Gale et al., 2013). Transcription occurred using the 'playback' feature on the phone to assist with

the speed of the transcribing process. This was important as member checking could not have occurred until all transcription and initial readings of the interview were completed. This certified any clarifications or areas of interest from the previous interview were addressed during the second meeting. The next phase involved familiarisation with the interview.

3.7.2 Phase two: familiarisation. Prior to coding, I read the entire interview a minimum of three times. This reflection process known as familiarisation is a vital phase of interpretation. I needed to become familiar with the transcript and any “contextual or reflective notes” to help expose important information (Gale et al., 2013, p. 4). The process includes recording analytical notes and thoughts on paper as my preferred method of reading and interpreting. Further dialog between my supervisor and myself benefitted data analysis as my supervisor uncovered hidden and missed meaning from an alternate perspective (Gale et al., 2013).

3.7.3 Phase three: coding. The coding phase commenced after I familiarised myself with the transcript and contextual notes. This involved reviewing transcripts and observational notes line by line, highlighting a range of substantive cues including terms, emotions and behaviours that may be relevant. All codes were formulated based on what appears within the data source to ensure no data was missed or incorrectly interpreted. These codes went through the process of member checking and triangulation between my supervisor, the respondent, guardian and myself. This involvement aids perspective and ensured an accurate representation was proposed in the findings. This was followed by developing an analytical framework.

3.7.4 Phase four: analytical framework and application. Once initial coding of transcripts occurred, all stakeholders discussed the proposed labels and agreed on the set of codes to apply. Codes were grouped into categories and clearly

defined to formulate a working analytical framework, which is systematic, comprehensive, transparent and iterative. The process occurred until the final transcripts and observations were coded. Noteworthy information that did not meet categories was placed into the classification 'other' to ensure data was not ignored (Gale et al., 2013). The basic analytical framework constructed was then applied to the subsequent interview and observational records, which was followed by phase five: charting data.

3.7.5 Phase five: charting data. Interviews produce voluminous amounts of qualitative data, thus it is vital this information is appropriately reduced. This research used Microsoft Word, which assisted the researcher during the charting data phase of the Framework Method (Gale et al., 2013). I organised data into a framework matrix to summarise and categorise all data into core themes. Care was required to ensure original meanings were maintained throughout, with no original transcripts deleted at any point. Interpreting the data followed this phase.

3.7.6 Phase six: interpreting the data. The researcher maintained and updated a reflective journal throughout the study that included notes from interviews, observations and coding processes. This journal helped identify my primary understandings of the data and provided noteworthy information that assisted with data interpretation. After interpreting the data, I compared it to the statistics provided within the community survey.

3.8 Survey

To provide a broader perspective on the community a survey was conducted. Appendix H provides the full version of the survey. The survey aimed to represent the wider community's interaction with technology devices and gaming. It also strived to

expose the perspectives of different generations in relation to technology and gaming. To achieve this, the survey was conducted unsystematically, in various locations and included participants of different ages and genders. There was no population specification for this survey as it was a random community sample conducted in July 2017. The survey strived to include at least thirty participants. This number was selected as Hill (1998) indicated “sample sizes of 10 to 30 are sufficient” (p. 7). However, the more individuals who participate, the more reliable the results. Prior to completing the surveys, a pilot survey was conducted.

The survey was designed to be quick and simple to complete using check boxes. These check boxes provide perimeters to participant answers, which enables data to be analysed in numerical form. This structure means participants only select responses applicable to them, therefore they are not expected to complete an irrelevant question. The limitations to this form of survey will be identified in subsection 3.10.

3.8.1 Pilot survey. The pilot study occurred with ten individuals, including male and female participants, aged from six to sixty-three years old. Hill (1998) and Hertzog (2008) outline that for a sufficient pilot study, ten participants are the minimum recommended amount. This number was appropriate as this pilot study does not aim to represent the population. Rather, it aims to guide the structure of the survey to ensure its implementation was appropriate to the extensive target population of various ages and genders (Johanson & Brooks, 2010). These individuals provided written feedback on the survey and were also involved in a follow-up discussion. The pilot study surveys were received positively by those involved who willingly gave their opinions. With these opinions I was able to clarify and reword questions five, six and eight. The old and revised questions can be compared and contrasted in Table 3.3.

Table 3.3

<i>Survey – Reworded Questions</i>		
Question	Old Question	Revised Question
5	What do you use each month?	Which of the following do you use each month?
6	How many hours do you engage with technology each month?	How many hours a day do you use technology?
8	Do you play games?	Do you use any of these devices for gaming?
-	What types of games do you play?	Removed completely. Replaced with question nine and ten outlined in figure 3.2.

Furthermore, these participants assisted in the addition of question nine and ten as evident in Figure 3.2. The entire survey is attached as Appendix H.

9a. Briefly outline your favourite game and why.

Favourite game: _____

Why: _____

9b. Is your favourite game the game that you play the most?

☐ Yes ☐ No

9c. If not, why?

10. What prevent or stops you from playing a game?

☐ Occupation (including students) ☐ Technology restrictions ☐ Religious purposes

☐ Activities (Music/sport practise) ☐ Other: _____

Figure 3.2 Survey – Question Nine and Ten

The pilot study helped to ensure the survey was above satisfactory and free from errors or conflicting statements prior to formal administration. This ensured

consistent interpretation of the survey questions to strengthen the reliability, dependability and utility of the results.

3.9 Ethics

The researcher has been cautious in the application of all aspects of this study to ensure all potential ethical issues and limitations within this study have been addressed. For the data collection phase of this research project to commence, ethical clearance from Avondale Human Research Ethics Committee (HREC) was required. On 31 October 2016, ethics approval was granted. The respondent and guardian were contacted to receive an introductory letter and explanation that outlined the research intentions and objectives of the study. Dates were also scheduled based on the respondent and guardian availability for data collection. However, this approval did not include surveys, as surveys were not included in the methodology until early 2017. A resubmission to Avondale HREC was required, with permission obtained on 31 August 2017. Approval from HREC would not have been granted if I did not consider and implement strategies to combat limitations imposing the study.

3.10 Limitations

All research has limitations which need to be addressed (Denscombe, 2012; Marshall & Rossman, 2016). These “limitations derive from the conceptual framework and the study’s design” (Marshall & Rossman, 2016, p. 85), emphasising the need for researchers to acknowledge the boundaries, strengths and limitations of their proposed study (Yin, 2014). The following limitations pre-empt likely reservations for this study and the extent the research findings can be generalised (Denscombe, 2012). By outlining the limitations it is clear on the extent of what this

research can achieve, bearing in mind the particular design, methods and scope of the investigation (Denscombe, 2012).

Qualitative methodologies are diverse and differ amongst disciplines (O'Reilly & Kiyimba, 2015). A researcher's ontology, epistemology and methodology impact the methodological approach through the choice of data collection and analysis methods (O'Reilly & Kiyimba, 2015). This inconsistency between disciplines and the conceptual framework of study designs outlines issues of quality and credibility within research (Patton, 1999). To ensure quality was maintained within this qualitative case study, the data collection methods and analysis were implemented at a high standard, with specific parameters employed. All methodological approaches were based on a recognised and distinguished academic approach, which will be discussed in the following subsections.

3.10.1 Case study limitations. This single case study was based on anecdotal evidence from one person's experience. A major limitation rested with access to the site and the respondent. Limitation of access was minimised by selecting a respondent from my wider family circle. This prior relationship provided ease of access and openness to the family, reducing the likelihood that I was refused access. It also helped to provide a natural home environment for a more comprehensive and informed understanding of the family structure.

This could be viewed as a limitation in the way that a family member may feel compelled to assist with my research even if they do not want to, which could essentially impact or skew the data. Thus, through varied communication options I ensured the respondent and guardian did not feel forced to participate in my study. The reader may also assume this research was biased due to a convenient sample. However, the respondent was required to meet the criteria in Figure 3.3 to be

considered. Failure to meet these aspects meant a different respondent would have been selected.

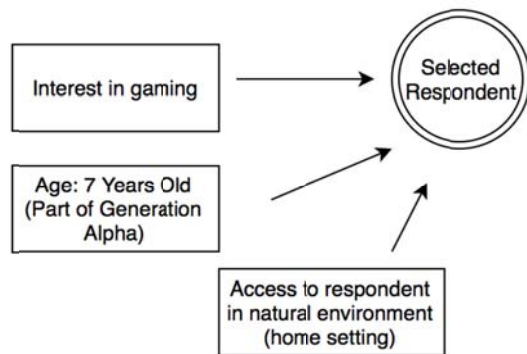


Figure 3.3 Respondent Selection Criteria

Furthermore, the relationship between the respondent and myself could pose concern to the privacy of the family involved. Confidentiality is paramount as this study involves a minor. To ensure the respondent is not detectable, identifiable characteristics and demographical information have been removed. This ensures concealment of the family and respondent's identity. Likewise, the respondent was selected from my wider family circle, consisting of numerous individuals, including those of similar age and various genders, thus making it challenging for anyone to identify the respondent.

The selection criteria were specifically designed to be general ensuring an average 7-year-old child was selected for this study. This does not mean the research can be replicated or generalised to encompass all seven-year old children, but it may be an incentive for further academic inquiry into the phenomenon. As stated, in order to maintain a natural environment and for ease of access, an individual who met this criteria from my wider family circle was selected. Another limitation of this research is that it is based on one child's perspective. I used this single case study to provide

focused and comprehensive in-depth information on one individual. I addressed this by providing the perspective of the wider community through a random survey.

To minimise emotional strain on those involved in the study, including myself, I carefully planned out the investigation with all the participants. The respondent and guardian were in control of the organisation and scheduling of all data collection sessions and had the option to stop data collection immediately without reason. The process of triangulation between respondent, guardian and myself occurred directly after each interview to maintain rigour.

3.10.2 Semi-structured interview limitations. Semi-structured interviews provide personal data and can elicit valuable information. The data provides interesting consistencies and issues raised by the interviewee. I had to carefully administer and document the interviews to ensure the interviewee's identity was not exposed. I did this by using 'respondent' and 'guardian' as the key terminology to prevent identification.

Semi-structured interviews also provide flexibility and the ability to probe ambiguous phases and clarify answers to reduce limitations. However, this can only be achieved if a positive rapport and relaxed environment has been established with the interviewee. Barriball and While (1994) indicate that not every participant has the characteristic of a good participant, which can be a major limitation. To overcome the limitation of a participant (particularly a minor) feeling uncomfortable, a prior relationship was established and a natural environment was used. This ensured the interviewee's were comfortable talking with me.

The respondent was also selected because of their passion and interest in Minecraft. This helped encourage the respondent to provide comprehensive answers and reduce the likelihood of the respondent becoming uninterested (Barriball &

While, 1994). Open-ended questions were designed, as stated in section 3.7, to minimise researcher input reducing my impact on the data.

Semi-structured interviews can pose a challenge with validity and reliability, particularly when multiple participants are interviewed. Barriball and While (1994) highlight that multiple participants creates an issue when the researcher is required to compare expressions and diverse terminology. This was not a problem from my study as I only had one respondent together with the guardian. Furthermore, member checking was conducted with the respondent and guardian to ensure I interpreted the meaning behind the transcript accurately.

