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MORE THAN DIGITAL LEGO: A STUDY OF CHILDREN'S PLAY IN MINECRAFT

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Abstract

Children's use of technology and screen-based media is surrounded by competing popular and academic discourses of optimism and concern. On the one hand, children are positioned as inherently well poised to use technology for learning and innovation. On the other, children are positioned as at risk from technology and 'screens' that draw them in, pacify them, and displace other activities. One form of 'screen time' that has attracted research attention is digital game play. Research engagement with children's digital play aligns with broader discourses and has overwhelmingly focused on finding developmental, pedagogical, or physical health outcomes associated with digital play. However, little research has been done on the nature of digital play itself. In this thesis, I have centred *play*, for its own sake, recognising the meaningful role that play has for children in the 'here and now'. I have illuminated and explored how digital play sits within broader discourses, family contexts and technological trends that make for a sociocultural context surrounding digital play that in many ways sets it apart from 'proper' play.

The aim of this thesis was to describe and understand children's digital play through an investigation of Minecraft. Minecraft, now a decade old, has come to occupy a position of significance in the playworlds of many children. However, as with children's digital gameplay in general, research has tended to look for outcomes associated with play rather than what Minecraft play *is*. As well as being popular, Minecraft is uniquely positioned within media and academic discourses, as a game especially associated with learning and creativity but still a form of 'screen time'.

This thesis presents a detailed view of children's everyday, leisure time Minecraft play by way of three studies. In the first study, using a discourse analysis of social media comments, I provided evidence of a persistent ambivalence around children and 'screen time' which contributes to the broad context of everyday digital play. In the second study, a survey of 753 parents, I used both quantitative and qualitative methods to demonstrate the popularity of Minecraft among children and presented parent views of Minecraft. In the third study, an ethnographically informed study of 10 families, I described play in Minecraft, presented a

case study of one child's playworlds and provided insights into how the technological infrastructure of Minecraft intersects with player agency in producing moments of play.

Through these studies I have shown that, in Australia, children and technology are constructed in line with a persistence of competing discourses; that Minecraft is hugely popular, particularly with children aged 6-9 years; and that parents see Minecraft as providing opportunities for creativity and learning but also as a form of 'screen time' that displaces time from other activities. This thesis also clearly demonstrates that Minecraft offers opportunities for a diverse range of play types. Importantly, my findings present a disconnect between adult constructions of children's digital play practices and children's actual play practices which may have ramifications for upholding children's right to access opportunities for play. These findings suggest that a widening of focus in research on children's digital play (beyond outcomes) is necessary.

Declaration

This is to certify that

- This thesis is comprised of only my original work towards the PhD except where indicated in the preface,
- Due acknowledgement has been made in the text to all other material used,
- This thesis is less than 100,000 words in length, exclusive of tables, maps, the bibliography, and appendices.

[signed]

Jane Mavoa

Preface

This thesis contains both work that has been published elsewhere and work that has not been published outside of the thesis as outlined in the following table:

Published Work				
Statement of contribution: I led all stages of the research and writing process for each of these publications. I designed the studies, completed ethics applications (with approval and assistance from supervisors), conducted the research and conducted the analyses (in consultation with supervisors). I wrote draft versions of publications and Martin Gibbs and Marcus Carter gave feedback on writing.				
Location in thesis	Title of work	Authors	Publication Outlet	Publication Status
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Chapter 5	Children and Minecraft: A survey of children’s digital play	Mavoa, J., Carter, M., & Gibbs, M (2018)	New Media & Society, 20(9), 3283–3303	Published
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Chapter 7	Chapter 7 Study 3: Introduction, Background and Methods	Mavoa, J	Unpublished work, not submitted for publication outside of the thesis except where noted below	
Chapter 8	Chapter 8 Study 3 Findings Part 1 – Play Types in Minecraft			
Chapter 9	Study 3 Case Study			
Chapter 10	Chapter 10 Study 3: Child Agency meets Technological Infrastructure			

I received assistance with statistical calculations for the publication included in Chapter 5. This was provided by The University of Melbourne Statistical Consultancy Service and was free of charge as part of their Melbourne Statistical Consulting Platform service.

The following publications consist of work carried out for this PhD project but have not been included in the thesis. I led all stages of the research and writing process for each of these publications. I designed the studies, completed ethics applications (with approval and assistance from supervisors), conducted the research and conducted the analyses (in consultation with supervisors). I wrote draft versions of publications and Martin Gibbs, Marcus Carter and Bjørn Nansen gave feedback on writing. I presented all the conference presentations. While these works are not included in the thesis, I briefly refer to the 2020 conference paper in Chapter 8 (section 8.2.2) and the 2017 conference presentation in chapter 12 (section 12.5):

Mavoa, J., Gibbs, M., & Nansen, B. (2020). “Sometimes I like killing as a treat”: Children’s transgressive play in Minecraft. *Proceedings of the 2020 DiGRA International conference: Play everywhere* (conference cancelled)

Mavoa, J., Gibbs, M., Nansen, B., & Carter, M. (2019) Why young children don’t play: Parents’ accounts of non-engagement with digital games. In L. Green, D. Holloway, & K. Stevenson (Eds.), *Digitising early childhood* (pp. 192–212). Cambridge Scholars Publishing.

Mavoa, J (2019) Creativity in Children’s Minecraft Play. [Presentation] *Children’s Media Symposium: Creativity Re-booted, Platforms and Possibilities*, University of Sunshine Coast, Queensland, Australia.

Mavoa, J. (2019) ‘I burnt his whole house down!’: Describing aggressive play in Minecraft [Extended Abstract] *Proceedings of DiGRA Australia 2019*. Digital Games Research Association, Sydney, Australia

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PART I

Introduction, Context, Background and Methodology

Chapter 1 Introduction

1.1 Background and context

This thesis is about children's play in digital spaces. It focuses on the open-world sandbox title Minecraft. Digital gameplay is a feature of a majority of contemporary Global North childhoods. In Australia, 81% of five to fourteen-year-olds play some form of digital game regularly (Brand et al., 2019). In the United Kingdom, 5-7-year-olds spend an average of just over 6 hours per week playing digital games and 8-11-year-olds spend on average nine and a half hours (Ofcom, 2020). Minecraft is a popular title among children (Beavis, 2015; Kervin et al., 2015; Willett, 2016b). Existing Minecraft research has focused on utilising Minecraft for children's learning or other outcomes (e.g. Abrams & Rowsell, 2017; Choo, Karamnejad, & May, 2013; Dezuanni, O'Mara, & Beavis, 2015; Hobbs et al., 2020; Hollett & Ehret, 2015). Little is known, however, about the *nature* of children's leisure time free play in Minecraft.

This thesis is also about the unique sociocultural context that sets children's screen-based play apart from other play. Play that happens via a screen is often the focus of news media articles (e.g. Best, 2019; Gartry, Tatham, & Andersen, 2020; Golman, 2019; Khalil, 2019; Nogel, 2020), parental advice blogs (e.g. Allen, 2016; Hadfield, 2019; Kulman, 2015), and the marketing language of products designed to help parents manage 'screen time' (Family Zone Team, 2017; Patterson, 2017). Much of this coverage deals with speculation about the degree to which gaming does or does not do varying things to children or the threat it poses to more valued forms of play. For a variety of reasons, play involving a screen is the focus of scrutiny disproportionate to other forms of play. In some cases, digital play is explicitly contrasted and distanced from 'real play' (Sahlberg & Doyle, 2020). This makes for a markedly different everyday play context.

This thesis seeks to illuminate *play* in children's Minecraft engagement as a form of digital play, in order to contribute to resolving this tension. I explain my justification for focusing on Minecraft as a site of children's digital play below, in section 1.3. Throughout the thesis, I focus on how Minecraft functions as a site of child-led free play, for its own sake. I also explicitly situate Minecraft within a sociocultural context that in many ways obscures this

play, its nature, meaning and value, from the view of adults. Not *seeing* play is a problem because adults largely control opportunities for it and are charged with upholding children's right to it.

Children's play has been the subject of scholarly investigation since the late 1800s (for a review see Bergen, 2014). Influential play theorists such as Huizinga (1955) and Caillois (1962) devoted attention to play as a cornerstone of culture, including children's culture, and as important in its own right. Gomme (1894, 1898) the Opies (Opie, 1993; Opie & Opie, 1969) and Sutton-Smith (Sutton-Smith, 1981, 2008; Sutton-Smith & Clark, 1950) amassed large collections of descriptions of children's play and games indicating the value those scholars placed on the intricacies of everyday playworlds. However, the fields of developmental psychology and education have been dominant in shaping the way that play, or rather 'good play' has come to be associated with 'good parenting', 'good education' and 'good childhood'. This is because work in these fields has provided strong empirical evidence of the functional role of play in childhood development, and the close associations between play and learning. Plato appears to have made a very early theoretical connection between play and learning as far back as 643BCE (Bergen, 2014). Piaget (1962), Vygotsky (1967), Erikson (1972), and Bronfenbrenner (Bronfenbrenner, 1981; Bronfenbrenner & Condry, 1970) have all devoted significant attention to the role play has in development. This utilitarian valuing of play persists today and is clear in the masses of parenting advice related to providing the right kind of play opportunities for children and the play-based curricula of early childhood educational institutions. The utilitarian valuing of play also frames contemporary research about children's play, including their digital play.

Concurrently, the impact of technology on children's development has also been the subject of concern and debate. The effects of *electronic* mass media on children, particularly television (Schramm et al., 1961) but also radio and film, have been the subject of empirical work and public discourse since the 1940s (Orben, 2020). Thousands of studies over the decades have sought to find causal links between electronic media and physical, psychological, development and learning outcomes with mixed and inconclusive findings (Messenger Davies, 2010).

More recently, the intersection between child's play and technology has intensified. This is due to a range of factors including: the domestic uptake of the internet; the ever increasing technical sophistication of game hardware; the proliferation of mobile internet connected devices and the corresponding vast market of games to be played on them; the rapid but now steadying uptake of these mobile devices in families and education settings; the trend in 'gamifying' education; the likelihood that parents now may have had videogame play as part of their own childhoods; and the evolution of digital games in terms of genre and form with 'sandbox' style games existing alongside more linear or narrative driven games.

To date, research about children's play with videogames has, like with other forms of play, been primarily concerned with linking play to varying outcomes (Gee, 2007; Granic et al., 2014; Kowert & Quandt, 2016). But there are important differences which mean that the state of knowledge about play with videogames is somewhat disconnected from knowledge about other play. First, videogames, with their origins in home computing and geek culture are associated with a particular set of skills to be measured and researched (Ito, 2012). These include skills considered important in Science Technology Engineering and Mathematics (STEM) fields. Secondly, research about videogames includes strong attention to the potential harms associated with them; a degree of attention that has not been directed at non-digital play. There are not hundreds of studies looking at the sedentariness of Lego play, or the role that has in displacing time away from nature and physical exertion, or the potential for addiction.

Further, non-digital play is associated with romanticised notions of innocent, close to nature childhoods. This view of childhood play features in nostalgic reminiscence of childhoods past, and functions as a comparative measure of the quality of contemporary childhoods. Digital play though, does not have this soft spot in collective recollections of prior (adults', parents', researchers') childhoods. In the place of these recollections are associations with sedentariness, violence, addiction, and consumerism.

This is in part due to digital play being less visible and less *known* to adults than non-digital play (Merchant, 2015). This is because of several factors. First, while a growing number of parents and researchers are likely to have had childhoods (and indeed adulthoods) involving digital gameplay, the *types* of games we played in childhood, the social configurations and

technological contexts of engagement with them, likely produced very different experiences compared to contemporary digital game involvement. It is also likely that many parents and researchers have *not* had much firsthand experience with digitally mediated play but have had experience with other games and play. Second, there is relatively little scholarship about the *nature of* children's play in digital spaces. This contrasts with the wealth of knowledge available (from research and lived experience as children) about play in non-digital spaces.