Concern of semi-structured interview reliability can also occur if the respondent refuses to be audiotaped. To minimise this, clear ethic approved guidelines were provided and discussed with the respondent and guardian prior to recording. This helped inform them of the purpose for audiotaping, provided an opportunity for questions and reiterated the process of confidentiality as evident in the approved Avondale HREC ethic form: *All voice recordings will be transcribed and immediately deleted. The transcribed data will be stored on a password locked hard drive that is only used for this research project, with all data destroyed after the minimum five years since the last publication. The hard drive will also be kept in a locked storage cabinet when not in use, which is in an office locked with a separate key.*

Ethics approval demonstrates that security of the respondent's identity is a priority for this study. Thus, the above process, as well as the prior connection with the family helped reduce the chance that the respondent and guardian would not permit audio recordings to be conducted. Another limitation to this study includes surveys.

3.10.3 Survey limitations. I conducted a pilot study prior to administering the survey. This helped address potential issues in the survey development. The specific concerns included the difficulty of the survey, obvious errors or omissions, the appropriateness of language, consistency in survey requirements, and clarity of questions (Johanson & Brooks, 2010). To certify – to the best of my ability – that the participants had a clear understanding of the survey, all questions followed a similar structure as evident in 3.2. The pilot study also helped refine questions ensuring that relevant data was being asked without the researcher predetermining the answers. The survey also included additional lines as an option to write an open response allowing participants to add their own options where needed. The inclusion of these personal response answers, in addition to check box responses helped combat these limitations.

To ensure anonymity of survey participants, demographical information excluded names and addresses. The surveys were administered at various locations: Avondale College, local churches and community areas such as cafes. Family members, friends and colleagues assisted with the distribution of the survey forms returning them to me to be kept in a secure location.

The survey was conducted on a small sample of the population to expose themes and facilitate holistic understanding of the phenomenon (Baxter & Jack, 2008). A limitation of this includes participants completing multiple surveys, therefore skewing data. To prevent this, the survey clearly states it is to be completed once and not on behalf of another individual. Most surveys were completed in a proximate location to me where participants could ask questions about the survey and study.

Whilst diversity of location was a focus to encourage wide spread of perception, the overall survey location and participant selection was based on

convenience of access to family, friends, university and their local communities.

However, I administered the survey unsystematically, in various locations to minimise the impact of this limitation.

3.11 Trustworthiness of Methods

In this study, I addressed the four quality criterion of credibility, transferability, dependability and conformability (Shenton, 2004). Lincoln and Guba (1985) contend that credibility is one of the most significant factors inaugurating trustworthiness within the quality criterion framework. To ensure credibility, the adopted methodologies and data analysis are well established approaches for qualitative study (Yin, 1994). A detailed description of the microethnography that encapsulates this research helps provide a ‘thick description’ of the phenomenon under inquiry (Shenton, 2004). All information relevant to the study and participants involved was made explicit prior to the commencement of data collection. The respondent and guardian were also aware of the background and experience of myself as the researcher.

I completed member checks throughout this qualitative study to ensure transcripts and observational notes matched the articulations that were intended. To certify this, I organised debrief meetings with participants to review how the data was interpreted and if it was an accurate representation of what the respondent anticipated. Frequent meetings were also organised between my supervisor and I to broaden knowledge of thesis writing and to deconstruct the study requirements. During the scheduled weekly meetings collaboration occurred to formulate action plans and discuss concerns, research bias, preferences and alternatives. My supervisor provided extended time to review progress, discuss alternative approaches and formulate

ongoing action plans to meet targets for Avondale College's honours regulations. This included composure of weekly minutes, progress reports, evaluation of chapters and submission of strong chapter drafts. External peers and academics also provided feedback on the research, which helped refine methods, strengthen the research design and create a more trustworthy study.

The selection of random sampling for surveys had the potential for me to select informants who were uncooperative and inarticulate. This could have impacted the trustworthiness of the data collected and skewed results. To prevent this, I designed a survey to be completed using supplied pen and paper in a simple and quick format. I was also not forceful or demanding when approaching strangers to participate in the study, this flexibility ensured those contributing to the study were sincere and willing to complete the survey honestly and independently if they chose to.

As Shenton (2004) acknowledges, triangulation helps to provide clarification between respondent, guardian and researcher. Triangulation was conducted for all observations and semi-structured interviews completed in this study for conformability of the two major data collection strategies. Further triangulation was employed via the diversity of informants through the survey (Shenton, 2004). The survey results provided by the participants increased credibility by providing a more stable perspective of reality by comparing and contrasting community perspectives against the original case study. Through four sources of data, a "rich picture of attitudes" could be verified (Shenton, 2004, p. 66).

I made extensive provisions to ensure the quality criteria for trustworthiness was employed. In addition to the techniques outlined above, I ensured this study established the context with a detailed description of the phenomenon for the purpose

of transferability. The methodological approach was clearly described for result dependability, integrity and the opportunity for the study to be repeated (Shenton, 2004). These strategies helped ensure the research was academically sound and purposeful to research.

3.12 Summary

The research design for this qualitative study was outlined. The site and participants for the case study and survey were described, including an explanation of their selection processes. The use of observations, semi-structured interviews, survey and a reflective journal were deconstructed and explained as the four data collection tools. The advantages and limitations of the study were unpacked and addressed. The use of phenomenological analysis was discussed in section 3.3. Trustworthiness and ethical considerations were identified and steps to ensure adequate solutions were provided. These ethical considerations and approval from Avondale HREC enabled data collection to commence. Thus, Chapter Four presents the findings from the methodological approach outlined above.

CHAPTER FOUR: RESULTS

4.1 Introduction

The purpose of this chapter is to present the results obtained from the semi-structured interviews, survey, researcher observations and reflective journal into themes. These themes emerged from the data providing grounds and structure to the core research question: *What facets (if any) of Luke and Freebody's Four Resource Model emerge whilst a seven-year old interacts with the popular application Minecraft?* These themes surfaced through the process of interpretive phenomenological analysis, as the core methodology to code interviews, observations and the researcher's reflective journal.

The data is presented in the order it was collected. This provides a natural flow and foundation to the study. My perspective is presented first to provide a holistic representation of my experience. This is followed by the community perspective, which provides societal viewpoints and contextual basis to the study. Lastly, through the individual case study, more specific information and data is presented regarding the seven-year old respondent and the perspective of the guardian.

4.2 Unveiling the Researcher Perspective

I completed a reflective journal to provide a rich, detailed and accurate representation of the holistic experience throughout the study. The first entry on 9 May 2016 reflects the aim of the research...*I want to know if Luke and Freebody's FRM, which was designed and recognised in the 20th Century, is applicable in 21st Century lifestyle.* The purpose was to discover if the...*FRM could be applied to a multimodal world such as that in Minecraft, which...does not involve written text.*

Additional entries transpired after this initial record. This occurred in a non-systematic manner over a succeeding 16-month period, due to the time frame of this study.

4.2.1 Initial reflective journal contributions. I worked towards regularly documenting experiences, thoughts and questions concerning my study. The diary entries (prior to February 2017) particularly discuss literature in the research field and personal remarks. The extract from 11 June 2016 demonstrates my interest in the code breaking aspect of the FRM...*can you decode in a game that does not display written linguistics?* By 14 July 2016, I began to understand...*you can read, interpret and take in information without words. We do this everyday, particularly when driving a car.* As I became immersed in relevant literature, it was clear that there was...*a gap in data.* It appears...*research always focuses on reading skills (15 July 2016),* but in the TFC the focus is on digital platforms, semiotic hyperlinks, icons, navigation, and unique and orthography impact a reading experience (Luke et al., 2011a). I wondered if the FRM could...*be transformed into the lives of GA? (15 July 2016).* By 6 August 2016, I understood the impact of gaming in society and questioned...*what is the top application purchased on Google Play and App Store?* This same thought occurred multiple times throughout the study, specifically in my journal on 24 January 2017...*what is currently the top application on Google Play and App Store? Has it changed?*

I expressed interest in children's use of technology and how they can decipher how to use a device so quickly. From reading literature, I upheld the view that mobile devices such as...*iPads would be the most popular device,* especially for children due to their portability and touch-screen features. On 23 August 2016, I wrote a reflective post...*are young children trained to interpret through technology?* The questions

continued as I also asked about...*effects on a child's development of receptive language if exposed to excessive quantities of visual technology stimulants?*

Throughout the exploration of technology effects on children, I found an interesting article by Uruskoski (2011), which made me think if...*playing games positively correlates with student's English grades at the end of secondary school, what language proficiencies are these statistics looking at?* This study provided a different perspective from mine, which made me want to know more about the community's perspectives of technology and digital game exposure. Prior to conducting the survey, I wanted to acknowledge that...*a lot of research is filled with adult biases, without the opportunity for a child's mind to explain* (2 September 2016). This made me wonder if...*adults see things from a blinded perspective*. In February 2017 I decided to reapply for ethics approval to include a randomised survey to uncover a perspective from all generations regarding technology and gaming.

4.2.2 Initial game experience. As the researcher, I have had extensive experience with technology; however, only a basic involvement with gaming. I played puzzle type applications for leisure on a mobile phone approximately...*once a month*. Prior to this study, I had never explicitly played Minecraft. I had limited knowledge on this game and its purpose. To ensure the study was reliable, I did not want external factors to impact how I perceived the game and so my first attempt playing Minecraft was an ill-informed experience.

The initial five attempts were selected to provide an overview of my first experience playing Minecraft Pocket Edition, on a touch-screen Samsung Galaxy Tablet. The experience is presented in Table 4.1. These attempts equalled an hour and a half of game time. This amount of time was used to ensure my experience was captured, as well as allowing time for me to be engaged in general play. My reflective

journal notes show a gaming logbook, which was compiled simultaneously and directly after each game session. Table 4.1 identifies the date and duration of each session.

Table 4.1

Snapshot of Researcher's Initial Minecraft Experience

Date	Time (minutes)	Status	Situation	Notes
6/07/16	25	Interested	With Others	Basic observation of someone using Minecraft.
7/07/16	15	Confused	With Others	Attempted to play Minecraft with other people around. I felt very confused on the purpose and aim of the game.
9/07/16	30	Stressed	Individually	Attempted to understand the Minecraft world. I was unsuccessful. I felt quite annoyed and stressed due to my inability to survive at night.
12/07/16	20	Neutral	Individually	I learnt how to build a 'safe'. Unsure if this is the purpose, but it was the only way I could survive the night. It became boring because I had to stay in the 'safe' until sunrise.
13/07/16	15	Confused	Individually	I continued in the same manner as above. I found a strange button that states X1 on it. No idea what it does? Something about a craft table? It hasn't seemed to do anything though.

The table shows that I played the game. During these sessions, I had no time limit so I could choose when to stop playing. This was an important aspect as it provides insight into whether the game held my attention and for how long.

A snapshot of my experienced feelings while playing is visible with the single word description in the ‘status’ column of Table 4.1. The ‘situation’ column outlines whether or not I was playing alone or in the company of another individual. The ‘notes’ column provides a short reflection on what was accomplished during that specific game period. Overall, I was not absorbed into the game during the initial experience. Instead, I was confused and felt there was no point to the game.

4.2.4 Informed perspective. Over the course of the study I became more informed about Minecraft as a simulated world. This occurred through extensive investigation, repetitive attempts at the game and an interview with a GA respondent. During my holistic experience, notes about the game were made. I felt that Minecraft could be like a...*digital story*, that requires the player to think critically and creatively, plan and design things based on...*interest*, whilst also use comprehension to learn game features...*remember where I was up to* and...*implement strategies using prior knowledge* (12 August 2017).

The semi-structured interviews were opportunities for me to observe and discuss Minecraft with the respondent who has significant experience with this game. However...*prior to [the] interview, I felt that the data I would collect would be of no value. I had the perspective that the respondent would not talk in a manner that would elicit useful data for this research project* (31 June 2017). The interview lasted about an hour, which according to Taylor, Bogdan, and DeVault (2016) is an appropriate amount of time to interview and observe. This time enabled me to have casual discussions with both the respondent and the guardian. After...*leaving the interview I had a completely different perspective*. A core thing that I noticed was the...*immense passion and knowledge [the respondent had] in the game, despite significant learning difficulties*. In my reflective journal there is continual reference to the respondent’s

substantial knowledge of Minecraft, but also the struggle the respondent had to clearly communicate...*the processes of the game fluently in a relaxed setting*. Evidence from the respondent's teacher and guardian demonstrate that the academic delays the respondent experiences occur in all learning areas. However, this challenge does not impact the...*interest and desire the respondent has...to learn through [the] application. This made me wonder whether specific learning experiences within the game (or adapted into the game) could help extend...student's knowledge in all key-learning areas*.

In my reflective journal it states that...*during the transcription phase I noticed that the respondent repeated a lot of words*. This was not noticed...*during the interview*. However, the transcript shows that the respondent appears to have trouble using language to explain concepts. Further evidence of these two aspects will be presented later in this chapter.

Furthermore, I made comment that...*the respondent's sibling appeared engaged in what I was doing. The sibling would continually jump in and answer questions during the discussion*. This made me wonder if the sibling was...*a type of mentor for the respondent*. The concept of a mentor also made me think about the respondent's independent use of YouTube for DanTDM, and whether YouTube is considered...*a mentor resource*. I also had an interest to know how much...*research has been done on YouTube*. This could be an avenue for further investigation.

My journal excerpts create transparency in the study (Ortlipp, 2008). Part of the reflective journal is the interpretation I gained through the member checking process. Firstly, during member checking I became concerned that not only has the respondent found out...*cheats* in Minecraft, the respondent also enjoys the ability to reverse mistakes and try again without consequence. Additionally, member checking

provided further insight into additional methods of communication that can occur on the game Minecraft. The respondent informed me that...*you can write words, but only on the computer* to communicate on an instant messenger with everyone else in the world. This information helped clarify meaning and inform my study.

These quotations identified above enabled me to articulate personal thoughts or ideas throughout the study, and critically reflect on these during data analysis. The process of a reflective journal helped to expose my bias and how it has impacted the research process (Scheurich, 1997). These researcher reflections will be discussed further in Chapter Five.

4.2.5 Observations of respondent. I observed the respondent's mannerisms and expressions while he/she was playing the game. I recorded these as researcher observations (Taylor et al., 2016). These were then reflected on throughout the analysis of the data. The respondent prefers to model aspects of the game rather than expounding through words. At the start of the interview, the respondent explained how to set up a Minecraft world, by modelling each step of the process on the screen. The respondent would direct me to look at different areas of the television and say...*so you go on here. You go up here...and there this is...like you can go on here and change the worlds, so like you do this, and that*. Evidently, in these situations the respondent did not explicitly state what to do. From this I made note that the...*respondent finds it hard to verbally explain*, but can describe what to do through demonstration.

The respondent's difficulty with explaining the game does not inhibit his/her ability to play and problem-solve. The extensive knowledge with digital tools provides him/her with confidence to comfortably use exploration, and trial and error when unsure of what to do. This was evident when the respondent was unsure...*how*

to get off. He/she attempted various ways and once achieved said...*now I know how to get off.* On another occasion the respondent discovered why the controller was not working. Firstly, the respondent questioned...*why am I turned off,* before realising that...*oh it's because I have run out of charge. Okay umm, I will just go and put it on charge now.* These situations demonstrate the respondent's ability to comfortably problem solve when required.

The respondent's expression and tone were recognised as major foundations to this case study as they help to scaffold meaning. My field notes show that the manner in which the respondent spoke implied...*that Minecraft is easy (researcher's reflective journal - 31 June 2017).* Examination of the respondent's transcript reveals various emotions, such as the feeling of: excitement...*Oh that's new! Oh that's so cool;* sadness...*I am so sorry;* stress...*ahhh;* and, anger...*I didn't say flat!...Get back here! I hate you pig.* Moreover, it demonstrated the respondent's self-awareness, as he/she used...*deep breathing* to calm down during stressful situations within the game (researcher's field notes - 31 June 2017). These emotions impacted the interpretation I had of the respondent's transcripts as they showed how connected he/she was with the game.

In addition to my perspective, the community holds a viewpoint that is valuable and pertinent to this study. It can help to provide grounding for the acceptability of technology use and gaming at home and in education. Below I present the community perspective.

4.3 Through the Lens of the Community

A survey was used to gather information from a random sample group from the community. Forty-two participants completed the survey; twenty-five female, and

sixteen male. A greater number of females compared to males participated in the survey, which may influence the results.

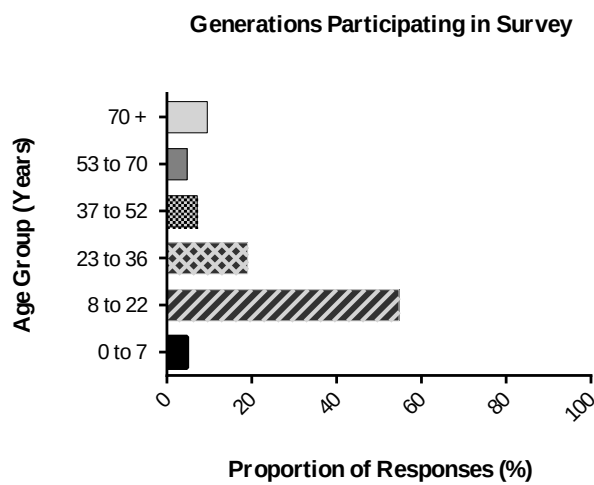


Figure 4.1 Age Categories

The generation of the participants as presented in Figure 4.1 has significant impact on the information collected. The dataset shows the eight to twenty-two age category or ‘Generation Z’ encompassed 55%, or 23 out of 42 responses. The survey provided a snapshot of the technological devices used among the individuals completing the survey. The most commonly used device was a mobile phone (93%), followed by the television (88%) and laptop (83%). Figure 4.2 provides a summary of the forty-two participant’s technology usage.

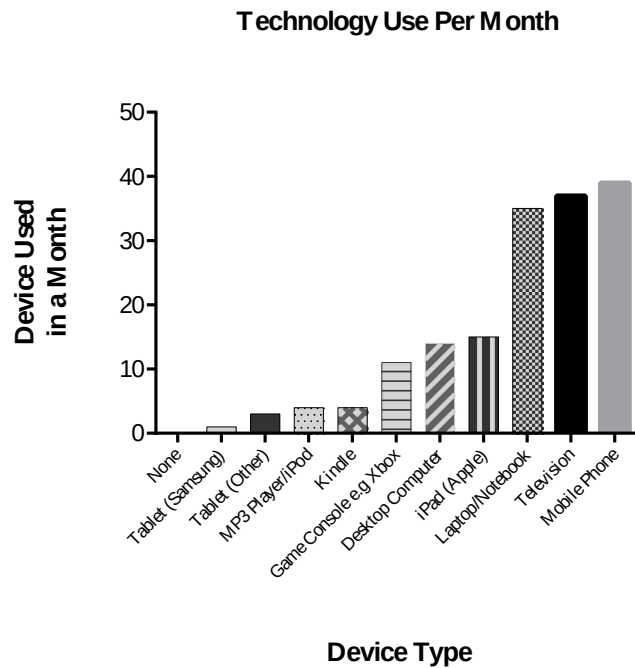


Figure 4.2 Technology Use (Monthly)

One hundred percent of the participants identified that they use some form of technology each month. This information was then connected to the average time participants state they use technology each day and what they use it for.

Figure 4.3 summarises the hours the survey participants spend on technology. Interestingly, over half of the participants believe that they engage with technology for more than four hours a day. The most commonly selected time frame was four to six hours (17 participants). Ten people indicated that on average they engage with technology for more than eight hours a day. This amount of time is significant if an individual averages eight hours sleep, then a large proportion of their 16-hours awake is on technology.

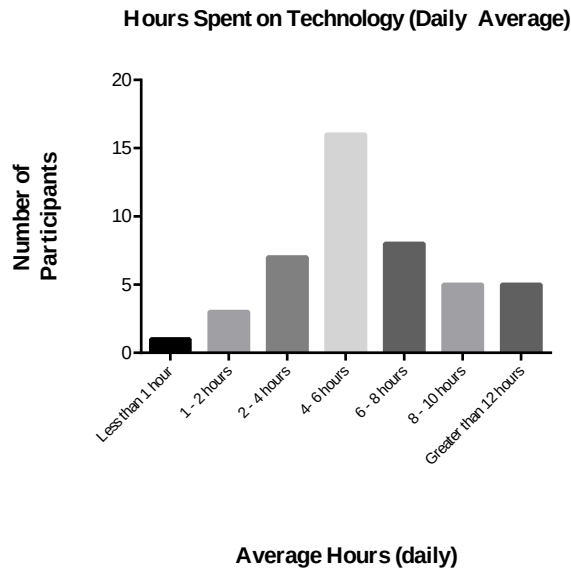


Figure 4.3 Hours on Technology

I was interested to compare the time an individual spends on technology to the reason behind their technology usage. Surprisingly, of the forty-two participants, twenty-three stated their hours on technology are not for games (53%). The ‘non-gaming’ participants made the following comments about why they select not to game:

- “Parents saying no” or family restrictions (2).
- “I don’t really enjoy gaming that much” (4).
- “Lifestyle”, “no time” or “being too busy to fit games into my schedule” (5).
- “Not interested” or it is “boring” (10).

In comparison, some of the ‘gaming’ participants specified some inhibitors that impact their playing time:

- “Younger siblings” (1).
- Restrictions such as “family not giving me the device”, “parents saying no” or “if mum says to do something (chores)” (3).
- “Lifestyle” (5) and “study” (6).

The most common reason for inhibited game experience for the gaming participants was occupation. This was closely followed by activities, such as sport or music practise. Of the twenty-five children and adolescents (GA and Generation Z) that completed the survey, three (12%) indicated they play games daily. Only one participant, in the zero to seven age category (GA), stated that external technology restrictions impacted their game play. Interestingly, some responses between the gaming and non-gaming participants are identical. Additionally, no participant from either group selected religion as an inhibitor to his/her gaming time.

Eight-teen of the gaming participants also specified some of the applications they select to play. The participants could write multiple games. The community's selected games are displayed in Figure 4.4.

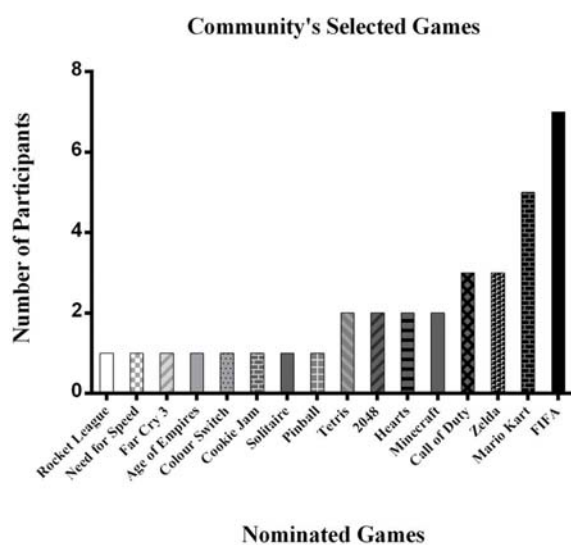


Figure 4.4 Nominated Games

This data helps to provide a generalised community perspective of gaming. This figure indicates FIFA as the most popular game (7), followed by Mario Kart (5). Minecraft was fourth (2). This information will be explicitly explored in Chapter Five.