1.2 Problem

Herein lies the central problem addressed in this thesis: children's play in digital spaces is the focus of significant media, public and scholarly interest, but it is also poorly understood beyond the limits set by the frames of the surrounding debate – that is, beyond benefits and costs, beyond developmental, health and learning outcomes. With digital play having such a strong presence in the lives of many children, there is an urgent need to expand scholarly knowledge of what it *is* exactly. This needs to involve a conscious recognition that cultural and academic framings of digital play present it as fundamentally *different* to other play. The *aim* of this thesis is to describe digital play, using the example of Minecraft, within context. Therefore, the overarching primary research questions addressed in this thesis are:

RQ1: *What are the sociocultural, discursive, technological, and family level contexts of children's Minecraft play?*

RQ2: *How do children play with Minecraft as part of their everyday screen-based leisure activity?*

These questions are addressed by way of three separate but interconnected studies. Each study looks at a different element of children's digital play, from the broad cultural context of 'screen time' discourse through to thick descriptions (Geertz, 1973a) of instances of play. Studies 1 and 2 address the first research question as they deal with contexts of Minecraft play. Study 3 addresses the second research question as it focuses on describing moments of Minecraft play. However, study 3 also includes family and parenting context information as it is directly relevant to moments of Minecraft play.

1.3 Scope

In order to achieve these aims, I have chosen to narrow the scope of my inquiry (beyond study 1; see section 1.4) to Minecraft. Minecraft was originally conceived of and developed by Markus “Notch” Persson, with help from a small development studio called Mojang (Goldberg & Larsson, 2013). The full version of Minecraft was released in 2011, though it was available as an in-development title since 2009. Minecraft has evolved from an ‘indie’ title to a hugely commercialised mainstream product purchased by Microsoft in 2015 for \$2.5 billion (Stuart & Hern, 2014). Minecraft is an unprecedentedly successful children’s digital game, with extraordinarily high numbers of monthly players; 112 million in 2019 (Gilbert, 2019) and 126 million in 2020 (Chiang, 2020). The total number of copies bought is reported as in excess of 200 million (Warren, 2020), and if the free version available in China is included, there have been a total of 480 million copies downloaded (PCGames, 2020).

Minecraft makes for a good case study of contemporary children’s digital play for several reasons. First, as mentioned already, it is very popular, including amongst children. Second, it offers many different modes of play. Players control a human-like avatar as it moves through a procedurally generated landscape. Depending on the particular mode of play and settings chosen, Minecraft play can be structured and game-like, with varying degrees of difficulty and competition, or it can be less structured and be a site for free play. Minecraft’s complexity is extended by the way it can be played on a wide range of devices and can be modified extensively. Players can choose from a range of different character appearances (or ‘skins’), pre-set maps (of varying themes) and texture packs. All of these elements can be added via the official Minecraft store which is accessed in game or via user generated content accessed through external websites. There are also a multitude of different social configurations of Minecraft play. It can be played offline, on one’s own, with other players on the same Wi-Fi network or online with players in other global locations. The Minecraft ecology involves developer created and run online servers and numerous servers produced by individuals outside of Mojang and Microsoft. These servers typically offer a range of rule-bound games using the Minecraft software as a base. Beyond engagement with the game software itself, Minecraft as a cultural phenomenon involves livestreams of play via platforms such as YouTube and Twitch; pre-recorded and curated YouTube videos

(MacCallum-Stewart, 2013); and a massive range of both official and unofficial merchandise including clothing, Lego sets, and toys.

This vastness and complexity of play possibilities is undermined to some degree however by the tendency for media (e.g. Turner, 2020; Wilson, 2020) and academic (Anderson et al., 2017; Burnett & Bailey, 2014; Danby et al., 2013) descriptions of the title to home in on building and survival elements. Minecraft is typically described as a construction game and in this way frequent comparisons with Lego (Overby & Jones, 2015; Rosenberg, 2019; Thompson, 2016; Wakefield, 2015) are understandable. Lego is after all likely to be familiar to many adults in a way that Minecraft may not be. However, the risk of such simplified descriptions (necessary as they are in many pieces of writing) is that they may not adequately reflect the way that children engage with the title. This contributes to the problematic fuzziness of adult understandings of digital play that I described earlier. It is not that these short-form descriptions are necessarily inaccurate. Rather, the focus on similarity to Lego overshadows the range of other forms of play that also frequently occur in Minecraft. I address this problem in Study 3.

Minecraft is also an ideal case study for the surrounding broader contexts of children's digital play. This is because it is framed as both uniquely suited to some kinds of learning, but also not immune from concern about 'screen time' and addiction. It has a popular association with learning, creativity and socialisation that other digital games do not (Ito, 2015; Thompson, 2016; Willett, 2015). The frequent comparison with Lego speaks to this special case status of Minecraft as a digital game. Building with blocks is associated with 'good' wholesome play and creativity (Thompson, 2016). Minecraft's association with learning is further marked by the adoption of its education edition in school classroom settings (Callaghan, 2016; López López et al., 2019; Minecraft.edu, 2021; Nebel et al., 2016; Sefton-Green, 2020). In this way, Minecraft problematises the separateness, the otherness, of digital play from traditional play. However, media coverage and parenting advice still frames Minecraft – like other digital games – as potentially addictive (Atkinson, 2020; Kardaras, 2016) and something in need of control, monitoring and restriction (Knorr, 2021; Kulman, 2015b).

1.4 Structure of the thesis

This thesis consists of three studies. The three studies are configured in relation to each other using a nested structure loosely based on Bronfenbrenner's (1993) model of child development (see section 3.4.1). However, this thesis is not concerned with making claims about the effect of Minecraft on child development. It is concerned with describing Minecraft play within layers of context as a contribution in itself but also as a more robust base for further research. I have used a range of different methods to achieve this. Specifically, discourse analysis (study 1), survey (with quantitative and qualitative analyses; study 2) and an ethnographically informed study of families (study 3). In this way the thesis involves a flow between macro and micro areas of focus – from the macro look at popular discourse around 'screens' and kids in study 1, to the narrower focus on Minecraft in the survey of study 2, to moments of play in study 3.

The outer layer, what I have called the *Cultural* context, of the structure is addressed in study 1 (chapter 4: Discourse study) through an analysis of how children and 'screens' are constructed in popular discourse. The next layer, the *Technological* context, is addressed in the quantitative findings of study 2 (chapter 5: A survey of children's digital play) and quantifies the place of Minecraft in children's digital play repertoires. It does this by presenting statistics that describe demographics of child Minecraft players. *Family* forms the next layer of context which includes parental appraisal of Minecraft as both beneficial but also 'screen time' and therefore in need of limitation and surveillance. This is addressed in the qualitative portion of study 2 (chapter 6: Parental perceptions of Minecraft play). Finally, the innermost layer of focus, *Moments of play*, is addressed through the third study (chapters 7-11: Household study). This study was on a smaller but more fine-grained scale and generated rich data about children's Minecraft play. It demonstrates the range of traditionally valued types of play that occurred in recorded Minecraft play and highlights ways in which technological infrastructure and player agency intersect in producing play.

This thesis unpacks what Minecraft is as a 'thing' that children play with, as a toy, as a playground, as a site of everyday in the moment engagement *and* what it is as a culturally situated construct, as a contemporary vector of adult hopes and concerns around children, technology, play and childhood. These elements are dealt with and presented together in

recognition that play itself is in many ways a social construct (Lewis, 2017). Given that children's digital play is so much a feature of media, parenting and academic discourse, we cannot know what Minecraft is without attending to these intimately intertwined discursive settings. As repeated at various points in this thesis, children's digitally mediated play does not occur in a social, cultural, technological, or commercial vacuum. Everyday play opportunities for children are provided by adults whose decisions are also made in these layers of context. Minecraft play cannot be described holistically without first situating it within these contexts.

1.5 Overview of the thesis

This thesis is broken down into four parts. Part One, consists of this introduction chapter (chapter 1), literature review (chapter 2) and methodology chapter (chapter 3), and sets the scene for the research presented. Part Two presents the first and second studies of my project, in the form of three published papers across chapters 4, 5 and 6. Part Three is dedicated to the third study. In chapters 7-11 I detail this third study in traditional thesis format without inclusion of published work. Finally, Part Four ties together the three studies in a General Discussion (chapter 12).

In chapter 2 I present my review of relevant literature. This provides background to the problems addressed throughout the rest of the thesis and also highlights current gaps in knowledge. Because of the structure of this work, going from a broad contextual level down to instances of play, the range of literature reviewed is necessarily broad. Working from wide to narrow focus, I first review literature which looks at the cultural context of children's engagement with technology including games; then what is known about the technological context of contemporary digital play (rates of play, devices used for play etc.); parental attitudes and mediation strategies in relation to digital games (which form a crucial part of the family context of play); and finally I provide an overview of what sorts of knowledge have been produced in relation to children's digital play itself.

This review of several sets of literature finds that there is a need to provide an up-to-date, Australian focused picture of the popular discursive construction of children and 'screens'; that title specific statistics are needed to provide an accurate view of the role of gaming in

childhoods; that title specific parental views are necessary and that play in digital spaces, including Minecraft, needs illuminating by way of detailed description.

After reviewing this broad range of literature and highlighting important gaps in knowledge and why they need filling, in Chapter 3 I turn to describing the theoretical and epistemological approach taken in my research. In this research methodology chapter, I situate my work within a new sociology of childhood approach, and also make explicit the way that I understand play and technology throughout the thesis. I set the scene for how I view knowledge generated through research, that is, within a social constructionist epistemology. This chapter also explains my use of Bronfenbrenner's model as a structuring device and presents how the three studies relate to each other. I briefly touch upon the range of methods used to generate knowledge throughout the thesis but have chosen to leave detail about these methods to individual chapters.

After these backgrounding chapters I then present my first study by way of a full publication in Chapter 4. This study was a discourse analysis of social media comments as a form of popular discourse. Three interpretive repertoires were generated from analysis. These repertoires represent three broad ways that children, technology and 'screen time' are constructed via the language of Australian adults. This study looks more broadly than digital gameplay which allows for the later portions of the thesis to be situated within these wider views and serves to highlight the important relationship between concepts of 'childhood' and 'technology' as a potent element of the context of children's play involving technology. The main finding from this study was the confirmation of a persistence of "discursive dichotomies" (Drotner, 2005; p. 40) in the way that children are constructed in relation to technology, as described briefly in the earlier parts of this introduction and again in more detail in the literature review. It found a dominance of the pessimistic repertoire (i.e. that childhood as a time of innocence and education is threatened by technology and 'screen time'). Therefore, this study confirms previous work but adds knowledge from an Australian perspective, specifically related to the relatively new technology of iPads and involving the everyday language of people rather than advertising (Willett, 2015), political discourse (Selwyn, 2003), film representations (Narine & Grimes, 2009) or news media articles (Laidlaw et al., 2019).

Chapter 5 then narrows the focus on my inquiry from broad discursive contexts of children and technology, to the core focus of this thesis which is digital games and Minecraft, as a timely and relevant case study. In this chapter, quantitative findings from my survey of 753 parents are presented in the form of a publication. This survey is the second study of my overall thesis. Using my loose adaptation of Bronfenbrenner's model as a guide here, chapter 5 moves from the *Cultural* context of children's Minecraft play to the *Technological* context, in service of the overall goal of providing a thoroughly contextualised view of children's Minecraft play (Tudge, 2008).

Chapter 5 consists of a full publication which gives a detailed statistical view of the prominence and general nature of Minecraft play in children's gaming repertoires in terms of statistics about rates of play, devices used for play, age of players and so on. It further validates the focus on Minecraft because it shows that Minecraft was the most frequently mentioned title by parents when asked what games their children played. In addition to providing a necessary 'big picture' of Minecraft as a feature of play repertoires and therefore a vital component of the backdrop of everyday Minecraft play, this information also serves to help provide title specific information as a way of countering the blunt information currently available which tends to lump all digital games together as if the medium of 'digital gameplay' is sufficiently meaningful. This is a gap identified in my literature review of the technological context of Minecraft play.

Chapter 6 presents findings from the qualitative portion of the survey conducted as study 2 of this thesis, where parents were asked what they thought about Minecraft. Chapter 6 therefore illuminates another element of the context of everyday Minecraft play. In my adaptation of Bronfenbrenner's model this chapter deals with the group level *Family* context in terms of parental attitudes toward Minecraft. This is an important aspect to include because parents provide access to play opportunities and the reviewed literature suggests that the decision-making process around digitally mediated play involves a different set of variables than other play. Through a grounded theory informed analysis (Charmaz, 2008) of open text survey responses, the paper in this chapter shows that parents have generally positive attitudes towards Minecraft, noting its strong association with creativity and other skill acquisition. However, these positive appraisals are tempered by an overarching concern from some parents about the same sorts of issues I found in reviewing existing scholarly work

about parental attitudes toward videogames. That is, they were concerned about ‘screen time’, addiction and, to a lesser degree, violence.