4.4 The Voice of a Child

Data for the perspective of a GA was collected through an organised semi-structured interview on 31 June 2017. Originally, multiple interviews were planned; however, unforeseen circumstances impacted the respondent's family during the data collection period. In consultation with my supervisor I decided to cancel the additional interviews to reduce family stress; hence the presented data is based on one round of data collection.

The semi-structured interviews for the respondent and guardian were guided by the question schedule outlined in Chapter Three (Appendices A and B). The respondent was perceived as the experiential expert of Minecraft, therefore maximum opportunity was provided for the interviewee to express his/her voice and perspective without prompts. The ideas that emerged were refined into subheadings: language and articulation; mentor and social integration; real life connection; and, guardian and respondent viewpoints.

4.4.1 Language and articulation. During the interview repetitious language, verbal expressions and interesting terminology appeared a dominant aspect of language when the respondent spoke about Minecraft. These emerging themes formulate the overarching concept of language and articulation. These results are presented in this subsection.

I was interested in the repetition of words and whether they provide meaning to the study. Here is a list of these repeated words with a number in brackets indicating how many times the respondent repeated them: *you* (206), *like* (102), *oh* (85), *so* (70), *see* (25), *look* (23) and *here* (20). A significant 19% of the respondent's hour-long interview comprised of repeated terminology, which affected the speech flow and meaning articulated.

Many sounds and terms that appeared throughout the transcript are language fillers and interjections. The words *like*, *oh* and *so* were frequent when the respondent found it difficult to articulate a sentence disrupting the respondent's speech. I have concluded that the disruption to flow and use of language fillers are due to the respondent's literacy skills, affecting the respondent's ability to verbally communicate and explain effectively. During the interview, the guardian voiced concern that the respondent is...*only at an Early Stage One level*, which is three academic years below the respondent's current year level.

I then focused more on other repeated terminology: *you*, *see*, *look* and *here*. The recurrence of this language sparked interest into the reason and meaning behind the dominant vocabulary. The respondent stated...*so this is how you like create a world. So you go on here. Look you go up to here. See, create new world*. The respondent also attempted to grasp the guardian's attention...*oh they look so cute mum. Look! Look mum! They look so cute! Look at this. Look, look, look*. This data explicitly demonstrates the respondent's use of visual language and preference to model and direct attention towards visual teaching, rather than use of verbal language. The guardian stated that the respondent is...*a visual kid*, and prefers to engage in visual or manipulative things, such as...*a Lego kit*.

Despite concerns about the respondent's literacy and communication skills, there is evidence of the respondent describing, explaining, reasoning, sounding out and comprehending during this interview. The respondent described elements of Minecraft, saying...*the boxes are actually slimes, it's dodgy*, as well as elements of the environment...*you can use different texture packs. Umm, different packs they have different blocks. There is like millions of them. It is like these texture packs so you can go to any like you can change your world*. The respondent would also explain

instructions and aspects of the game, saying...*I needa um eat first, run*, as well as instructing me on how to use the controller...*ohh, you just press this button here. But in different controllers. I will show you if you get like a PlayStation or something...and how to delete them you just press umm this. You press it again, like two times to get out you just press circle.*

The respondent would clearly notify me about aspects of the game and believed...*you can do everything you want*. The respondent made it clear that each mode had a purpose and that the difficulty changed. In...*peaceful [mode it] means no zombies. And ahh, normal means a bit more har...a bit hard with zombies and stuff. And then hard means very hard with the zombies*. The respondent also made comment and informed me that in the survival mode the slimes...*turn tiny when they are little. The little ones can't attack*. Analysis of the transcript validates that the respondent has the ability to reason. The respondent had a purpose to use survival mode and stated that they...*always went on survival so [they could] learn*. The respondent made it clear that even though they have a Minecraft book, he/she does not...*really read it because [he/she] already knows that info*. The respondent also stated why he/she had a preference to play Minecraft on the PlayStation...*because it's more easier, uh and the iPads harder. It glitches a lot that's why its bad*. This was opposite to what I thought prior to this study.

Throughout the interview, the respondent found it hard to pronounce particular words. When the respondent was unsure how to enunciate, they would sound the word out. The respondent separated unknown words into identifiable sound groups, which was evident in the transcript as the unknown terminology was broken into pieces using hyphens...*I went on add a l-a-y-er*, or...*its cause we ummm, like up-d-a-t-ed*. It was also evident when the respondent was explaining...*this is how to crac, cr-*

ou-ch. This is how to crouch. In this situation, once the respondent sounded the word out, he/she repeated the sentence they were attempting to say. Despite the respondent's literacy confronts, the respondent did not appear intimidated by the unusual words in the application. Rather, the respondent said that...*I know what they are because they ehh, they have their nametags on. So like if I forget one you can just look on the nametags.* However, most of the time the respondent appeared to rely on comprehension and memory. This was particularly evident during this interview, as due to the game update, the respondent noticed differences. The respondent used comprehension and prior knowledge to figure out what elements were different. The respondent searched...*is there anything new about this one? No. But there is something new about that. Ohhh. Nothing is new here. Ahh these aren't new. Oh these are new! Oh these are so good!* The respondent also noticed that they...*just got this. I think I just got this like a few days ago.* Evidently, the respondent is observant and can notice if the things have changed or remained the same. This was obvious when the respondent wanted to...*see what is new with the potions,* but realised they were...*just normal.*

These language and articulation features from a GA are a critical aspect to this research. The notes identified can provide insight into the respondent's holistic understanding from a child's perspective, which is often neglected in research. Throughout the examination of the theme language and articulation, the sense of mentorship was established.

4.4.2 Mentorship and social integration. I noticed that Minecraft appears to have significant aspects of mentorship and social integration to include concepts such as those of guidance and collaborative play. The first mentor appeared to be the respondent's sibling. The sibling three years older than the respondent decided to stay

in the lounge room throughout the interview. The respondent would often ask...*what? [Sibling's name], what does this say?* The respondent would then receive a clear response from the sibling to say...*update later. Go down to the bottom of it.* At a later point in the interview the respondent asked...*how do you do this again [sibling's name]? [Sibling's name] can you put this in for me?* Hence, the respondent likes to use their sibling as support. The respondent also enjoyed communicating with their sibling about the game. During the interview the respondent informed the sibling that...*we got birds!* The respondent used the term 'we' on multiple occasions...*we found stuff looking around*, which implied the respondent and the respondent's sibling, engage with the application together. I observed that the sibling might be a potential mentor for the respondent.

The concept of a mentor developed further once the respondent identified they engage with YouTube on a regular basis. Initially the respondent said that YouTube teaches...*nothing*. However, a minute later said that...*I learnt them when they went on the first thing of Minecraft when I watched a video.* The respondent's sibling reiterated the respondent's use of DanTDM on YouTube. The sibling said that...*[the respondent] likes the videos of this.* Interestingly, the guardian said he/she...*can't stand when [the respondent] is on here with that guy that [the respondent] watches cause it says nothing. It's morbid.* The respondent was in the room but did not respond to this comment. At a later stage in the interview, I asked the respondent...*how did you know that?* The respondent reinforced that their knowledge is because they...*watch videos!...You just need to get tips from them. You need to get tips from the YouTubers.* When asked where else the respondent finds information, the respondent said...*yeah I only go to YouTube, on the computer and...I can only write down DanTDM.* Even though the respondent uses the computer for YouTube

and has Minecraft on the iPad, the GA stated they prefer to play the game on the PlayStation as the...*controller makes it a more easier.*

Throughout the interview, the respondent was also acting like a mentor for me. The respondent modelled various components of the game, explained and provided reason to ensure I received what the respondent considered relevant information. Mentor qualities were evident as the respondent focused on teaching me various components of the game, including how to use the controller. This was evident when the respondent said...*you just press that. There is that there so there is maps. I will show you the map. So you just shift it and then now it is a map. You just press this and then you look at it and you could know where you are.* The respondent displays mentor qualities, which were reinforced as the respondent said to me...*I will teach you.* The respondent also asked...*do you want to try it? Do you want to try?* The respondent appeared happy to guide me through the learning process. Whilst teaching, the respondent provided simple demonstrations that did not expose every element of the game. The respondent only provided aspects of the game that the respondent considered pertinent to my first experience. This was evident when I asked a question and the respondent said...*I will tell you one day.* The respondent did not want to show everything or overload me with information in one Minecraft lesson. The respondent was also interested to know if I could give...*some like tips* on how to play Minecraft. Even though I had no knowledge on Minecraft, the respondent was open to new mentors or tips about the game.

Independent to the mentor, the respondent appears to be engaged with social interaction and collaboration because of Minecraft. The respondent's guardian said he/she...*talks about it a lot*, with anyone who would listen. The respondent thoroughly enjoys playing the game with others. In the transcript, the respondent

referred to the word...we, thirty-nine times. This plural noun reiterated the respondent does not typically play alone. This was confirmed when I began to interview the guardian and the respondent began to play Minecraft with a family friend. The respondent said that they enjoy playing together because...*it is faster if you work, if you're in the same houses*. From the notion of mentors, social interaction and collaboration, the perspective that Minecraft may have 'real life' virtues developed.

4.4.3 Real life connection. Minecraft is not a realistic looking game. However, even though it is comprised of boxes, the objects and situations that occur create real life connections for players. The respondent made various comments that indicate the personal association that he/she has with the game. For instance, the respondent appeared generally apologetic when killing an animal for resources...*I am so sorry donkey*. The respondent also became excited about a group of small boxes following him/her and said they are like...*a little whole family just following me*. At a later stage, the respondent decided that he/she was...*going to make a friend*. Once the person was built, the respondent began to talk to the virtual person...*he is saying hi! Hi!* The guardian commented that the respondent becomes absorbed into the experiences Minecraft presents and that he/she...*almost lives in the world. Like if you spoke, you wouldn't get a response. You can see it in [his/her] eyes, like [he/she] is still in the game even when away from it*. The respondent overheard this statement and agreed saying...*yeah! You just saying you're in your 'game world'*. Due to the respondent's use of the game, the guardian has developed a negative opinion about Minecraft. This opinion is valuable as it impacts the boundaries the respondent has when engaging with the game.

4.4.4 Guardian viewpoint. The guardian in this study conveyed a strong viewpoint. This was evident in the guardian's decisions for the respondent, their language use and comments about the game. The guardian said that the respondent is often...*restricted from that, the computer DanTDM or whoever it is.* The guardian also clarified that the respondent...*is restricted more in school than during holidays,* however the guardian...*would prefer [him/her] outside than on anything.* When I asked the guardian about the game, the guardian said...*yeah I just can't stand the movement. I don't like it at all.*

During the interview I made comment that the game has peaceful music. The guardian quickly responded with...*it is about the only good thing you can say about it.* The respondent heard the comment and emphasised the guardian's perspective stating...*yeah cause [the guardian] doesn't like, doesn't like games that.* The guardian also emphasised he/she has...*pretty much zero tolerance.* This viewpoint appeared to be due to the guardian believing Minecraft...*has nothing to do for the mind. I just...I don't see how it helps them at all.* Despite the guardian's outlook on Minecraft, the respondent is still allowed to play it. The respondent appears to be insensitive to the opinions of others and when playing becomes inattentive to the surrounding environment and engrossed in the game experience.

4.4.5 Respondent viewpoint. Minecraft was identified as the respondent's favourite game. Due to the new updates the respondent said that he/she is...*getting excited about this game.* The respondent's enjoyment toward the game was evident throughout the interview. In particular, even when there were various noises that could distract the participant, he/she remained calmed and undisturbed. Rather, he/she continued to play the game and explain it to me simultaneously. The only time the respondent was impacted by these interruptions was in the first few minutes of the

interview. This occurred when a guardian arrived home and greeted me. The respondent immediately said to the guardian in a serious tone...*I am in the middle of a teaching lesson*, before returning straight to the game. For the rest of the interview, surrounding sounds did not appear to impact or distract the respondent. The respondent completely disregarded comments from a sibling such as...*you are getting ruder and ruder*, and was not impacted by the sibling playing the guitar right next to us throughout the interview.

While the respondent was playing Minecraft they appeared to go into their own world. On regular occasions, the respondent would start talking or making noises to himself/herself, such as...*de, de, oh, nah, na, na, na, na, na, na, na, na, nah, nah*. The respondent would also have conversations and ask questions to himself/herself, such as...*put a bird in it, a bird. Does it like destroy it? I will put a ahhh, thing that can't die. Oh nope. It does nothing. Why is there a squee...what! *laughs*, oh squid. Oh yeah, its, this is what*. The respondent would also talk to himself/herself and ask questions he/she would 'self-answer'. For example, when I asked...*why are you playing it on the PlayStation*, the respondent said...*oohhh because it's more better. Oh, oooohh Zombie horse!* Directly after answering the question, the respondent became distracted and reabsorbed into his/her 'game world'.

4.5 Summary

Respectively, each of the presented themes: language and articulation, mentorship and social integration, real life connection, guardian viewpoint and respondent viewpoint, that emerged from the data hold significant value in this study. The data exposes concepts that will be addressed in the following chapter. Chapter

Five will examine the presented data and discuss it through the FRM and the focal research questions.

CHAPTER FIVE: DISCUSSION

5.1 Introduction

The purpose of this endeavour was to conduct an investigation that explored the FRM in gaming, from the perspective of a GA. The core research question: *What facets (if any) of Luke and Freebody's Four Resource Model emerge whilst a seven-year old interacts with the popular application Minecraft?* was explored through a case study. This chapter examines and discusses the collected data in order to address the main question through the following sub questions:

1. What is the community scope on technology use, and does this number correlate to gaming?
2. Does Minecraft support the diverse nature of the term "literacy"?
3. Can praxis of the FRM be applied to Minecraft as a multi-literate context?
4. During a GA's exposure to Minecraft, are there variables that may enable or inhibit their literacy experience?
5. Using the aspects of the FRM, does Minecraft provide effective literacy development to youth during regular game play?

These questions provide structure for the discussion presented below. Each sub question will be addressed in order beginning with the first one.

5.2 Scope on Technology and Gaming

Previous research together with this study acknowledge that TFC children are infused with technology (Merchant, 2015). One hundred percent of the participants (aged four to ninety-nine years old) indicated they use some form of technology every

month. This confirms the prevalence of technology as Shaffer et al. (2004) claims that humanity lives in a technology based society. The results from the survey were as anticipated, with most participants (17) averaging four to six hours a day on technology. It is important to consider the high amount of technology that a large proportion of the population engage with. The statistics from this study indicate that forty-two percent (18/43) of participants engage with technology for more than six hours, with twelve percent (5/43) of participants greater than twelve hours. This confirms previous findings in literature that humanity lives in a digital age greatly focused on technology (Burnett, 2016; Siemens, 2014). It also highlights the concern that a high proportion of society may be engaged in excessive amounts of technology use (Burnett, 2016; Merchant, 2015; Shaffer et al., 2004), which could be investigated in future research.

Greenberg et al. (2010) are correct to argue that individuals born around or after 1990 were born into a video game era. Due to this, I upheld the perspective that most children and adolescents of the TFC would inevitably be gamers. I demonstrated extensive interest towards the impact of technology on society, in particular the effects of gaming on children's holistic literacy development. From campaigns such as BYOD (Clark et al., 2014) and an increase in portable technology (Beauchamp et al., 2015) I upheld the belief that children would prefer to game through an iPad style device due to the lightweight, portable and...*touch screen* nature (Merchant, 2015). However, the results from the survey and the respondent differ considerably from Granic et al. (2014) United States study and my expectations. Granic et al. (2014) clearly identified that 97% of children and adolescents play video games for "at least one hour per day" (p. 66). Against Granic et al. (2014) and my anticipations, this study noted a significantly smaller frequency of individuals who game. Of the twenty-

five children and adolescents (GA and Generation Z) that completed the survey, only three outlined that they engage with games on a daily basis (12%). Thus, this study has not confirmed nor supported the research conducted by Granic et al. (2014). Rather, the results expose that the community's extensive technology use does not correlate to high gaming frequency. Hence, this study shows that gaming for children and adolescents may not be as common as the Granic et al. (2014) study affirmed. This prompts the need for broader-scale research in this area, particularly with the current increase of gaming in education.

This study particularly focused Minecraft. I selected this game due to its number one rating on both Google Play and App Store (Apple, 2017; Google, 2017). However, the survey provided information contrary to the anticipated results. Firstly, this study failed to justify Minecraft's top rating on Google Play and App Store as the survey identified FIFA as the top game, with only two participants out of eight-teen mentioning Minecraft.

The survey was also unsuccessful in validating the Nebel et al. (2016) study, that outlined Minecraft as the most downloaded application onto mobile devices. Specifically, the respondent identified that even though they have Minecraft on a mobile device, they prefer to play it on PlayStation because the *...controller makes it a more easier*. The respondent highlighted the game controller as the crucial decision for the gaming device choice, concurring with Kawsar and Brush (2013).

These results make me query whether Minecraft is as influential as previously thought. It should be noted however, that most participants on average wrote a maximum of two responses for the games they play. These findings need to be interpreted with caution. Further study is recommended to compare Minecraft's downloads to the amount of people who currently play the game. For me to retrieve a

more accurate representation of those who play Minecraft, it may have been more effective to include in the survey the following questions:

- Have you ever played Minecraft?
- If so, how often do you play it?
- What device do you prefer to play Minecraft on and why?

Asking these questions would have identified how many participants were aware of Minecraft. This data could have then been analysed to see if Minecraft was integrated into education for literacy and digital reading, would it make effective connections between a student's home and school life, as education strives to achieve (Siemens, 2014).

5.3 External Resources

The findings from the study confirm the respondent does not read the Minecraft book that he/she owns. Rather, the single, descriptive case study showed the respondent used the external resource YouTube as a domain to source information and make meaning. This information offers a compelling perspective on the game, with only the use of YouTube to provide visual examples and verbal descriptions for additional information (Niemeyer & Gerber, 2015). This domain provides advice, but also rich opportunities for the respondent to be exposed to audio-visual stories, specialist advice and commentary about the creative tools enmeshed in the simulated landscape (Lastowka, 2011). This links to Luke and Freebody's reader as a text participant and text analyst, as the reader is required to depict the multimodal source (Drewry, 2017). Since the respondent demonstrated their lack of interest in the book, but a desire to learn through YouTube and the...*survival* game mode, the respondent

was endorsed as a visual learner. This was reiterated through the respondent's continuous desire to display how to achieve something rather than verbally explain.

As the results indicate, the respondent embraced DanTDM as a mentor, and began to model and imitate tips from the YouTuber. An in-depth analysis shows that the respondent also attempted to filter through the important aspects of the game to inform me as the learner. It appears that these results validate the respondent's ability to comprehend and model teaching strategies, as well as interpret and evaluate digital texts. This reveals that the respondent demonstrates basic text participant traits as described in Luke and Freebody's FRM (Seely-Flint et al., 2014), supporting the literature evident in Harris, Turbill, Fitzsimmons, and McKenzie (2006). In particular, the respondent read visual features and symbols within the game and was able to scaffold understanding to activate prior knowledge and experiences. This immersion to make and apply meaning from the digital text is a critical feature of Luke and Freebody's reader as a text participant and text user (Drewry, 2017).

As indicated by the respondent, YouTube is a tool that provides clarification, structure and additional learning experiences for Minecraft. The respondent views YouTube as an informative tool...*to get tips* that can provide explanations, advice and guidelines, which point towards the use of text participant and text user features of the FRM. The regular use of YouTube by the respondent was unforeseen. However, the integration of YouTube helped extend the literacy experience the respondent was exposed to. For example, Minecraft itself does not encompass spoken language or sounds. The only audio I identified was peaceful music. From the investigation it became clear that YouTube provides capabilities that expand literacy exposure through verbal and visual modelling. These methods strengthen the respondent's capabilities through Luke and Freebody's FRM. In particular, the use of YouTube

strengthens the reader as a text user and participant by using tacit and explicit understandings for the possibilities of the game. Minecraft also enables the player to expose creativity by shaping a unique, visual world based on the player's interests, proficiencies and social and cultural experiences, using generic game features. Luke et al. (2011a) emphasise these processes create an effective text user that is strategic working with face-to-face texts and virtual literacy occurrences. However, this conclusion of the review should be treated with caution, as further research is needed specifically on the connection between YouTube and games and the implications for literacy learning.

The data shows that the respondent engages in external social interaction about the game. Firstly, the guardian indicated that the respondent...*talks about it a lot*. This demonstrates the respondent connecting to the digital world, and bringing it to life with his/her family and friends. Furthermore, during the interview the respondent had multiple discussions with his/her sibling...*what does this say*, and also indicated that the respondent and sibling learnt about the game together...*we found stuff looking around*. This form of engagement in the game entails social actions (Luke et al., 2011a), which is an important element in Luke and Freebody's text user role in the FRM.

5.4 Minecraft for Real Life Connections

Luke and Freebody's FRM is a flexible, critical framework which readers draw upon on a daily basis (Seely-Flint et al., 2014). The heuristic model (Luke et al., 2011a) meets the diverse and shifting needs of literacy, which enable it to be recognised as a culturally relevant framework (Drewry, 2017; Seely-Flint et al., 2014). For Minecraft to meet the dimensions of the FRM, it must provide socially

appropriate practices that connects to students through life-long learning experiences (Comber, 2001). The descriptive and bounded case study captured the response of the participant through a semi-structured interview and researcher observations. The results from this data exposed the respondent's ability to read the visual content, experience emotions and have real life connections to the characters within the game.

The FRM requires academics to provide appropriate materials for the developmental age and interests of students (Luke et al., 2011a). Whilst Minecraft is a simulated landscape with “a set of tools to manipulate a fictional space” (Lastowka, 2011, p. 10), it is based on creative energies that enable the player to construct a unique and differentiated experience. The results from the interview demonstrate that the respondent needed to be aware of basic semiotic hyperlinks, unique lexicon and orthography relevant to the game, awareness of icons and the ability to read and manage screen location (Luke et al., 2011a). These are not only relevant TFC skills, but extend on the typical understanding of Luke and Freebody's reader as a code breaker, as the player is required to explore the relationship between written and visual sources (Luke et al., 2011a).