Chapters 7-11 detail my third study and are presented as traditional chapters without the inclusion of published work. This third study deals with everyday instances of play within families. Ethnographically informed, this study involved visiting 10 families, each with at least one child Minecraft player between the ages of 6-8. The overall aim here was to describe Minecraft play as it was recorded by families. However, I wanted to maintain the contextualised approach taken throughout the thesis, and to avoid plucking instances of play out of their contexts. Therefore, I also interviewed parents and children and had children conduct play tours of their homes.

The Minecraft recordings were analysed following Marsh et al. (2015, 2018) and Marsh, Plowman, Yamada-Rice, Bishop, and Scott, (2016). I used an existing taxonomy of play types (Hughes, 2002, 2006) to structure my descriptions of play. After introducing the study and methods in Chapter 7, Chapter 8 shows how all but one of the 16 traditional play types in this taxonomy were present in the Minecraft recordings of children in this study. An additional type of play, *satisfying* play is proposed based on instances of play that did not fit within the taxonomy used. After presenting one detailed case study as a way of showing connections between parent factors and play, and between Minecraft and other play in Chapter 9, Chapter 10 covers the way that children wield agency over the technological infrastructure to produce play. In Chapter 11, I conclude study 3 by way of a discussion highlighting how Minecraft play can involve many similarities with non-digital play.

Finally, Chapter 12 draws on all three studies in order to present a holistic account of children’s play in Minecraft, as it occurs within contexts heavily shaped by the fact that Minecraft play happens via a digital screen. I discuss how my findings demonstrate a range of consistencies and differences in the discursive, sociocultural, and technological settings of everyday Minecraft play. These findings give a picture of what Minecraft *is* as a construct, as a focus of shared understandings of adults. I then turn to detailing what my research has found about what Minecraft *is* as a more concrete ‘thing’ that children play in and with – beyond on-the-packet descriptions of ‘breaking and placing blocks’ and beyond comparisons with Lego. This includes a focus on how my methods and findings have clearly shown,

through a lens overtly focused on play, that Minecraft acts as a space for legitimate, genuine free play.

I then critically assess what I see as a disconnect between the way that digital games in general are presented in advice to parents and organisational efforts to uphold children's right to play, on the one hand, and what I found in observing children's digital play on the other. It is acknowledged here that my findings are Minecraft specific and that Minecraft may well provide a play space that is more conducive to free play than others. However, it is also clear that Minecraft as a form of 'screen time' is subject to the same kinds of narrow representations and attention to physical health, development and learning effects that set digital play apart from 'other' play. This setting apart, and 'othering' of digitally mediated play, I speculate in this chapter, has the potential to negatively impact children's right to play. I argue strongly for the *play* in 'digitally mediated play' to be more in focus in policy and expert advice lest it be permanently bogged down under talk of 'screen time', sedentariness, addiction, violence, 'stranger danger', and what digital play can *do* for children's learning and development. Finally, I note some important caveats and limitations to my work and point to topic areas where more knowledge is needed. This includes a perseverance with research that documents and describes digital game play in a range of titles.

1.6 Summary of contributions

This thesis contributes a detailed understanding of children's play with Minecraft beyond the information currently available in literature which seeks to relate play to outcomes. It also provides more detail than common media and other descriptions of Minecraft as being 'just digital Lego'. It provides an up to date account of how children and screen media are constructed in relation to each other in Australia then how Minecraft play is uniquely viewed by parents (as a game played via a screen and therefore subject to 'screen time' concerns but also as creative and good like Lego). Through these studies this thesis ultimately shows a disconnect between how Minecraft play is understood by adults on the one hand and how it is experienced by children on the other. This leads on to a discussion of the potential implications of this disconnect. Specifically, the potential for a conflict between children's right to play and an adult controlled context for play that sees play involving a screen (in

contrast to highly revered traditional play) as only marginally legitimate and potentially pathological.

Chapter 2 Literature review

2.1 Introduction

This literature review is divided into four parts. The four parts address each of the three layers of context plus the core focus at the centre: *Moments of play* (**Figure 1**, page 83). I describe what is known at each layer then highlight gaps where more knowledge is needed. This structuring reflects the socio-cultural approach, and Bronfenbrenner's ecological theory (1995) which underpins my thesis structure (explained in section 3.4.1). The thesis then addresses each of these layers through presentation of results from my three studies that each deal with a different layer and address gaps identified at each layer.

2.2 Cultural context

In this section I review what is known about how children, 'screens' and digital gaming are constructed in varying sets of discourse. This layer corresponds to the macrosystem in Bronfenbrenner's theory – "the cultural belief systems and ideologies" (Plowman, 2016; p. 192). This ecological environment layer is important to consider when describing children's digital play practices. Beliefs about the *nature of* and *value of* technological devices (which mediate digital play) and the interaction between these beliefs and those related to childhood, "recreate and transform the cultures in which the toys and technologies are situated" (Plowman, Stevenson, Stephen, & McPake, 2012; p. 31). So rather than seeing the macrosystem as far removed from everyday play practices, as peripheral, this layer of context, as with all the others, is woven together, and *threaded through* environmental layers and in this way is *present* in the everyday practices of children (Plowman, 2016).

In this PhD, I examine this layer through the lens of social constructionism (Burr, 2015). This means that I am more interested in how concepts such as 'childhood' and 'screen time' are discursively and fluidly constructed, and how these might represent underlying ideologies, than I am interested in static 'beliefs'. These constructions and ideologies inform parenting values and practices as well as children's own understandings of their play practices (Russ, 2014). Children and childhood do not occur in a vacuum within the walls of families' homes.

Cultural norms and values shape the experiences of children via values, expectations, opportunities provided by parents and the way that children themselves understand their play.

A wide range of research has established how childhood is a key site of concern for adult anxieties and hopes about technological change and impact on broader society (Jenkins, 1998b; Laidlaw et al., 2019; Selwyn, 2003). Public discourses around children and technology are polarised, into what Drotner (2005) calls “discursive dichotomies” (p. 40). With technology positioned on the one hand as something which children will use to solve the world’s problems, but on the other, as something which threatens the very essence of childhood. Relatedly, children as users of technology are often constructed as “digital natives” (Prensky, 2010) or the “net-generation” (Tapscott, 1998) who have a “spontaneous natural wisdom” (Buckingham, 1998; p. 557) that affords them a strong affinity with technology but also as innocents at risk of corruption via exposure to technology (Buckingham, 1998). This generation-based attribution of universal skill and interest in technology is heavily critiqued by authors such as Gronn, Scott, Edwards and Henderson (2014) and Bennett and Maton (2010) for the way it obscures individual differences in skills and practices and presents an oversimplified view of children’s relationships with technology. Nevertheless, it serves well here to highlight the way that childhood is constructed, often with technology and media as core components this construction.

The term ‘screen time’ has become dominant in framing these debates about children and technology, including digitally mediated play. It is not a neutral or overly descriptive term and is used in popular, media and in some cases academic discourse as shorthand for a massive range of children’s everyday practices. Despite calls for the term to be dropped altogether due to its lack of utility for anything other than making broad and often unsupported claims (Bediou et al., 2020; Kaye et al., 2020; Kucirkova & Livingstone, 2017) the term is still routinely used in media reports and in the language of public health organisations particularly when interfacing with the public. For example, The Royal Children’s Hospital of Melbourne, Australia has reported that the most widespread child health concern in Australia is “excessive screen time” (Danchin, 2021; Rhodes, 2015) and that policies and programs are needed to support parents to “ensure that their children are engaging in activities away from *screens*” (p. 5, emphasis mine). Another survey report by the hospital in 2017 is titled: “Screen time: What’s happening in our homes?” (Rhodes,

2017). The message from media scholars that ‘screen time’, as a term, is obsolete and largely unhelpful for anything other than passing value judgements, has yet to filter through to professionals who have a direct interface with parents and children.

It is therefore not surprising that the term ‘screen time’ persists in popular discourse. Hospitals are respected sources of knowledge on child rearing and play some role in constructing what counts as ‘good parenting’ and ‘good childhood’. The persistence of the term also perhaps reflects the fact that it serves a handy discursive function – it allows for particular constructions of technology use by children to be deployed in one commonly used phrase which stands in for a whole lot of assumptions and values. These assumptions and values include the classist framing of ‘screen time’ and popular media associated with it as passive and having a dumbing-down effect (Dixon & Weber, 2007; Seiter, 2007).

As a sub-category of ‘screen time’, digital gaming attracts its own set of discourses. While the usefulness of attributing these sets of discourses to a ‘moral panic’ is questioned by some (Buckingham & Jensen, 2012), an historical look at media reporting on videogaming, demonstrates that there are indeed features of moral panic present in the way that digital gaming is constructed (Karlsen, 2015). Gaming shares the construction of ‘screen time’ in general in terms of displacing time away from other more desirable activities, and as being a low-brow form of cultural capital (Karlsen, 2015) but differs in terms of association with addiction (Cover, 2006) and violence (Kowert & Quandt, 2016). Particularly relevant at present, given the World Health Organisation’s decision to include ‘Gaming Disorder’ in their International Classification of Diseases (WHO, 2018; see also Lundedal Nielsen, 2018), is the construction of digital gaming as particularly engaging to the point that it is not uncommon to see comparisons made between substance use disorders and digital gameplay¹. These comparisons often use medicalised language and refer to the neurotransmitter dopamine. For example, Dunkley (2015), writes: “Many children are ‘hooked’ on electronics, and in fact gaming releases so much dopamine—the ‘feel-good’ chemical—that on a brain scan it looks the same as cocaine use” (n.p).

¹ Although worth noting here is the WHO’s backing of the #PlayTogetherApart movement organised by gaming companies during the Covid-19 pandemic as a way to encourage people to follow the WHO’s advice to physically distance from others – by staying home and playing videogames (Snider, 2020).

However, discourse around gaming is polarised and not all constructions present gaming as an inherently problematic pastime. Narine and Grimes (2009), for example, found “stifflingly polarized” representations of the “gamer child” in their study of film and advertising texts. Children were depicted as “either idle, delinquent, and/or violent, or ingenious, naturally adept cyber children with bright futures in the Information Economy” (Narine & Grimes., p. 321). In relation to Minecraft specifically, Willett (2015) shows how advertising and news media construct Minecraft as compatible with “good parenting” (p. 1061) via association with creativity, science, math and design skills.

Beyond popular culture and advertising representations however, we also see the polarisation in constructing ‘gaming’ and ‘child gamers’ at governmental level. For example, in Australia, the government funds a ‘STEM videogame challenge’ (Rosicka, 2015). The challenge is promoted to encourage digital skills which are presented as valuable aspects of education. Children are also taught coding in schools using game-like software (Australian Curriculum, Assessment and Reporting Authority, 2020). Western Sydney airport even partnered with the department of education to hold a Minecraft design competition with the \$20,000 prize money being used for the winner’s school’s STEM resources (Liverpool City Council, 2019). Yet, at the same time, parents are warned repeatedly not only by media reports but by official government organisations that the wrong amount or the wrong kind of digital gameplay is inherently dangerous to children (Raising Children Network, 2020a). Parents are also positioned as gatekeepers of safety and quality of content through the language used to promote videogames and in media coverage of digital games (Willett, 2015). Managing ‘screen time’ and digital gameplay are presented as a key component of ‘good [middle class] parenting’. It is within these tensions – that are constantly shifting and at times contradictory - that children’s everyday play is situated.

Also informing these tensions is a view of media as directly implicated in a perceived loss of childhood. This idea is fleshed out through Neil Postman’s influential (1982) book, *The Disappearance of Childhood*. Postman argues that new media make available to children content that was previously out of bounds for them due to the need for print literacy. According to Postman, this means that children are no longer walled off from the adult world,

their innocence thereby threatened.² Postman's argument, that media contributes to a loss 'childhood' itself, permeates through to a perceived loss of a key component of childhood – play. However, concern about a loss of, or decline of, play is focused on nostalgic recollections of non-mediated play. This is a key point of reference for this thesis, which I return to in the discussion. That is, the notion that different forms of play exist on a value hierarchy, such that forms of play adults remember from their own childhoods, with a sense of nostalgia, are more highly valued than other forms of play (Dixon & Weber, 2007; Giddings, 2014b; Page Jeffery, 2019). Ideas about what kinds of play are 'good' for children mingle with ideas about technology and new media being potentially damaging to childhood, to produce a framing of videogame play as "distinct from and even antagonistic to what are perceived as more traditional forms of play" (Richards & Burn, 2014; p. 7). In some instances, digitally mediated play is constructed as not even 'real' play at all (Palmer, 2016).

2.2.1 Description of gap and justification for study 1

Many scholars have emphasised the need to see children's digital play practices within context (Burnett & Bailey, 2014; Ito et al., 2008; Marsh, 2010a; Plowman, 2016; Stephen & Plowman, 2014) including the cultural ecology (Ito et al., 2008) surrounding it. As Ito and Bittanti, (2009) write:

"The focus on activity in context means paying attention to the diversity in contexts that structure different forms of game play—the broader social and cultural ecology—rather than assuming that psychological and cognitive dispositions play the most important determining role" (p. 199).

However, while existing empirical work has paid attention to broader cultural contexts, it has focused on political, media and commercial discourses rather than broader public sentiment. For example, Selwyn (2003) analysed political discourse via Hansard records of UK parliament between 1981 and 2000, as well as news articles, and advertisements. Laidlaw et al. (2019) looked at news media articles published between 2012 and 2018. Facer, Furlong, Furlong, & Sutherland (2001) conducted a discourse analysis of education policy documents.

² Postman's thesis is critiqued by Buckingham (1998) who writes that Postman's approach offers "little more than a form of anguished conservatism, a nostalgia for an illusory golden age in which childhood remained unsullied by the corrupting force of the electronic media" (p. 558).

As mentioned, in relation to gaming in particular, Narine & Grimes (2009) studied the constructions formed through film representation of child gamers. These studies all present persistent “discursive dichotomies” (Drotner, 2005; p. 40) in constructions of children and technology. These discourses each contribute to the cultural context that surrounds children’s digital gameplay, but so too do the discourses of everyday people. Study 1 in this thesis therefore addresses this gap.

Further, much of the work that has looked at cultural level construction of children and technology has been prior to the introduction of tablet devices (cf. Laidlaw et al., 2019; Nansen, 2020; Willett, 2015). There is a need to update this empirical work to include the role of tablet devices which has coincided with a ramping up of ‘screen time’ concern, especially in relation to younger children (see also section 2.3.5 for more detail on how tablet devices have fundamentally changed digital gaming ecologies). Furthermore, little is known empirically about how *Australians* discursively construct children and ‘screens’. Most research looking at children and digital gaming comes from the United States and the United Kingdom. Study 1 in this thesis contributes to addressing some of these gaps in knowledge. In doing so, it also provides an understanding of part an important aspect of the macro-level of children’s everyday digital play – that is, how the Australian public discursively constructs children, childhood, and technology.

2.3 Technological context

In this section I use a review of statistical information to describe the presence of gaming in childhoods. Here I am interested in what the technological context of children’s’ digital play looks like at a population/group level. Technological development changes possibilities for forms of everyday practices. The proximal processes that Bronfenbrenner (1995) describes as important elements of the micro context for development include repeated bi-directional interactions with *objects* as well as other people. For my purposes here, the objects of interest are the devices used for play, as well as the software which makes up individual gaming titles.

In addition to this quite concrete shaping of play, a review of statistics related to rates of play allows us to begin forming a picture of the possible role that digital gaming has in contemporary childhoods. A key part of this picture is the recognition that despite media

claims making it seem as though spending large amounts of time transfixed by digital games is a defining feature of contemporary 'childhood', many children do not play digital games. Knowing about rates of play and how this varies across age, gender, and social class divides, gives us at least some idea of just how much of a feature digital play is across contemporary childhoods.

It must be noted however, that by documenting the technological context of digital play, I am not making a deterministic argument about the role of technology in development (see Kucirkova, 2014 for a discussion in relation to iPads in education). Rather, I am acknowledging that objects for gameplay are important features of children's everyday digital play experiences, that they may shape play in varying ways, but also, importantly, that within an ecological model "technologies are embedded in cultural contexts"(Arnott, 2016; p. 272). As Giddings (2014a) writes "the videogame as hardware and software is an agent or set of agents [which sit] alongside the children" (p. 19) and are nested within "the commercial spheres of children's media culture" (p. 19).

Furthermore, the technological context of childhood and play changes constantly. Tablet devices, for example, were non-existent just 11 years ago, but are now used by a substantial proportion of children for gameplay (Ofcom, 2020; Rideout, 2016). Their relative ease of use, reduced written literacy requirements, proliferation of game apps and the ubiquity of these devices, has arguably opened up digital gameplay to a wider group of younger children (Arnott, 2016; Marsh et al., 2015; Nansen, 2020b). Chaudron (2015) in a multi-national study of 0-8 year old children's digital technology practices found that children reported a preference for tablet devices because of the screen size (bigger than phone, but smaller than laptop screens) and because they are light enough for children to carry around. While caution is needed in making generalised claims about children's abilities and interests (Kucirkova, 2014) the possible role of tablet devices in shaping children's digital gaming landscapes must be accounted for.

Edwards' (2014) notion of the 'digital consumerist context' provides further rationale for looking at the kinds of devices and technologies present in childhoods. Edwards' theory presents a holistic account of the place that technologies have in broader economic and consumerist structures, bringing these elements into view when considering digital play from

an ecological perspective. Edwards defines this layer of context as: “dynamic, with emerging practices, knowledges and technologies constantly reshaping and informing the nature of the current context in relation to the past” (Edwards, 2014; p. 122).

Despite the prominence of hopes and concerns around children’s digital gaming at a cultural level, and the size of the games industry, there is relatively little quantitative data about children’s digital play habits. In this section I overview some existing research, primarily drawing on the Ofcom and Common Sense Media reports from the UK and USA respectively, and the Digital Australia reports produced by Brand and colleagues where relevant. It is worth noting that these statistics are limited to Global North childhoods which presents a significant remaining gap in the literature about children’s digital play.

2.3.1 Rates of play

Many children play digital games, but many do not. In Australia, 25% of one to four-year-olds play some form of digital game, and 81% of five to fourteen-year-olds play (Brand et al., 2019). Older children are more likely to play. In the UK, for example, 39% of those aged 3-4-years play and 81% of 12-15s play (Ofcom, 2020). Also consistent across the data sets is the finding that while TV viewing occupies the majority of media use time, gaming consistently comes in second (although, this is heavily moderated by gender, see below). In households with children, gameplay is the second most popular media activity after TV viewing in Australia (Brand et al., 2019). The Common Sense Media (Rideout & Robb, 2019) report of 8-18 year-olds found that 53% of the total ‘screen time’ of 8-12-year-olds is used for TV or video watching, and 31% is spent on gaming.

2.3.2 Time spent playing

Another variable through which we can gain some insight into the role of digital gaming in childhoods, is the amount of time children spend playing. While I do not want to essentialise time spent playing as particularly meaningful in itself, it is important to present this information as a way to highlight the variance across children. It should also be noted that these figures are averages (skewed by children who are heavily invested in gaming as a hobby) and that they represent average time per day/week, not necessarily in a single sitting.

Ofcom provides time information in terms of average hours per *week*, while Common Sense Media talks in terms of average hours per *day*. But again, across these two data sets, there is a clear increase in time spent gaming with age. The Ofcom (2020) report has time spent playing ranging from 4 hours and 42 minutes per week for 3-4-year-olds up to 11 hours and 36 minutes per week for 12-15-year-olds. Time investment differs by device used for play, with console play associated with the longest play sessions at 2 hours and 24 minutes per day on average for 8-12-year-olds compared to mobile device play with an average per day of 1 hour and 17 minutes (Rideout & Robb, 2019). There are strong gender differences in time spent playing, and these are described below.

2.3.3 Online play

Both the Ofcom (2020) and Common Sense Media (Rideout, 2017) reports make special mention of online gameplay. There has been an increase in the number of children who play digital games online across all age groups. For example, in 2015 45% of 5-11-year-olds ever played online games compared to 59% in 2019 (Ofcom, 2020). Again, there is increase with age, such that just 17% of 3-4-year-olds have online gaming experience and 72% of 12-15-year-olds do (Ofcom, 2020).

Both surveys take a particular interest in sociality in relation to online play, each asking in varying ways about who children play online with. Ofcom (2017) for example asks about ‘games that can be played online’, listing Minecraft as an example of this type of game. They report that 13% of 8-11s and 17% of 12-15s play with people they have not met offline. Children are more likely to use game chat functions to talk to people they *do know* (37% of 8-11s and 51% of 12-15s) than people they do not know or know only through playing the game (15% of 8-11s and 19% of 12-15s) (Ofcom, 2017). Common Sense Media also report that 12% of children aged 0-8-years often or sometimes “Play a ‘social’ game online with other kids, like Club Penguin, Minecraft, or Animal Jam” (Rideout, 2017; p. 52). This increases to 22% of 5-8-year-olds playing this way.³

³ Interestingly the Rideout (2017) report classes online games with social elements as precursors to social media. Results are presented in a table titled “Frequency of Social Media Use” which in the body is broken down into “social games” and “social sites” (p.32). The case for framing Minecraft as a form of social media is not clearly laid out.

However, *not* provided, is information about who children play with offline, on local area networks, or on multi-player games not connected to the internet at all, but perhaps with siblings using another console controller for example. Other sources report that some parents sometimes play digital games with their children (Brand et al., 2019; Joan Ganz Cooney Centre, 2017). But beyond that we are missing important group level information regarding the sociality of play and how this is facilitated or complicated by devices. It is possible that only online interaction has been asked about because interaction with unknown people online is a source of concern and due to changes in the technological landscape, such practices are increasing (Eklund & Helmersson Bergmark, 2013).

2.3.4 Gender

While studies of adult populations find that rates of play across gender are becoming more aligned, such that there is a near equal split between male and female players (Brand et al., 2019; Fisher & Jenson, 2017), in surveys of children, there are consistently marked differences in not only the frequency of digital gameplay but also the time spent playing, devices used, engagement with online play and engagement with meta-game or transmedia game related content. Gender differences in gaming are the biggest set of differences across all media use and all social groupings (Rideout & Robb, 2019).

Boys are more likely than girls to play any games on any device. For example 52% of boys aged 8-18 play at all on a mobile device compared to 40% of girls (Rideout & Robb, 2019). Boys are more likely to play for longer periods of time, across all groups, and the disparity increases with age. For 5-7s there is a difference in average time playing per week of 2 hours (boys spend 8 hours and 9 minutes gaming and girls 6 hours and 6 minutes). But, by ages 12-15 the difference increases to nearly 7 hours per week (boys average 14 hours and 48 minutes while girls average 8 hours 12 minutes) (Ofcom, 2017).

These differences translate to online play practices. While rates of online play have increased for girls, boys are still more likely to play this way (71% of 5-15-year old boys compared to 48% of girls in this age group) (Ofcom, 2020). Boys spend an average of twice as long as girls playing online (Ofcom, 2020). Boys are also more likely to play online with people they do not know offline and are more likely to converse with players they do not know offline

(Ofcom, 2019). Boys are more likely to watch gaming related content on YouTube (Ofcom, 2019).

Boys' gaming experience is much more likely to be via a console device than girls'. Common Sense Media (2020) found that 41% of boys aged 8-18 play console games daily compared to just 9% of girls. Further, boys spend an average of 1 hour and 19 minutes playing console games per day while the average across girls of the same age is 14 minutes. Common Sense (Rideout & Robb, 2019) also asked respondents to indicate which activities they enjoyed the most, and gender differences in rates of gaming are reinforced by this data which shows that boys are much more likely to list console game play as their favourite media activity, while girls are much more likely to list it as one of their least favourite. This persists for other devices – among 8-18s, 42% of boys said they like “computer games” a lot, compared to 20% of girls (Rideout & Robb, 2019). Boys' affinity for consoles extends to other media practices, with boys more likely to watch TV via consoles and to watch YouTube this way too (Ofcom, 2020).

2.3.5 Devices

Gaming devices configure play in varying ways. Tablets, for example, allow digital play to happen in a range of different physical spaces (on the floor, in bed, in the car, while waiting for siblings to finish extra-curricular activities). Games played with a console attached to a fixed TV screen, perhaps in a communal living area allow spectatorship of play and also the tying up of a screen that may be in demand by other household members. Devices also impact the kinds of sociality possible around gaming, both in the immediate environment but also in the broader social lives of children (Willet, 2017). Difficulties in accessing online multiplayer games might mean, as Willet (2017) found, that much of the shared social enjoyment of, and engagement with, game texts happens away from the ‘screen’, at school recess for example.