It is clear that texts position readers, which is reiterated by Luke and Freebody (1997). Minecraft is a game that enables the player to be a creator in a simulated world to create a unique, meaningful story. As identified by the respondent, players create meaning by designing things based on what they know, such as a...*house*. However, to construct, players are required to use prior knowledge and be involved in visual code breaking. Derouet (2010) identified the importance of visual code breaking as it means the reader has awareness that viewpoint and positioning influence meaning. The respondent demonstrated basic understanding of this in the interview when the respondent altered the camera angle whilst simultaneously

imitating YouTuber DanTDM. This process was also highlighting the respondent's ability as a FRM text participant and meaning maker.

The case study made it clear that the respondent had made connections to prior knowledge, understanding and experiences both in and outside of the game to construct personal meaning and connectedness within the digital world (Luke et al., 2011a). The respondent interpreted some of these meanings within the multimodal game from everyday life and was aware of the basic needs for human life such as food...*eat first* and shelter...*build houses, survive* for survival. The respondent then used the tools within Minecraft to construct what was required. This process makes a link between the needs of a character within a digital world compared to humanity in real life. This was reinforced when the respondent designed a...*friend* and began to interact and talk to the simulated character as though they were a real life person. These connections are relevant to Luke and Freebody's FRM through the process of text participant and meaning maker practices. In addition, I made connections to real life experiences by the emotion that was observed in the respondent's actions. This was particularly evident when the respondent said...*I am so sorry donkey*, when in the process of killing it. The respondent was clearly aware and apologetic towards his/her actions. This demonstrated the respondent's awareness of the consequences his/her actions made to the animal, which was a connection to real life.

Minecraft appears to uphold meaning making possibilities through the elements of creative design and graphic illustration (Seely-Flint et al., 2014). As the respondent indicated, the player can enter a diverse range of simulated worlds. These worlds have completely different landscapes, which create new authorial bases and cultural standpoints for the player to create their own story. The respondent clearly verbalised when he/she entered a world that was not what he/she expected...*I didn't*

say *flat*, and began to demonstrate Luke and Freebody's text analyst qualities as the respondent began to adjust the settings in the game.

Evidently, the respondent connects real life situations in Minecraft. During the interview the respondent engaged with a range of techniques such as prior knowledge, collaboration and critical and creative thinking to...*build*. The respondent also had a clear understanding that...*it is faster if you work together*, indicating the benefits of collaboration when creating a meaningful digital 'world' or graphic story.

Real life connections were reinforced by the guardian who stated the respondent becomes immersed and...*almost lives in the world*. This could be due to the personal connection the respondent creates as they design. The guardian reiterated that the respondent even lives in this digital world when away from the application. These processes demonstrated the respondent as a meaning maker. This is particularly due the respondents active participation in Minecraft as a visual text to gain meaning and personal connections (Luke et al., 1997; Seely-Flint et al., 2014). The respondent demonstrated his/her desire to continually learn and discover through Minecraft due to the strong personal and real life connection they have with the game. However, despite these real life connections, this study does not confirm that the respondent is using this knowledge outside of the game to achieve a purpose. This is an area that could be explored further.

5.5 Minecraft as a Literacy Tool

Many studies explore technology and literacy, but fail to provide either a specific literacy model or integrate the perspective of a GA (Foerster, 2017; Marsh, 2011). The FRM embraces the complex and diverse nature of literacy, which makes it an applicable model for TFC investigations. Contrary to my expectations, aspects of

the synergy literacy model appear throughout Minecraft simultaneously as already identified (Harris et al., 2006). Gee (2003) upholds the perspective that video games in particular expose new literacies and semiotic domains that are not refined to the boundaries of the game itself. The data collected for this study is in complete agreement to this declaration (Gee, 2003). The new literacies, which were exposed through this individual case study, include symbol representation...*you just press circle*, virtual design...*going to make a friend* and multimodal codes (Gee, 2003) such as interpretation of words...*nametags* and actions to survive, build and move...*this is how to crouch*. The digital processes were according to game conventions, with an instant messaging function available when the game is played on the computer. The respondent outlined this during member checking when he/she said in the game...*you can write words, but only on the computer*. Each of these features require the respondent to be involved in a continual process of reading and applying information from digital, visual and spoken texts, which indicate Minecraft has literacy tool capabilities (Luke et al., 2011a). These elements equip the respondent with capabilities that are text using resources, which are all important elements of the FRM and can be beneficial to a respondent's holistic literacy and reading development (Seely-Flint et al., 2014).

5.5.1 Textual Practices. It is clear the respondent calls upon a repertoire of textual practices (Luke et al., 2011a) as the respondent engages with the multimodal texts Minecraft and YouTube. In particular, the respondent prefers to decode visual conventions and act as a text participant as he/she reads elements of the game situation (Luke et al., 2011a). The respondent also uses their knowledge to bring prior experiences to the situation which Luke et al. (2011a) emphasise as a critical aspect for a reader to engage with in the FRM. The respondent clearly uses prior knowledge

to structure and prepare a world on the game. He/she uses language from real life and literature unique to the game, as well as the process the respondent undergoes to understand and use new game features effectively. As identified by Freebody and Luke (1990) and reinforced in Seely-Flint et al. (2014), the opportunities for a respondent to analyse a text, understand how the game player is positioned and engage in visual transaction are powerful aspects of the various FRM domains evident in Minecraft. For example, the respondent was a meaning maker and text analyst as he/she examined if the new changes, such as...the potions, empowered or disempowered him/her as the player. The respondent also demonstrated significant analysis of DanTDM on YouTube, as the respondent made reference to the camera angle DanTDM uses for his viewers. As previously stated, this meant that the respondent had a strong understanding of how YouTube videos position audiences to provide films of diverse interest and values. When observing the game from the perspective of a GA it highlights the multi-literate capacities that Minecraft produces.

5.5.2 Communication. During survival mode, the respondent demonstrated the ability to use information fast and critically to evaluate the best solution to survive. This validated the respondent's ability to think critically and process information effectively as a text analyst. In addition, Leu et al. (2011) indicate that effective communication helps prove literacy success. In contradiction to these findings, the respondent's guardian and I believe that the game is not assisting the respondent's verbal communication or oracy. Whilst the game inevitably exposes literacy for reading and language development, it does not involve sounds or verbal communication that could provide guidance on correct pronunciation, semantics and accurate graphophonics, which are key aspects of Luke and Freebody's reader as a code breaker (Luke & Freebody, 1999). This letter-sound and sound-symbol

knowledge is extremely important in the process of decoding (Luke & Freebody, 1999). For the respondent in this study, verbal communication appeared to be a major challenge. The excessive repetitious language notably impacted the meaning articulated, and was due to the respondent's difficulty to orally converse information. Regardless, the single, descriptive case study clearly demonstrated the respondent had extensive knowledge about the processes within the game and was able to successfully model FRM practices within Minecraft. Thus, in contradiction to Leu et al. (2011), even with the respondent's communication difficulties, the respondent was still able to demonstrate accomplishment in the game. The respondent successfully demonstrated knowledge and awareness of what needs to be done during times of confrontation, and success in literacy, particularly in regards to visual reading transactions. Further study could confirm whether Minecraft itself (without external mentorship) impacts student's reading accuracy, comprehension and verbal literacy development.

5.5.3 Comprehension. This study provides insight into the way Minecraft has shaped the typical understanding of comprehension, and how a video game can provide a range of different cognitive experiences that involve the respondent reading and moving through digital material in distinctive ways. Comprehension is the process of making meaning, which directly connects to Luke and Freebody's role as a text participant (Serafini, 2012). Serafini (2012) defines this as a commodity of information that is acquired through an experience, where readers transact with the "visual image of multimodal" (p.156) texts. From the evidence provided, Minecraft is clearly a game that enables comprehension through a visual transaction. The core features of comprehension were particularly evident as the respondent recognised the new elements that appeared during the system update.

The reading and interpretation of information in Minecraft requires participants to comprehend where they are at in the game, and to think critically about where they are going. This includes reading and comprehending game features such as images, symbols and processes to build for either creative design or survival. Regardless of the mode the respondent played in, the respondent was still required to read information, evaluate and monitor the situation, identify and address problems, design, communicate and collaborate, collect resources and/or implement strategies for survival (Creswell, 2013). These attributes provide new literacy experiences, which the FRM embraces (Luke et al., 2011a).

5.6 Enablers and Inhibitors of Minecraft as a Literacy Experience

I believe that strong enablers of the above literacy experiences in Minecraft are due to the game allowing opportunities for trial and error (Dezuanni & O'Mara, 2017). Players can easily reverse decisions, change their design and restart the game if they 'die'. This helps students to re-evaluate decisions as a process of mastery and perfection, which can be used to make more complex digital narratives in the Minecraft world. However, I also believe that this 'restarting' ability of games negatively impacts children. If young children are constantly able to restart, edit or...*cheat* in a game as the respondent identified, then I question how they cope in real life when there are consequences and they cannot reverse mistakes when they have not achieve a desired outcome. I believe that games may inhibit student's confidence in real life literacy development, due to the fear of mistakes and the inability to reverse or alter decisions and actions. I have made this concept observation myself, thus it should be interpreted with caution. Further research is recommended in this area.

In contradiction to the above findings that enable literacy experiences, there are elements that inhibit engagement with Minecraft, which could hinder the impact of literacy development. In particular, the community survey provided clear reasons for what inhibits an individual's ability to play games. It is obvious from this data that the reason for reduced game play alters depending on an individual's age. The survey indicated that the older an individual is, the more that...*lifestyle* and...*study* hinder game play, which are external instances motivating an internal decision. However, for GA participants, the reason is significantly different. The two GA participants wrote similar reasons for their restriction of video games, which appear to be purely external reasons. The GA's answers included family boundaries or the...*parents saying no*. The data confirms that family have significant impact and control over a young child's game exposure. However, this finding was not the focus of this research, and is recommended for future research.

5.7 Recommendations and Conclusion

5.7.1 Recommendations. A number of future investigation prospects have been identified throughout this chapter. This study investigated Minecraft and its ability to support literacy through the FRM. Several areas warrant further inquiry.

The first possible future investigation could be to conduct wide-scale research that provides accurate data on contemporary children and adolescent gaming exposure in Australia. This could provide informative information on the use of applications such as Minecraft, to understand if their use in the classroom is having the connection to a student's home life that was previously thought. Further research could provide information as to whether a child applies what they learn in a game to real life experiences.

Additional research into the difference in a child's literacy development through games, with and without external aids, could provide some insight into what games themselves provide to the learning experience. It could also help to understand if games require these external mentorship experiences in order for development. This could also help to guide educators on what additional resources they can provide for student literacy development. In particular, a current examination into the use of YouTube for children who engage with games, as well as what YouTube provides for a child's development would help extend the research field.

5.7.2 Conclusions. Most results in this study are a confirmation of how praxis of the FRM are simultaneously integrated into a multi-literate context. The findings support the diverse nature of the term literacy, and confirm previous research that has been conducted in school-based environments. The above discussion clearly outlines the game provided diverse and innovative opportunities for the respondent to prosper in various literacy domains. Whilst results did not justify that Minecraft is adequate to teach fundamental reading skills, it is clear that in addition to creative thinking and problem solving, the game does provide literacy and language benefit through the FRM.