Despite the strong affinity of boys towards consoles, consoles are consistently dropping in popularity for digital play across all children on the whole. While console connected to a TV was still the most popular mode of play for 5-15s in 2017 this had decreased from 74% of all digital play via console in 2010 to 46% in 2017 (Ofcom, 2017). This is also reflected in the fact that less households now own a console (Ofcom, 2017). A lot of this shift seems to be accounted for by the uptake of mobile devices. And while older children are still more likely

than younger ones to play via console, they too are shifting to mobile devices. For example, 35% of 5-15s play on tablet devices and 32% on mobile phones (Ofcom, 2017). In America, the proportion of 8-12s who play mobile games ‘everyday’ has gone up from 27% in 2015 to 46% in 2019 (Rideout & Robb, 2019). Interestingly though, time spent playing has not gone up. This indicates more frequent, but not longer, bursts of mobile device play (Rideout & Robb, 2019).

Also important to note is that the dramatic increase in use of tablet devices since their introduction in 2010 seems to now be steady (Rideout, 2017), with much more subtle changes in rates of ownership and use in recent years. But the change in digital gaming landscape brought about by tablet devices has been quite profound, particularly for younger children for whom experience with digital play is much more likely to be via a tablet than any other device (Rideout, 2017). This reflects those earlier rapid rates of tablet device uptake. For example, in the UK, 39% of 5-7 year-olds had access to a tablet device in 2013 and by 2017 that had risen to 75% (Ofcom, 2017).

2.3.6 Socioeconomic status (SES) differences

While acknowledging the difficulty in meaningfully grouping families based on SES differences without attending to values and practices (Clark, 2013; Livingstone & Blum-Ross, 2020) both the Ofcom and Common Sense Media reports provide information about differences in digital gameplay across social groupings. SES differences are far less marked for gaming than are differences in terms of age or gender. In terms of media use overall (not just gaming) the Common Sense (Rideout, 2017) report notes that children in higher income families spend on average 50 minutes less per day engaging in ‘screen time’ than children from lower income households. Lower SES families are less likely to have a computer and children in those households are less likely to have ownership of their own electronic devices. This finding holds for older children, aged 8-18s as well (Rideout, 2017).

In terms of gaming, while *rates of play* are similar across SES groupings, Ofcom (2017) found that children in higher SES households spend on average *less time* playing digital games; and children in lower SES households are less likely to play games via a computer, phone or tablet device (Ofcom, 2017). The difference in time spent playing is echoed in the US data, which shows that children from lower income and lower parental education

backgrounds spend “more than twice as much time gaming than their peers do” (Rideout, 2017; p. 32). Both Marsh et al. (2018) and Livingstone and Blum-Ross (2020) also found that lower income families were more likely to have cheaper brands of devices for digital play, such as Samsung Galaxy or supermarket brand tablets. Marsh et al. (2018) also found that parents with higher social ratings were more likely to pay for apps. Interestingly, the cost of apps was a barrier across all social groupings and there was a strong preference for freely downloadable content (Marsh et al., 2018).

2.3.7 Problems with these sets of data for understanding children’s digital play

The finding just mentioned, about the *type* of games children play (‘free’ versus paid), is noteworthy for the rarity that such information is presented. The larger data sets, of Ofcom and Common Sense Media, make no mention of genre of game played let alone anything about particular titles (other than listing some titles as examples in broader questions). This lack of information about the nature of play beyond device level, represents a big gap in understanding the nature and role of digitally mediated play. This makes the utility of current information greatly limited. Specifically, not knowing which titles children play, and any differences in terms of age, gender, social class, means that we know very little about the *quality* of children’s digital play at a group level. I do not mean quality in terms of value, but in terms of what exactly all of those hours of gameplay are spent *doing*.

The findings that we currently have are limited to Marsh et al. (2018), who found significant gender differences in types of apps preferred in their young 0-5-year-old sample. Girls preferred colouring and drawing apps while boys preferred Minecraft. A small number of (often) smaller scale studies do report on genre preferences (Beavis et al., 2015; Houghton et al., 2015). But in order to improve the meaningfulness and usefulness of quantitative data sets there is a need to collect information about titles alongside overall rates of play and so on for larger groups of children.

2.3.8 Description of gap and justification for quantitative component of study 2 (survey of parents)

The statistical information reviewed here helps gives an idea of the role that technological devices used for playing games have in a range of childhoods. We know that not all children play, that rates of play and time spent playing increase with age, and that there are significant persistent gender differences in rates and time spent playing. However, what is missing from this body of work, useful as it is for giving an overall view, is information about *what* children are playing on digital devices. Many scholars have recently advocated for a much more nuanced approach to collecting information about children's 'screen use' including their digital play (Holloway et al., 2013; Houghton et al., 2015; Przybylski & Mishkin, 2016; Straker et al., 2013). As Vandewater and Lee (2009) point out, large scale media use studies like the ones presented here, "have been major contributors to the scholarly and public discourse regarding the amount of children's media use and the impact of media on children" (p. 1158). However, they paint a picture with a very broad brush. Therefore, it is important to ensure that the sorts of information collected is nuanced and granular.

I argue that one way of gathering more accurate information at a statistical level is by asking about *titles* played. The large data sets I have drawn upon here give a useful population level overview. However, the finest granularity we tend to get from them is information about devices used for play. Given the range of possibilities for play within each device type, this information has limited meaning in describing overall technological contexts. Collecting information about game titles played by children provides a finer picture of the technological layer of context because it goes beyond anecdotal accounts of which titles are popular. This seems a necessary step in meaningful inference about the technological environment of contemporary children's play. However, it is vital to note that while this information is helpful it still does not tell us anything about how children actually play the games. This is where ethnographic, qualitative information is needed as presented in chapters 7-11. Nevertheless, my aim is to understand children's digital play within layers of context, and knowing what titles make up the contemporary pool of children's gaming practices is an important part of this context.

The title I am most interested in is Minecraft. This interest is because of the uniqueness of the title outlined previously and the opportunities for free play it offers, but also because it is anecdotally very popular with young players. Because of this popularity, and the educational benefits associated with Minecraft, claims are made about its role in childhoods, but we do not know which childhoods involve Minecraft and which do not. We do not know about the trajectory of Minecraft play across age groups. We also do not know what devices are used to play. This sort of information has previously only been available via anecdotal information, marketing company estimates (e.g. Willet, 2015, notes that a marketing firm estimated in 2012 that the average age of players was 14) and small scale surveys of limited age ranges (e.g. Beavis et al., 2015; Marsh et al., 2015). These gaps are addressed in my survey of parents. The results are presented in chapter 5.

2.4 Family context

In this section I review what is known about how parents think about digital gameplay and how it is managed in households. This section is *not* about evidence bases regarding actual harms or benefits of digital gameplay. The focus of the thesis is on understanding everyday play within contexts, including, as addressed here, family context. I want to acknowledge here that the relationship between scholarly evidence and parental attitudes and practices is complex; that research in the area of media effects suffers from methodological dilemmas (Kaye et al., 2020; Rideout, 2016; Wartella et al., 2009); that results tend to be mixed and inconclusive in a range of domains (e.g. Ferguson, 2015; Kowert & Quandt, 2021; Przybylski & Mishkin, 2016) but, importantly, that as Buckingham and Jensen (2012) write, caution needs to be taken to avoid uncritically dismissing media effects research altogether as manifestations of media panic. Having noted these points, though, the literature relevant to this thesis is that which deals with parental attitudes and practices and not that which serves to validate or invalidate them.

This section is broken into two parts: 1) what is known about parental attitudes toward games and 2) what is known about videogame mediation practices. As Eklund and Helmersson Bergmark (2013) note: “what parents think and how they attempt to handle new media is important to consider in understanding the role of digital gaming today” (p. 2). This is important to know because children’s everyday play experiences are in many ways controlled

by parents. The way that parents think about games influence the way that digital playtime is managed. And in turn, the way that digital playtime is managed impacts opportunities for play (Russ, 2014). Therefore, attending to parent attitudes and practices around digital play is crucial in achieving my overall aim of providing a comprehensive detailing of Minecraft play within context. The information reviewed here is in relation to digital games in general, and as I explain in section 2.4.5, the lack of research on parental attitudes toward specific titles, particularly Minecraft, is a significant gap. This gap is addressed in my qualitative study of parent attitudes towards Minecraft presented in chapter 6.

This information addresses the microsystem layer in Bronfenbrenner's model and in my thesis structure this corresponds to the *Family* context level. In this way, the attitudes of parents represent a point of connection between the broad cultural level of context and everyday moments of play. Below I look at what kind of context exists within households and within family relationships, while acknowledging that these systems are not sealed off at all from the way that society sees children, play and digital games. It is important to note that attitudes and practices are variable across families and across time. Childhood is not a singular universal category (Prout & James, 1997). Sets of discourse at a broad societal level, intersect with individual family variables in a multitude of dynamic and responsive ways. In this section I present generalised information about parental attitudes and mediation, then take some time to note how these are fluid across families and across time.

2.4.1 Home media environments and family philosophies

There is variance in the ways families appropriate gaming and related paraphernalia into household physical environments (Ito et al., 2009) and a more diffuse sense of individual "family philosophy or style" (Livingstone, Marsh, Plowman, Ottovordemgentschenfelde, & Fletcher-Watson, 2015; p. 28) that shapes family level contexts of play. The way that family homes physically configure media spaces has implications for privacy, sociality, and a sense of ownership over devices. This configuration is in part impacted by financial and space constraints (Horst, 2009) and social class (Livingstone & Sefton-Green, 2016). The degree to which gaming represents either a shared hobby or a point of conflict, also shapes both the physical and social environments of digitally mediated play (Livingstone, Marsh, et al., 2015). Although, Plowman et al. (2012) conclude from their study of family media practices

that it is not the amount or type of technology available in households that determines use, but rather the “local culture” formed by parents and based on attitudes and values (p. 35). They found that the degree to which parents valued balance between digital and non-digital time, play and learning opportunities, and the involvement of children in decision making had most impact on daily media practices.

2.4.2 Parental attitudes toward digital gaming

Therefore, in addition to factors such as social class, financial and space constraints, and family interests, underlying attitudes and values play an important role in shaping opportunities for digitally mediated play. Literature in this area tends to focus on attitudes toward overall ‘screen time’ (e.g. Ofcom, 2020; Rideout, 2017) but there is a smaller set of information specifically about parental attitudes toward digital gaming. This section focuses on these studies in order to describe what is known about how parents think about, and value, digital gaming.

The most notable generalisation across these studies is that parents’ attitudes towards gaming are multidimensional and, in many ways, echo the broader ‘hopes versus concerns’ discourses that I described at a broader cultural level. Parental framing of digital game play is strongly centred around time. Parents report that time spent playing digital games represents time not spent doing other more desirable activities (Jiow et al., 2017; Joan Ganz Cooney Centre, 2017; Kutner et al., 2008; Livingstone, Marsh, et al., 2015). In Australia, a survey by the Royal Children’s Hospital found that 31% of parents felt that their children spent “excessive time playing games on screen-based devices” (Rhodes, 2017; p. 4) and this jumped to 59% for teenage boys. Therefore, following increase with age in time spent playing, parental concern also increases with the age of the child. Ofcom (2017) found 22% of parents of 5-7s compared to 39% of 8-15s were ‘very or fairly concerned’ with time spent playing. This increase in concern with age of child is supported by the relatively low proportion of parents in Marsh et al. (2018) involving children under 5 years, saying that they were concerned about time spent playing. Some parents report family conflict and behaviour problems that centre on game time, or more accurately, the *restriction* of game time (Chaudron, 2015; Joan Ganz Cooney Centre, 2017; Kutner et al., 2008) and others mention isolation from family members (Joan Ganz Cooney Centre, 2017).

Related to this issue of time is a specific concern about addiction. One of the reasons for this is because digital games are represented in media as employing psychological ‘tricks’ to maintain engagement. The neurotransmitter dopamine is routinely implicated here and makes for comparisons with substance abuse disorders (Lundedal Nielsen, 2018). Parents report fearing that children will be “‘sucked into’ games and gaming devices as well as being fixated on those devices” (Chaudron, 2015; p. 32). Kutner et al. (2008) describe parents talking about children “losing track of time” while playing digital games (p. 84).

Another finding from work looking at parental attitudes toward digital games is that there is a hierarchical *valuing* of different uses of time, including shared family time. At a general level, this means that “parents favour off-line activities” (Chaudron, 2015; p. 16). Jiow et al, (2017) note a range of activities that parents would rather their children do instead of playing digital games including “sporting and outdoor activities, participating in cocurricular activities (CCA), attending after school tuition classes, reading books, playing musical instruments, and bonding activities with family members” (p. 321). Livingstone et al. (2015) found that parents took pride in describing offline shared family activities, such as playing board games together, and saw these uses of time as “evidence of good parenting” (p. 29). Conversely, digital device use was valued more for usefulness in the “interstices of daily life” (p. 29) – as time fillers, boredom busters (Livingstone, Marsh, et al., 2015). The Joan Ganz Cooney centre research found that 24% of American parents surveyed felt that digital gameplay got in the way of physical activity (Joan Ganz Cooney Centre, 2017). Furthermore, Marsh et al. (2015) provide some evidence that parents see digital gameplay as less authentic, and therefore less legitimate, than non-digital play. As one parent in their study said, “I just think there’s something not quite as realistic about the apps as opposed to *proper toys*” (p. 25, emphasis mine). Similarly, Page Jeffery (2019) explains how parents in her study constructed digital play as inauthentic and that they displayed a “nostalgia for an unmediated childhood characterised by grazed knees and grass stains acquired through carefree outdoor play that is framed as somehow being simpler and more authentic” (p. 84).

Concern about *time* spent playing appears to be more on the minds of parents than concern about the *content* of games. However, as exceptions to this, Ofcom (2020) reports more parents being concerned about content than time and Yee (2008) found that parents who are gamers themselves are likely to be more concerned about content than time. This may reflect

a greater degree of gaming knowledge meaning that these parents have a more robust toolset available for assessing and navigating content concerns. In terms of *type* of content that parents associate with digital gameplay in a problematic way, violence portrayed in games is often discussed in media. However, the way that parents apply these broader discourses to their own families is more nuanced. Kutner et al. (2008) found that when talking about potential impacts on their *own* children, parents were more concerned that content represented portrayal of values that clashed with their own. But when it comes to “kids out there” (p. 89), parents worried that videogame violence might lead to imitation.

Another set of concerns relates to changes in game design and gaming practices across time. Ofcom surveys ask about concern to do with in-app purchases, and this concern is increasing across time (Ofcom, 2017, 2020). Likewise, both Ofcom (2019) and Brand et al. (2019) make special mention of loot boxes as presenting new challenges in the mediation of digital gameplay. Loot boxes are in-game items which give random rewards that provide either a cosmetic or functional advantage and in some ways involve gambling mechanics (Carter, 2017). The increasing presence of these kinds of business models in the digital gaming spaces inhabited by children signal a change in form of the commercialisation of children’s play. Similar commercial intrusions have been of interest to children’s media scholars (Grimes & Merriman, 2020; Nansen, 2020a; Seiter, 2007). The large-scale studies (Ofcom, 2019; Brand et al., 2019) of parental insights into digital gaming demonstrate how concerns about the commercialisation of childhood also features in the everyday decision making of parents in relation to digital gameplay. Lastly, with the increase in online play described previously follows a corresponding increase in concerns about bullying and ‘stranger danger’ specifically related to digital gameplay. Willett (2016) found that most of the families in her study framed exploration of online game spaces or virtual world space as “potentially risky” (p. 475). And while Ofcom finds relatively few children have encountered bullying via online games (2020) a third of parents worry about who children play with online. Parents are more concerned about this in relation to boys, reflecting the higher rates of online play of boys.

This work tells us that some parents (a large minority) have specific concerns related to digital gameplay. However, it must be noted that these concerns are not universal and, as Kutner et al. (2008) demonstrate, often relate to other children, while parents feel that the situation in their own homes is fairly well under control. Importantly, these concerns exist

alongside perceived benefits of digital gameplay. I now describe what is known from research looking at positive parental attitudes towards digital games.

The strongest theme in this body of work is the association of digital gameplay with learning and education. Many parents see learning opportunities in digital gameplay (Joan Ganz Cooney Centre, 2017), with parents of younger children most positive that their child could learn something from playing digital game apps (Marsh et al., 2015). Some parents talk about general skills associated with gameplay, such as “strategic and goal-directed skills” (Kutner et al., 2008; p. 89) while others see a connection between videogames and the development of STEM skills (Brand et al., 2019). Creativity is also associated by some parents with digital gameplay (Brand et al., 2019; Marsh et al., 2015). However, Livingstone et al. (2015) note that parents may be sceptical about the degree to which any learning benefits from games translate into skills or knowledge useful outside of the games.

One of the few pieces of gaming-specific advice that parents get is to play with their children because this is associated with learning and positive social interaction (AAP Council on Communications and Media, 2016). It seems that parents agree on the potential of shared gameplay. The Joan Ganz Cooney Centre (2017) for example found that some American parents saw gaming as a source of family conversation, and as a tool for learning collaboration. In looking at parent attitudes specifically in relation to Pokémon Go, Sobel et al. (2017) found that the game was highly valued as form of family bonding time: “parents reported that it even led to them spending more time together and talking more than usual (both about and/or not about the game)” (p. 1488). However, Nikken and Jansz (2006) point out that while some parents see co-play as ‘bonding time’ others might see it as a parental duty, as contributing to positive social development.

Parents, when given the opportunity, also recognise that playing digital games can be *fun* for their children, resulting in ‘happier mood’ (Joan Ganz Cooney Centre, 2017) relaxation and reduced stress and anger in some cases (Kutner et al., 2008). Parents of younger children actively seek out games that are fun (but also educational) to download on tablet devices for their children (Marsh et al., 2015). However, in the moment pleasure seems to take a back seat in parents’ minds, or maybe in the minds of researchers formulating survey questions.

On the whole, literature suggests that parents hold mixed views about gaming. Some reports conclude that most parents feel that “the positive and negative effects [of gaming] balance each other out” (Joan Ganz Cooney Centre, 2017) others surmise that the “perception of benefits is less immediate than that of risks” (Chaudron, 2015; p. 15).

2.4.3 Parents use a range of strategies to mediate gameplay

Mediation is the term used to describe how parents manage the day to day use of media by children. Videogame mediation practices shape opportunities for play. I now outline what is known about these practices, as important components of the context of everyday digital play. The bulk of parental mediation literature deals with television and the internet (Clark, 2011). While quantitative studies of videogame mediation show that findings from these studies apply well enough to gaming practice (Nikken & Jansz, 2006; Nikken & Schols, 2015) qualitative work suggests that there is need to update how we conceptualise the day to day management of digital gameplay (Balmford et al., 2020; Jiow et al., 2017). Balmford et al. (2020) describe digital play mediation practices in households with younger children in terms of “careful surveillance” in the form of “co-located supervision via temporal and spatial restrictions and collaborative play” (p. 192) such as time limits on gaming, restricting places in the house where play could happen to common areas and active co-play. Jiow et al. (2017) provide a deeper view of the nature of digital play mediation, albeit amongst families with older (12-17) children, and convincingly argue for a reframing of videogame mediation theory to account for both the dyadic nature of the process (Clark, 2013) as well as unique features of gaming as a media activity which mean that the original core triad of active, restrictive and co-use strategies (Nikken & Jansz, 2006; Nikken & Schols, 2015) do not adequately represent family practices.

Jiow et al. (2017) posit the term “gatekeeping activities” (p. 315) to include practices such as rules about when children can play, for how long and who with. This terminology allows for realisation of the ways that “parents can actively manage their children’s relationship with video gaming by dynamically opening and closing the ‘gate’ to regulate access as circumstances allow” (p. 317). The term “discursive activities” (p. 317) includes conversations about content, including explicit talk of values and the relationship between the way that videogames might portray value systems different to the family’s. Jiow et al.

(2017) explain that the term ‘discursive’ mediation “captures the dynamic nature of the mediation process, as well as the dyadic parent-child engagement that underpins it” (p. 318). “Investigative activities” (p. 319) are practices such as seeking information about a game from websites, relatives or game retailers resulting in either allowance or not of play and co-play for the purpose of learning about a game. Lastly, “diversionary activities” do not directly involve the technology concerned but ultimately are practices used for guiding children “away from videogames” (p. 322).

While Jiow et al. (2017) point out that their work may lack generalisability due to the types of games played by their participants (First person shooters and MMORPGs), the age of their participants (children 12-17 years), and the particularly authoritarian parenting culture of Singapore where data was collected, the richness of their data certainly points to some ways in which existing literature based on quantitative studies using existing Likert-scale type measurement of practices (e.g. Eklund & Helmersson Bergmark, 2013; Nikken & Jansz, 2006; Shin & Huh, 2011) might be lacking explanatory power relevant to contemporary household gaming contexts.

So far I have shown that: families craft varying household spaces for gaming in line with general family interests and philosophies; that parents hold a range of attitudes toward and beliefs about the role of gaming in children’s lives; and that parents employ strategies for managing time spent playing, frequency of play, type of play and sociality of play. I now turn to what is known about the relationships between attitudes, mediation, and everyday play experiences. These relationships are not static or unidirectional and are influenced by a range of factors such as age and gender of children, household and day-to-day contexts and parental gaming knowledge.

Younger children have more rules in general, limits on time spent playing and application of technological control tools applied to their gaming (Eklund & Helmersson Bergmark, 2013; Ofcom, 2020; Shin & Huh, 2011). Findings regarding children’s gender and the amount and type of videogame mediation they receive are less clear. Nikken and Jansz (2006) found girls received more total mediation and give the possible reason that this is because “parents are

generally more cautious when it comes to their daughters” (p. 298)⁴. But, Eklund and Helmersson Bergmark (2013) found the opposite, that is, girls received less restriction around gaming time (no suggestions on why their results are different are given in the paper) . In terms of *parent* gender, mothers are routinely found to use more total mediation than fathers (Eklund & Helmersson Bergmark, 2013; Nikken & Jansz, 2006; Nikken & Schols, 2015). Given that mothers are less likely to have their own gaming experiences (Eklund & Helmersson Bergmark, 2013) it seems that family members with least personal experience of gaming are responsible for the most amount of management of it.

Ideas about what makes for ‘proper childcare’ vary across social class groupings (Kusserow, 2004; Lareau, 2011; Livingstone & Helsper, 2007). Research on parental mediation of media use in general has found that this may translate into differing mediation practices based on socioeconomic factors such as parental education and family income (Livingstone, Mascheroni, et al., 2015). Nikken and Jansz (2006) report more restrictive and active mediation of gaming by ‘lower-educated’ parents and speculate that this could be due to children of these parents spending more time playing games. Aarsand (2011) through a discourse analysis of middle class American parents shows how even within social classes, and indeed within individuals and throughout the course of a single interview, stances on digital games shift according to the need to position oneself in relation to constructions of ‘good parenting’ and ‘bad parenting’.

One area that has received a fair amount of attention in literature is the gaming experience of parents themselves. Many parents now may have grown up with videogaming as a feature of their own childhoods, perhaps as players themselves, as siblings in households with players or as audience for marketing and other media portrayal of videogames. This means that when considering the daily gaming practices of children, we should consider the potential intergenerational aspects of familiarity with videogame play as a hobby and as something requiring parental management. Despite the likelihood of increasing familiarity across time, videogame play is foreign to many parents, and therefore presents challenges to mediation (Kutner et al., 2008; Merchant, 2015). These parents might find it harder to promote ‘good’

⁴ A recent study of parental decision making around *outdoor* play also found that parents, mothers particularly, employed more restrictions on girl’s outdoor play due to concerns about neighbourhood safety (Kepper et al., 2020).

content in relation to games because knowing what ‘good’ content is might be harder. At a purely technical level, lack of familiarity may lead to a lack of confidence about managing gameplay. One parent in Kutner et al. (2008) commented: “I’m not that knowledgeable about—I mean, I know how to turn the PlayStation on, but I don’t know how to use the controllers at all” (p. 86). Jiow et al. (2017) note that parents “may not even have enough basic knowledge to undertake instructive, evaluative, and/or interpretive mediation” (p. 312). Jiow et al.’s (2017) interviews with adolescents also found that some children did not want their parents to play with them, some citing parents’ lack of skill as detrimental to their own success in multiplayer games. Quantitative work shows that parental experience with videogames does impact mediation strategies, with parents who are gamers being more likely to co-play with their children (Nikken & Jansz, 2006) and parents who co-play with their children being less likely to employ restrictive mediation strategies such as time limits (Eklund & Helmersson Bergmark, 2013). Other researchers speculate that parents employ a narrower range of mediation strategies in relation to videogames compared to other forms of media because of a lack of familiarity with videogames (Schaan & Melzer, 2015) and Eklund and Helmersson Bergmark (2013) found that lack of parental familiarity with digital games was associated with more negative attitudes toward games. This set of information suggests that a lack of parental understanding of digital gameplay translates into less parent approved and facilitated opportunities for play in digital spaces for children. When combined with the lack of descriptive information about digital play in academic work, as I explain in section 2.5, this means that although with time digital games have become mainstream features of many children’s lives and increasing numbers of parents’ lives, there is a risk that parental decision making around digital games is informed largely by narrowly framed media and popular discourses of harm and benefit.