In particular, this study of Minecraft has extended academic literature for the FRM in the areas of multimodal application and context. These were previously highlighted as major gaps for studies encompassing the FRM. It is clear Minecraft provides experiences for the reader as a code breaker. These experiences extend beyond previous studies that focus on word deciphering, such as phonological awareness, syntax, spelling and structural and grammatical patterns. Rather, the player in Minecraft is required to understand the relationships between semiotic codes and encode and interpret the diverse multimodal worlds the players enter.

Whilst this research did not provide extensive explanation on the use of auditory codes for the FRM, it outlined YouTube as an area of significance that should be involved in future research for studies involving Minecraft and video game studies. Furthermore, it is critical to note that areas in the FRM such as text analyst and text user were not as significant; however, with further study these areas may be justified.

Thus, in response to the core research question ‘*What facets (if any) of Luke and Freebody’s Four Resource Model emerge whilst a seven-year old interacts with the popular application Minecraft?*’ it is clear that each praxis of the FRM emerge whilst a child engages with Minecraft. Whilst each aspect of the FRM are significant to this study, as previously stated, some aspects hold greater significance and impact than others. This means that when a seven-year old child interacts with Minecraft they are experiencing the repertoire of practices encompassed within the heuristic framework.

Despite the significant evidence of the FRM throughout Minecraft, research regarding the impact the game has on student academic development, in particular reading growth, could not be examined in this investigation. This was due to the nature and limitations of this study as an honours level thesis conducted within a twelve-month timeframe. Further research in this area would benefit and provide rich literature to the academic field for literacy in children’s home gaming experience. Overall, the results from this may be relevant and contribute knowledge to similar studies.

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What are you doing?

Is that a game?

What is it called?

What are you doing?

What do you have to do?

Why do you have to do that?

How long have you been playing this game?

How did you find out about it?

What is the best thing about this game?

Do you play any other games?

Why is it your favourite game?

Why do you have to do that?

Did you have to learn something to do that?

How are you going to find out?

Did you have this problem before?

Do you know how to do everything on this game?

I am interested, tell me about it?

If I wanted to learn how to play this game, what would you suggest?

How would I go about learning to play this game?

Are you going to be playing this when you are old

What so fund about this game?

Why do you keep playing it?

How long has he been playing on the iPad?

Tell me about his computer usage?

Who does he talk to about it?

What does he say about it?

Does he play games?

What games does he play?

Does he ask you questions on the game?

What are your feelings on the game?

How much do you know about it?

Do they ever ask you about terminology?

Are their terms that you might think are connected to the game?

Is there any reading that you had to do in connection with them playing?

Explain that some more for me.

What do you mean by that?

Give me an example.

Any more?

That's interesting. Tell me more.

Is there anything happening at school? What does he take for show and tell?



PARTICIPANT RESEARCH INFORMATION

Four Resource Model and Gaming: A Case Study of One Child's Perspective When Interacting with Minecraft

Dear Respondent,

I would like to ask you to volunteer your time to be a part of a research project. Miss Lauren Taylor from Avondale College will complete this research and will be supervised by Dr Sherry Hattingh and Professor Phil Fitzsimmons.

DESCRIPTION OF THE PROJECT

I would like you to teach me everything you know about the game Minecraft, such as how to play the game and how to understand it. I would like to watch you play Minecraft to understand how it is played and how you interact with it. I will then use this information to compare it against other research and a reading model known as the Four Resource Model.

PURPOSE OF THIS RESEARCH

This research needs to happen so teachers can have a better understanding of tablet games (such as Minecraft) in the classroom. For this to happen, you need to talk about your knowledge and feelings towards Minecraft and answer all questions in the way you believe, rather than saying what you think I want to hear. I want you to be honest at all times and teach me everything you know about Minecraft in the way you would like.

WHO IS BEING INVITED OR SELECTED TO PARTICIPATE?

I am inviting you to be involved in the study. Your parents will also be around every time we talk about Minecraft. I have selected you for this research as you were born in a world full of technology. You were also born in the year when the Apple iPad was first released. Also, since I know you it is easier to create a natural environment where you feel comfortable. This is why if you are a part of this research it is important that you answer honestly, and express your own beliefs and ideas at all times.

WHAT DOES PARTICIPATION INVOLVE?

As a participant you would be asked to play Minecraft as you normally do. You would also be asked to 'tell me' all you know about the application and answer questions honestly. I will show you all of my notes to make sure you agree I am telling the truth about everything you have said and done. As a participant you do not have to reply to questions if you do not want to. You can also ask for me to stop the research at any time without a reason. I will not be annoyed and will not use your answers if you do not want me to.

HOW MUCH TIME WILL THE RESEARCH TAKE?

I will be writing a big book called a thesis for 12-months, but your participation will only be needed over 10-weeks. In this time, you would be asked to participate in approximately three, 1-hour sessions. This is when I will make observations, ask questions and check that you agree with my notes. This is also a time where you will show and teach me a lot about Minecraft.

POSSIBLE RISKS OR INCONVENIENCES

There are no risks for you if you want to be a part of this research. If any risk does occur one of your parents will be available at all times and the research project will stop straight away. You can also stop the research at any time without a reason.

BENEFITS

I cannot promise you will benefit from this research. However, you will be able to tell me all about the game Minecraft and be asked questions that make you think critically and creatively.

CONFIDENTIALITY, ANONYMITY AND DISCLOSURE OF INFORMATION

All information will be kept private. I will not write your name or your families name in my thesis. I will not refer to your name directly in meetings (conferences). No one will know you are involved in the research a part from my two supervisors. I will only record your age and gender. I will lock everything in a cabinet in a locked room so no one can steal your information. After I write down your interviews, I will delete the voice recordings. After the research, the information will be kept locked away for five years before I will shred every paper and delete every document. The only document left will be the thesis, which may be published in a journal. If I want to keep studying and extend this research, I will ask for your permission again.

USE OF INFORMATION COLLECTED

I will collect information by writing accurate observational notes (things I see) and taking a voice recording of each visit. When I get home I will type out the voice recording and look at it for patterns. I will delete the verbal recording after I have finished typing it out. I will then meet with you to check the notes I took were accurate, and were the same as what you said and meant.

FREEDOM OF CONSENT

You will not be paid for this research. This means you will be called a volunteer. Your parents will not be paid either and will be volunteering time too. If you want to say no to this research, that is okay. You do not have to say yes, and can also stop the research at any time. Saying no will not impact you in a bad way and any information that you do not want used will be ignored (disregarded).

QUESTIONS

- Did you talk about this research with your parents? YES / NO
- Did your parents read through this form with you? YES / NO
- Do you understand the research? YES / NO
- Do you have any questions about the research? YES / NO

If you would like to be a part of the research, please ask your parents to contact Lauren Taylor. If you agree you will also need to read, sign and date the participant consent form.

FURTHER INFORMATION

If you would like further information please contact the following researchers:

Miss Lauren Taylor

e: s11163855@student.avondale.edu.au

Dr Sherry Hattingh

e: sherry.hattingh@avondale.edu.au

Professor Phil Fitzsimmons

e: phil.fitzsimmons@avondale.edu.au

This research project has been approved by the Avondale College of Higher Education Human Research Ethics Committee (HREC). Avondale requires that all participants are informed that if they have any complaint concerning the manner in which a research project is conducted it may be given to the researcher, or if an independent person is preferred, to Avondale's HREC Secretary, Avondale College of Higher Education, PO Box 19, Cooranbong NSW 2265, or phone (02) 4980 2121 or fax (02) 4980 2117 or email: research.ethics@avondale.edu.au

Thank you for considering this invitation.

Researcher's Signature¹



Supervisor's Signature:



¹

All information statements must be signed. The printed name and position of at least one chief investigator must appear, together with his/her signature. For student projects, the information statement must be signed by both the project supervisor and the student.



Participant CONSENT FORM

Four Resource Model and Gaming:

A Case Study of One Child's Perspective When Interacting with Minecraft

Researchers:

Miss Lauren Taylor

Email: s11163855@student.avondale.edu.au

Dr Sherry Hattingh

Email: sherry.hattingh@avondale.edu.au

Professor Phil Fitzsimmons

Email: phil.fitzsimmons@avondale.edu.au

I agree to participate in the above research project. An adult read me the information sheet and I understand what it said. My parents have a copy of the information sheet to keep in case I forget any information.

I understand I can ask the researcher questions, or ask for the project to stop at any time. I do not need to say why I want to stop, and it will not be bad if I decide I don't want to be a part of the research anymore.

The research project and the time it will take to be finished have been explained to me. I have had the opportunity to ask questions and they have been answered well.

I agree to:

- Allowing the researcher to watch me play Minecraft and write notes.
- Talking to and teaching the researcher about Minecraft.
- Having my voice recorded so the researcher can write notes without forgetting what I said.
- Having data that I agree with put into a big, research book called a thesis.
- I have been told that everything about me will be kept private to the researchers.

Respondent Name: _____

Guardian Name: _____

Signature: _____

Signature: _____

Date: _____

Date: _____



PARENT RESEARCH INFORMATION

Four Resource Model and Gaming: A Case Study of One Child's Perspective When Interacting with Minecraft

Dear Parent,

I would like to formally invite your child to participate on a volunteer basis on the following research project. The research will be conducted by Miss Lauren Taylor; a research student studying a Bachelor of Education (Primary) (Honours) in the Education Faculty of Avondale College. Dr Sherry Hattingh and Professor Phil Fitzsimmons will supervise the completion of this research project.

DESCRIPTION OF THE PROJECT

This research aims to understand one child's perspective on the application Minecraft and their methods of manipulation. This information will be used by the researcher in order to determine whether (or not) the application Minecraft demonstrates elements of Luke and Freebody's reading model; the Four Resource Model.

PURPOSE AND IMPORTANCE OF THIS RESEARCH

Tablets and iPads are a current influence in society, with young children exposed to various applications daily. This study seeks to understand from a child's perspective their interpretation of a popular application (this study focuses on Minecraft), and whether or not aspects of a contemporary reading model are evident as students interact with this game. The outcome will help inform education facilities and educators, potentially encouraging further research in this area in regard to the benefits and/or negatives this may present.

WHO IS BEING INVITED OR SELECTED TO PARTICIPATE?

The individual invited to take part in this study is your youngest son. This selection is mainly due to his age. This benefits the study due to the phase of literacy education he is in. It also supports the research as he was born the same year as the iPad, developing from birth in a technologically rich society. These considerations will help inform educators as it may deliver unique, rich data through valuing a child's perspective.

WHAT DOES PARTICIPATION INVOLVE?

As a parent of the participant, your contribution to this research will involve supervision of data collection, and participation in discussions to ensure all data is a true representation of your child and the research. It also entitles you to decide on whether to stop the research at any given point, or disallow the release of particular data. The contribution and participation of your child in this research involves observations of the participant interacting with the application Minecraft, as well as semi-structured interviews and member checking to ensure quality, trustworthy data is collected.

HOW MUCH TIME WILL THE RESEARCH TAKE?

The entire research block occurs over a 12-month period. However, the data collection phase that involves your child will occur over a 10-week block. The main amount of time that will need to be contributed as a parent and participant includes approximately three, 1-hour sessions. This includes time taken for observations, semi-structured interviews and member checking.

POSSIBLE RISKS OR INCONVENIENCES

There are no perceived risks for any individual involved in this research. Inconvenience will be minimised by pre-organising and scheduling data collection periods with the parent and respondent. If there are any signs of risk, ill effects, danger or inconvenience the data collection and/or research project will be stopped. Participants have the option for data to be deleted and are also able to withdraw at any stage in the research without reason.