2.4.4 Relationship between attitudes and mediation practices

However, the relationships between attitudes, mediation, and children’s gaming practices are not straightforward. Research does consistently show that parental attitudes influence mediation strategies. Parents who are more concerned about risks associated with gameplay are more likely to use restrictive mediation strategies while those with more hopeful views tend to more actively engage with children’s use (Eklund & Helmersson Bergmark, 2013;

Nikken & Schols, 2015; Schaan & Melzer, 2015; Shin & Huh, 2011). But the relationship between mediation strategies and children's *actual* gameplay experiences and routines are less clear. Livingstone et al. (2015) note that in their interviews with parents about mediation practices there was often a disconnect between parent concerns and day to day practices: "parental anxieties...were striking. They appeared to fuel a lot of talk about technology, but only a partial translation into family practices" (p. 28). There is some support for this 'partial translation' in relation to videogaming in particular, with Nikken and Schols (2015) finding that there was no link in their study between attitudes and time spent using 'electronic screens' (*including* devices used for gameplay) for 0-7-year-olds. However, they did not separate out videogame time from other 'screen' time. Shin and Huh (2011) found weak correlations between mediation strategies and teenager's gaming practices in terms of frequency of play.

The lack of strong relationship between mediation strategies and children's practices might be explained by the recognition that children are not always passive recipients of parental attempts at controlling behaviour (Clark, 2011). Children may react to restrictions on gameplay by playing more, resulting in what Shin and Huh (2011) refer to as a 'boomerang' effect. However, the direction of this relationship is unclear. Perhaps children who play more receive more restrictions because of this. Children also exert agency over their gameplay by, for example, playing at friends' houses when play at home is forbidden (Eklund & Helmersson Bergmark, 2013). Attempts at circumventing parental mediation strategies can be seen, as Willett (2016) notes, as boundary pushing along the developmental path "toward greater autonomy" (p. 473).

To conclude this section on the family context of children's digital gameplay, I have shown that parents hold mixed views on the role of gaming in children's lives; that they attempt to manage this play via a range of strategies; that these strategies are influenced by a range of factors; that there is a relationship between attitudes towards gaming and the mediation strategies used; and that mediation strategies have an apparently weak relationship to gaming practices of children due, at least in part, to the dyadic nature of parenting practices and child agency.

2.4.5 Description of gap and justification for qualitative component of study 2 (survey of parents)

In the qualitative portion of study 2, presented in chapter 6, I address, via an analysis of parent responses to open-ended survey questions, important gaps in knowledge about the role of family context in shaping children's everyday digital play experiences. These gaps include a lack of *qualitative* research detailing the nature of household media and parenting environments as backdrops for everyday play practices, particularly for younger children (most of the preceding knowledge is based on adolescents and teenagers with the exception of Nikken & Schols, 2015 and Willett, 2016).

Also notably lacking, given the variability in types of play offered by different genres and specific game titles, is knowledge about how parental attitudes and practices might exist in relation to particular games played by children. This is important because the range of play opportunities provided by the range of titles available, means that some games are likely valued differently to others. For example, a single-player puzzle game may be valued for associations with spatial skills while a multi-player car racing game may be valued for associations with sociality. In terms of children's day-to-day experiences with digitally mediated play, nuances associated with different titles are likely to make a difference to what digitally mediated play is allowed, encouraged, restricted and in what ways. Looking at parental attitudes toward individual games is therefore highly relevant to understanding the permissive and restrictive forces operating on children's digital play experiences.

Therefore, in study 2 of this thesis I asked parents specifically about Minecraft play, in order to provide more nuanced, granular and therefore useful knowledge about parental attitudes toward digital games as unique sets of play opportunities rather than as a homogenous group of media objects. As mentioned briefly in chapter 1, this focus on Minecraft specifically is warranted and necessary. Minecraft is positioned in popular press as a title which is not like others in terms of level of violence and potential educational value and therefore as acceptable for parents to allow access to while still being able to position themselves as 'good parents' (Willett, 2015). It also offers a variety of modes of play. Despite the game's popularity and uniqueness however, Minecraft research to date has, like children's digital

game research in general, been overwhelmingly restricted to attempts at realising its potential utility for learning and other outcomes (see also sections 2.5.1 and 2.5.2).

Because of its popularity and uniqueness (in terms of associations with learning and variety of play options) understanding parental beliefs about Minecraft in particular is necessary. It is necessary in order to expand scholarly understanding of the Minecraft phenomenon in literature and it is also necessary for my purposes in this thesis – to contribute to a rich and accurate picture of the family level context of children’s Minecraft play. Existing literature deals tangentially with *educators’* beliefs about what Minecraft offers children (as evident by the large number of studies seeking to put Minecraft to use in classrooms), but it does not yet capture *parental* beliefs. We get clues about these parental beliefs via sources such as Common Sense Media’s review of the game and the comments posted by parents in response to this. For example, parents talk about Minecraft being “a perfect game to get creative, not mindless like Fortnite” but others warn about the “addicting” properties of the game: " VERY ADDICTING!! DO NOT BUY!!" (Common Sense Media, n.d.). But there is a need to ask parents directly via empirical research about what they think about Minecraft in order to gain a fuller understanding of the *family level* context for Minecraft play. The qualitative component of study 2, presented in chapter 6, addresses this gap. This information is complemented by interviews with parents of children in my third study.

2.5 Moments of play: Review of children’s digital play literature

There is a wealth of research literature which takes an interest in children’s engagement with digital games. This includes: research on using digital games in educational settings (e.g. Beavis, Dezuanni, & O’Mara, 2017); as a site for learning more generally (e.g. Black, 2010; Black, Korobkova, & Epler, 2014; Burke & Marsh, 2013; Gee, 2007; Hayes & Duncan, 2012; Ito, 2012); for collaborative learning (Burnett & Bailey, 2014; Danby et al., 2018; Fields & Kafai, 2010; Fields & Kafai, 2009; Wohlwend & Kargin, 2013); as a site of identity development (e.g. Anderson et al., 2017; Ito & Bittanti, 2009; Marsh, 2011; Kafai, Fields, & Giang, 2009; Searle & Kafai, 2012; Willett, 2016); in considering issues of consumerism and representation (e.g. Black et al., 2014; Grimes, 2015); as sites of commercial interests intersecting with children’s play (e.g. Grimes & Merriman, 2020; Willett, 2016) as a

component of broader media ecologies including YouTube, which also offer learning opportunities (e.g. Dezuanni, 2020); and as a source of socialisation (e.g. Aarsand, 2010; Marsh, 2014). The core focus of my thesis, however, is describing what play looks like in Minecraft (as well as the context for this play addressed in studies 1 and 2). My focus on describing play is justified throughout the following sections, but first I provide an overview of what is currently known about the *nature* of children's play in digital spaces.

2.5.1 What do we know about *what play looks like* in digital spaces?

Perhaps because of the overwhelming focus in literature on learning, education, and development outcomes (discussed below), research reports tend to only mention snippets of play which relate to the specific outcomes that researchers are interested in. This means that in written reports we generally only get very brief descriptions of play and these are presented in ways that, understandably, highlight the outcome of interest. To demonstrate this point, below I present examples from the literature where some form of descriptions of play are given. My aim here is to provide an overview of the range of research about children and digital games and at the same time demonstrate the lack of literature actually detailing what children do when they play. The examples given are included because they provide some information about digital play practices (in contrast to media effects, psychological, and epidemiological research), but always with another goal in mind. In line with my interest in everyday leisure time play, I have avoided using examples from studies of digital play in classroom settings.

Insights into children's digital play practices are present in studies that have looked at instances of play that happen simultaneously across physical and digital space. For example, Kervin et al. (2015) give detailed description of two young children working towards a shared goal of city building in a play scenario. Play involved building with Lego blocks and Minecraft blocks, with each emergent rendering of their 'city' informing the other. In this way, the children simultaneously inhabited the same shared imaginary space, and worked towards the same play goal but enacted this through both physical playthings (Lego blocks) and digital playthings (Minecraft blocks). In this case, play was simultaneously distributed across imaginaries, physical and virtual blocks, and social interaction. The authors' aim in presenting this play was to look at the "powerful language use" (p. 234) that produced literacy

and meaning-making opportunities. Danby et al. (2018) also report on language associated with Minecraft play of 3-8-year-old children, but with attention given to processes of collaboration. In both studies, while some description of play is given, this is in service of highlighting meaning-making or collaborative language, rather than play itself. Similar to Kervin et al. (2015), but involving older children, Dixon and Weber (2007) describe how a pirate videogame is played simultaneously across the (single player) console and the physical room. In this example the authors note how “the girls at times seem to be playfully incorporating Katrina [pirate from the game] characters and narratives into their talk and actions around the video game at the same time that one of them played the game itself – multitasking their play, as it were” (p. 32). These observations demonstrate how play exists across spaces and how children draw on shared imaginaries in ways that are not entirely detached from their material manifestations but also not wedded to them either. Descriptions of play in this work therefore focus on the *flow* of narration and play across spaces.

Research from a cybernetics perspective gives further insights into children’s digital play practices with a focused consideration of both the human and non-human elements that produce moments of play. Giddings (2014a) presents a detailed “micro-ethology” (p. 55) of his own children’s play with and around digital technologies and conceptualises play events as products of co-constitutive feedback loops formed by human and non-human actors including game hardware, computer code, children’s bodies (hands on controllers, audio-visual senses), and minds (imagination and agency). Through describing various instances of play across both digital and non-digital spaces, Giddings (2014a) highlights the machinic aspects of *all* play. He writes: “gameworlds have always been located in and formed from their environments (sand, lamp posts, fields and virtual places), have always had their technologies (knuckle bones, balls, controllers and screens)” (p. 157). Hollett and Ehret (2015) similarly look at the role of human agency and technological devices in their study of a 12-year-old boy’s Minecraft play while in hospital. While their focus is on the ways that bodies, machines, and social spaces combine to “generate affective atmospheres” (p. 1849), their description of the “multiple bodies” (p. 1850) involved in producing a play event align well with Giddings’ work. Schneier and Taylor (2018) also use a cybernetics approach in describing the Minecraft play of children (and adults) across different devices (mobile, PC and console). They draw attention to the ways that touch-screen devices may facilitate more

rapid and frenetic play sequences, using a description of a sequence of combative play between two younger participants playing on mobile devices to demonstrate this. While descriptions of play events are given throughout these pieces of work, the authors' lenses are most sharply focused on the human and non-human actors *producing* play and how this is achieved, rather than on the nature of play as it exists beyond the elements that produce it.

Research has also found a flow of 'traditional', non-digital forms of play to digital spaces. For example, Willett's (2016) observation of children playing "tag" and "families" in Minecraft and Animal Jam (p. 474). And earlier, Marsh (2010b) noting from interviews and focus groups with 5-7-year-old players of Club Penguin that children reported playing hide-and-seek in the virtual world, as well as social negotiations that had close connection with offline friendships. Similarities can also be seen in the kinds of genres of digital games available to, and popular with children. Chaudron (2015) notes that many online games available make use of traditional play elements "like dressing-up fairy tale story making targeting girls, and a range of action and card games targeting boys" (p. 16) and suggests that there is a "shift of traditional games action into the virtual world" (p. 16).

Descriptions of play also come from publications where broad overviews of play are provided as a way of setting up study findings. For example, Burnett and Bailey (2014) describe some differences in the types of play they observed while studying literacy and collaboration in relation to a school lunchtime Minecraft club. These authors describe how "some seemed to build for the pleasure of building, continuing to adapt or rework constructions over several weeks, developing aesthetics or functionality... Some children rarely built but toured through the Bradborough landscape or played with things they found" (p. 55). They also note children engaging in *sociodramatic* play and *fantasy* play – two play types also found in Marsh's (2010b) earlier work on Club Penguin, and the more recent study of tablet use described below (Marsh et al., 2015; 2016; 2018). Similarly, Anderson et al. (2017) in setting up their multi-site study of gender and racial representation in and around Minecraft, describe the way that play evolved over time and was influenced by individual experience and interest:

"In one of the workshops, a pair of participants spent most of their time flying across terrains and exploring the environment while another novice player spent the time creating herds of animals. More experienced players tended to construct

buildings in Minecraft to produce novel creations like portals through which they could teleport or pyramid mazes with which other players could engage” (p. 5).