BENEFITS

This research does not guarantee or promise any individual benefits to the parent or the respondent participating in this research project. However, as the researcher I hope this project provides opportunity for the respondent to express their knowledge on the application and enjoys the research experience.

CONFIDENTIALITY, ANONYMITY AND DISCLOSURE OF INFORMATION

This research project is highly confidential and respects the participant's privacy, including parents and/or guardians who consent approval of this research for the minor. Names will not be referred to or documented during any phase of the research, only the participant's age and gender.

The collected data will be stored in a secure, locked cabinet, which is locked in a room that requires a separate unique key. Digital documents will also be stored on a password locked hard drive that will only be used to store data for this research project. These documents will only be accessible by the researchers outlined below, unless you consent otherwise. All data (a part from voice recordings) will be kept for five years in this secure location, with all hard copies shredded and electronic data erased after this time frame. After transcription, all voice recordings will be immediately deleted.

USE OF INFORMATION COLLECTED

All information collected will be analysed, reflected on with the respondent and reported in the form of a thesis. The information may also be published in a research journal or discussed about in conferences. All data will be kept confidential will publications and conferences being presented in a manner that the respondent and those involved such as parents cannot be identified. If you would like a copy of the data or any of the research information it can be provided on request.

FREEDOM OF CONSENT

This research project is on a volunteer basis, with confidentiality of all participants assured. As the parent, it is an individual decision on whether or not you approve for the minor to participate in the study. Those who do not provide consent will not be a part of the research project. Only those with consent will be included. If you agree to the research, it is acceptable to withdraw at anytime without reason. Data will not be used without permission, and if requested all data can be returned.

Please read this information statement. Be sure to understand its contents before you consent for your child to participate. After you read this information, Miss Lauren Taylor will discuss it with you further. If there is anything that you do not understand, or have questions about, please refer to the researcher's contact details below.

If you would like to participate please contact Lauren Taylor directly through email as main contact. Please also read, sign and date the parental consent form and either scan and attach this to the email or contact Lauren Taylor for separate arrangements.

FURTHER INFORMATION

If you would like further information please contact the following researchers:

Miss Lauren Taylor

e: s11163855@student.avondale.edu.au

Dr Sherry Hattingh

e: sherry.hattingh@avondale.edu.au

Professor Phil Fitzsimmons

e: phil.fitzsimmons@avondale.edu.au

This research project has been approved by the Avondale College of Higher Education Human Research Ethics Committee (HREC). Avondale requires that all participants are informed that if they have any complaint concerning the manner in which a research project is conducted it may be given to the researcher, or if an independent person is preferred, to Avondale's HREC Secretary, Avondale College of Higher Education, PO Box 19, Cooranbong NSW 2265, or phone (02) 4980 2121 or fax (02) 4980 2117 or email: research.ethics@avondale.edu.au

Thank you for considering this invitation.

Researcher's Signature¹



Supervisor's Signature:



¹

All information statements must be signed. The printed name and position of at least one chief investigator must appear, together with his/her signature. For student projects, the information statement must be signed by both the project supervisor and the student.



Parent CONSENT FORM

Four Resource Model and Gaming: A Case Study of One Child's Perspective When Interacting with Minecraft

Researchers:

Miss Lauren Taylor

Email: s11163855@student.avondale.edu.au

Dr Sherry Hattingh

Email: sherry.hattingh@avondale.edu.au

Professor Phil Fitzsimmons

Email: phil.fitzsimmons@avondale.edu.au

I agree and give full consent for my child to participate in the above research project. I have read and understand the information on the information statement. I have also discussed this research and what it requires with my child.

I understand that the research project will be conducted in a confidential manner, as outlined in the information sheet. I have also been provided with a copy of the information sheet to keep.

I am aware that my child or I can withdraw from the project at any time and do not have to provide a reason. Withdrawing from the research project will not disadvantage or impact those involved.

The procedures required for the project and the time involved have been explained to me. I have had the opportunity to ask questions and have had them answered to my satisfaction.

I consent to:

- Be present for all data collection periods, including observations and semi-structured interviews.
- Voice recording occurring in the observation/semi-structured interview space. Therefore, my voice may appear on the recording.
- Participate in member checks of data and interviews.
- Provide approval of the information and data collection for its publication.

I understand that my personal information will remain confidential to the researchers.

Print name: _____

Signature: _____

Contact Details: _____

Date: _____



SURVEY RESEARCH INFORMATION

Four Resource Model and Gaming: A Case Study of One Child's Perspective When Interacting with Minecraft

Dear Participant,

Participation in this research project is on a volunteer basis. The research will be conducted by Miss Lauren Taylor, a research student studying a Bachelor of Education (Primary) (Honours) in the Education Faculty of Avondale College. Dr. Sherry Hattingh and Professor Phil Fitzsimmons will supervise the completion of this research project.

DESCRIPTION OF THE PROJECT

This research aims to understand one child's perspective on the application Minecraft, with the data collected by the researcher used to determine whether (or not) the application demonstrates elements of Luke and Freebody's Four Resource Model.

PURPOSE AND IMPORTANCE OF THIS RESEARCH

Children are exposed to a range of technological devices from a young age such as gaming consoles, and tablet interfaces. This study seeks to understand from a child's perspective their interpretation of a popular application (this study focusing on Minecraft), and whether or not aspects of a contemporary reading model such as the Four Resource Model are evident as students interact with this game. The purpose of the survey is to help a guide on technology use throughout generations, which may provide beneficial information for this study. Overall, the outcome for this entire research project is to help inform society and education about the use of gaming, as well as encouraging further research in the area.

WHO IS BEING INVITED OR SELECTED TO PARTICIPATE?

This survey is open to all individuals to provide diverse and extensive results. However, those under 18 are required to have parental permission.

WHAT DOES PARTICIPATION INVOLVE?

As a participant, your contribution to this research involves completion of the anonymous questionnaire survey. Your participation in this survey will help to provide widespread data, which will be compared and contrasted against between generations. The purpose of structured answers is to ensure data is interpreted correctly, ensuring results from this survey are quality and trustworthy to be included into this study.

HOW MUCH TIME WILL THE RESEARCH TAKE?

This research project is occurring over a 12-month period. However, completion of this survey will take on average 5 minutes. After your participation in this survey, no further assistance is required with this research project.

POSSIBLE RISKS OR INCONVENIENCES

There are no perceived risks for any individual involved in this research, with the survey designed to be an anonymous and confidential data collection. Furthermore, inconvenience is minimised as the survey is on a volunteer basis, with a structure that was designed to be clear, structured and brief.

BENEFITS

This research does not guarantee or promise any individual benefits for participating in this research project. However, as the researcher I hope this study provides the opportunity for the participant to be honest in his/her response, with the potential to gain insight into gaming and literacy models at the completion of this study.

CONFIDENTIALITY, ANONYMITY AND DISCLOSURE OF INFORMATION

This research project is highly confidential and respects the participant's privacy. Names of those who participate in the survey will not be referred to or documented during any phase of the research. Demographical data, such as age, gender, religion and occupation will be used to provide generalised statistics. The survey will be stored in a secure, locked cabinet in a room that requires a unique key for entry. These documents will be stored for a minimum of five years in this secure location, and will then be disposed off by shredded. The survey documents will only be accessible by the researchers outlined below.

USE OF INFORMATION COLLECTED

All information collected from the survey will be critically analysed and compared against each other. The results may be published in this thesis, and may also been printed in a research journal and discussed about in conferences. As stated, all data will be confidential, and presented in a manner that the participants involved cannot be identified.

FREEDOM OF CONSENT

Participation in this research project is on a volunteer basis, with confidentiality of all participants assured. It is an individual's decision on whether or not they participate in this study, with guardian approval for any individual younger than 18 years old. Those who complete the survey have provided consent for their data to be used. Since the documentation is anonymous, a participant cannot withdraw from the study once their form has been submitted.

FURTHER INFORMATION

Please read the information statement and be sure to understand its contents before completing the survey. If there is anything that you do not understand, or have questions about, please refer to the researcher's contact details below. If you agree to participate, please sign and date the following consent form.

RESEARCHERS

Miss Lauren Taylor
e: s11163855@student.avondale.edu.au

Dr. Sherry Hattingh
e: sherry.hattingh@avondale.edu.au

Professor Phil Fitzsimmons
e: phil.fitzsimmons@avondale.edu.au

This research project has been approved by the Avondale College of Higher Education Human Research Ethics Committee (HREC). Avondale requires that all participants are informed that if they have any complaint concerning the manner in which a research project is conducted it may be given to the researcher, or if an independent person is preferred, to Avondale's HREC Secretary, Avondale College of Higher Education, PO Box 19, Cooranbong NSW 2265, or phone (02) 4980 2121 or fax (02) 4980 2117 or email: research.ethics@avondale.edu.au

Thank you for considering this invitation.

Researcher's Signature¹



Supervisor's Signature:



1

All information statements must be signed. The printed name and position of at least one chief investigator must appear, together with his/her signature. For student projects, the information statement must be signed by both the project supervisor and the student.

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ANONYMOUS SURVEY/QUESTIONNAIRE

Four Resource Model and Gaming:

A case study of one child's perspective when interacting with Minecraft

The purpose of this survey is to establish a perception of societies use of technology devices and their viewpoint. By completing this survey you are agreeing to participate in this study. Anonymity of participants is assured as no names are required. Please tick ☒ the appropriate box/es for your response/s.

If you are **under 18 years old**, parental permission is required.

Please see the researcher for the necessary forms.

Question Number	
1	AGE: ☐ 0 - 7 ☐ 8 - 22 ☐ 23-36 ☐ 37-52 ☐ 53-70
2	GENDER: ☐ Male ☐ Female
3	RELIGION: ☐ Christian ☐ Agnostic ☐ Atheist ☐ Other If Christian, outline denomination: _____ If other, please specify: _____
4	OCCUPATION: _____

5. Which of the following do you use each month?

- | | |
|---|--|
| ☐ Mobile Phone | ☐ Laptop/Notebook |
| ☐ iPad (Apple) | ☐ Desktop computer |
| ☐ Tablet (Samsung) | ☐ Kindle |
| ☐ Tablet (other) | ☐ Game console e.g. Xbox, PlayStation |
| ☐ Television | ☐ MP3 Player e.g. iPod |
| ☐ None. I have not used any of these devices over the past month | ☐ Other: <i>Please list</i> _____ |

6. How many hours a day do you use technology?

- | | |
|---|--|
| ☐ Less than 1 hour | ☐ 6 – 8 hours |
| ☐ 1 – 2 hours | ☐ 8 – 10 hours |
| ☐ 2 – 4 hours | ☐ Greater than 12 hours |
| ☐ 4 – 6 hours | |

7. List the device you use the most, why?

Device(s): _____

Reason(s): _____

8a. Do you use any of these devices for gaming?

- ☐ DAILY ☐ WEEKLY ☐ SOMETIMES ☐ NEVER

If you selected daily, weekly or sometimes, please continue onto the next part of the survey.
If not, thank you for your participation in this survey.

8b. If yes or sometimes, list the games you play.

9a. Briefly outline your favourite game and why.

Favourite game: _____

Why:

9b. Is your favourite game the game that you play the most?

☐

Yes

☐

No

9c. If not, why?

10. What prevent or stops you from playing a game?

☐

Occupation (*including students*)

☐

Technology restrictions

☐

Religious purposes

☐

Activities (Music/sport practise)

☐

Other: _____