What this information hints at is that Minecraft offers a space for a diverse range of play including play which is similar in form to non-digital play. A key point of connection in much of this work is the blurring of boundaries between physical and virtual play space. How play happens “across numerous texts and practices” (Willett, 2016; p. 474). Descriptions of play *across spaces* shows how children’s play happens fluidly between the digital and non-digital, complicating dichotomous presentations of ‘virtual’ versus ‘real’, ‘online’ versus ‘offline’, which dominate in popular and academic discourse (Arnott, 2016; Dixon & Weber, 2007; Marsh, 2010b). Indeed, a large study of school playground play conducted in 2009-2011 in the UK found flow in the other direction as well (Richards & Burn, 2014; Willett, Richards, Marsh, Burn, & Bishop, 2013). That is, videogames form part of the “discursive hinterland of the playground and can be drawn on as a resource in the continually evolving cultural practices of physical play” (Burn, 2013; p. 120). For example, boys described in interviews playing shooting games with reference to characters, narratives, and game mechanics from Modern Warfare 2 (Burn, 2013). Willett (2014) notes how videogames are not necessarily reproduced in pure mimicry on the school playground but are actively incorporated in dynamic ways by children to produce “hybrid/recontextualised” forms of play (p. 138).

Most influential on my own work, however, is the *Technology and Play* study by Marsh and colleagues in 2015. Drawing on earlier work (Marsh, 2010b; Verenikina & Kervin, 2011) which found evidence of play types analogous to traditional play types in digital spaces, Marsh and colleagues (2015, 2018, 2016) conducted a study of preschool children’s use of tablet apps. The study was designed to assess the degree to which tablet apps could foster creativity and play. As part of the study (which also included play tours, interviews and a survey), researchers observed children playing with a range of apps and categorised this play according to a taxonomy of traditional play types (Hughes, 2002) which they had adapted for use in describing digital play. All but two of the original 16 play types were found in the app-based play of Marsh et al.’s participants.

Descriptions of play are given briefly across the publications arising from this study including in Marsh et al. (2016) where the authors describe a 4-year-old building in Minecraft. This is presented as an example of *mastery* play, and notes are given about how the child moves their avatar, touches the screen to place blocks, pauses to make a decision about material choice and how the child then “manipulated his avatar so that it ran over the terrain of the surrounding environment” (p. 248). However, the descriptions of play given are necessarily quite brief and isolated from longer sequences of play. There is no sense of the flow or rhythm of play across time, or how smaller play sequences might be a part of broader imaginary narratives and so on. Marsh et al. (2018) note that their adaptation of definitions of traditional play types can be used to analyse other “instances of play in digital contexts” (p. 250). In my third study I base my descriptions of Minecraft play on the taxonomy used and developed by Marsh and colleagues but provide more extended descriptions of play (see chapter 8).

Taken together, the research described above highlights the observation that a “a digital device is not a silo” (Squire & Steinkuehler, 2017; p. 17) in the sense that children’s everyday play practices and interests move across digital and non-digital spaces in ways that strongly suggest that the kind of rigid walling off of digital play that is constructed in some literature is not reflective or respectful of the complicated multi-dimensional playworlds of children. But empirical and dedicated accounts of this play as an object of study *in and of itself*, are not present in existing literature. The work reviewed so far all has interests in outcomes beyond play. Play is described only as a means of backgrounding some form of end.

2.5.2 Remaining gaps in knowledge

These studies give us a surface-layer texturing of a range of digital play possibilities but leave open the possibility for deeper descriptions. When compared to the wealth of knowledge about how children play in non-digital spaces from folkloric and anthropological studies (Gomme, 1898; Gomme, 1894; Opie, 1993; Opie & Opie, 1969; Sutton-Smith, 1981) it is clear that play in digital sites have been understudied. A key source of what we know about the nature of children’s play in non-digital spaces comes from the work of folklorists Iona and Peter Opie who painstakingly documented children’s play at school playgrounds and in public spaces across the United Kingdom between the 1950s and 1980s (Opie, 1993; Opie & Opie, 1969). The scope and depth of description provided in the Opies’ work, along with

their child-centred approach surely contribute to the current positioning of this work as “both a monumental achievement and an indispensable point of reference” (Willett et al., 2013; p. 1) for contemporary studies of children’s play. The kinds of knowledge produced by the Opies and others regarding children’s play and games in physical space is nowhere near matched by our current knowledge of play in digital space. This is a problem. In the following section I explain the background to this state of affairs and why it is a problem, and in the process provide justification for Study 3 of this thesis.

2.5.2.1 The instrumental valuing of play and overcoming the ‘triviality barrier’

The Opies’ collections are unique not only for the depth and breadth of knowledge and child-centred approach but also for the way that play, and games are presented as legitimately worthy of documentation in their own right. This contrasts with much literature on children’s play where it is primarily seen as a means to some other developmental or pedagogical ends. The strong focus on *outcomes* is, I suggest, a core reason for the lack of descriptive digital gameplay scholarship. It reflects two things. First, the construction of children as beings doing not much other than *developing* into adults, and second the ‘triviality barrier’ (Sutton-Smith, 1970) associated with play in general.

In dominant conceptualisations of play, play is the ‘work of childhood’ (e.g. Paley, 2004) and underpinning this is the idea that play is how “children and animals prepare themselves for the reality beyond parental protection” (Giddings, 2014a; p. 144). ‘Play as development’ is dominant in developmental psychology and education, likely due to Piaget (1962) and Vygotsky's (1967) early and influential theorising about the role of play in development. Narine and Grimes (2009) suggest that the focus on development of children into productive adults and the lack of value placed on behaviours that do not produce anything (of apparent value) are both a function of “capitalist production processes” (p. 320). Historically this has meant that childlore, including spontaneous self-directed play has not been studied outside the realms of development and learning (Bishop & Curtis, 2001; Lewis, 2017). Sutton-Smith (1997) describes such a view of play as the “rhetoric of progress” (p. 18) and this contrasts with another, less dominant, set of discourses surrounding play which he calls “the rhetoric of frivolity” (p. 201). The rhetoric of frivolity encompasses discourses that construct play as essentially “nonsense and inversion” (p. 201). Such constructs align with Caillois' (1962) framing of play as a “pure waste” (p. 5) and the devaluing of play from a puritan work-ethic

perspective (Lastowka, 2014). Sutton-Smith explains how children's play, without obviously adaptive benefits to survival and production, is "still thought to be fairly useless" (1997; p. 203).

Within this framework, where play *in general* tends to be valued insofar as it promotes learning or development, it is not surprising that research concerning *digital play* follows suit. Gee's (2007) influential book "What Video Games Have to Teach us About Learning and Literacy" is frequently cited in the numerous projects which seek to utilise videogames in formal and informal education settings (e.g. Beavis et al., 2017). However, digital play is particularly associated with the development of technology skills. Ito (2012) argues that games played via computer have historically been associated with the 'nerdy genius' culture of Silicon Valley. Having a home computer in the early days was a social status marker of 'good middle class' parenting and 'edutainment' as a genre was a way of getting parents to buy software for their children that would help cultivate knowledge and skill through play. The coupling of computer use with the development of important skills made its way into governmental discourses as part of a drive towards 'the information society' in the United Kingdom and United States. As Selwyn (2003) writes: "The notion of the 'child computer user', be it in terms of the omnipotent young computer 'hacker' or Internet-using 'cyber-kid', has proliferated in popular and political visions of the technology-based near future" (p. 351). STEM skills are particularly associated with digital games (Ball et al., 2020). STEM skills are seen to be highly desirable for economic success and are therefore encouraged.

Therefore, despite broader concerns about digital play potentially causing harm to children (see section 2.2, page 20) a large body of work has latched on to the learning potential of videogames and studied what digital gameplay can *do* for learning and development. In turn, as Sefton-Green (2020) writes, "learning", in *both* home and school settings, has moved from being "a justification to validate the purchase of equipment to becoming a commodity in itself." (p. 90). While some authors are careful to avoid being seen to colonise play with adult imperatives (Ito et al., 2008; Steinkuehler et al., 2011) this quote from Kafai and Giang (2008) is representative of motivations for researching children's digital gameplay:

"The number of hours spent in these worlds creating avatars, trading items, chatting, and designing homes are a sure indicator that these environments have

something of interest to children that might be repurposed for educational venues”
(p. 166, emphasis mine).

Other work mentions that observations of children’s enjoyment of Minecraft led to research aimed at harnessing this enjoyment for educational aims (Burnett & Bailey, 2014). Stephen and Plowman (2014) sum up this point by saying “technology is currently associated more with educational than with play value, but belief in ‘learning through play’ in the early years has led to a burgeoning literature that attempts to validate children’s play with computer games by claiming they are educational” (p. 3). Such conceptualisations of play are dominant in parenting discourses as well as academic. This starts from early infancy, where advice to parents regarding play centres on how to promote healthy development (Raising Children Network, 2020b). It applies to later parenting, in relation to digitally mediated play too. Parents talk about their management of videogame play in terms of learning and development potential (Aarsand, 2011).

The affinity between videogames and “the rhetoric of progress” (Sutton-Smith, 1997; p. 7) provides a sense of legitimacy, albeit only partial, to digital play. Play via screen that does *not* produce measurable obvious outcomes remains prone to a range of concerns. There has been, in effect a “triviality barrier” (Sutton-Smith, 1970; p. 5) in studying children’s play for anything other than development of skills for survival, specifically survival in capitalist society. These contrasting rhetorics of play continue to have implications for the study of contemporary digital play and surely contribute to the lack of descriptive scholarship in this area.

The utilitarian valuing of children’s play is also evident in the field of game studies. Game studies is a broad field with research on digital and non-digital games carried out across the social sciences, culture, and media studies as well as computing and engineering. However, despite the large proportions of children who play digital games (section 2.3), they are largely absent as a population within game studies research. Evidence of this comes from the fact that game studies conferences and journals rarely include work on child players, or games designed for and played by children, and where they do, this is almost always work that involves using videogames *for* something, as is the case in other fields (see Digital Games Research Association, Digital Library, 2021). Exceptions to this include my own non-thesis

work with Dr Marcus Carter and colleagues on children's Fortnite engagement (Carter, Moore, Horst, et al., 2020; Carter, Moore, & Mavoa, 2020; Carter, Moore, Mavoa, et al., 2020) and Ermi and Mäyrä's (2003) study of why children are drawn to digital games.

Most relevant to this thesis, though, because of the focus on moments of play, is the game studies work of Giddings (Giddings, 2007, 2014a). I described this work earlier (section 2.5.1) and noted that Giddings takes a cybernetics approach to children's digital play – focusing on the ways that machinic and human actors work together to produce play. Giddings' work is unique and highly valuable for the way it explicitly distances focus away from learning and development to study children's contemporary play in and of itself. In chapter 10 I present findings from my own work that also speak to the co-constitutive nature of digital play, between hardware, software and children's abilities and desires.

The cybernetics approach to children's digital play is a welcome shift away from utilitarian perspectives. However, I argue that there remains the possibility for a different lens on children's digital play. Such a lens, used in this thesis, sees digital play as a temporal and multidimensional process, not disconnected from machinic, human or other elements, but as more than the sum of the components that produce it. This perspective demands sustained, detailed attention to the actions, flows and *content* of play produced in digital spaces. This does not mean a disregard for either the fluidity of play across physical or digital spaces, or the machinic and other elements that produce play. It does not mean that by describing play events as they occur on screen that these play events are viewed as disembodied or disconnected from other spaces and other realities. What it does mean is looking beyond the pedagogical and developmental focus of children's education literature and beyond the *points of connection* between digital and non-digital that is the focus of cybernetics approaches, to centre attention in a more sustained way on play as it is presented 'on screen'.

2.5.2.2 Justification for the need to document Minecraft play specifically in Study 3 (Household study)

Another reason for the lack of descriptive work on play in digital spaces may simply be that up until fairly recently digital games have generally not provided as much opportunity for free play as non-digital spaces, with some caveats to this. Open world sandbox style games do predate Minecraft with notable examples including SimCity (Electronic Arts, 2016a),

beginning in 1989, The Sims franchise (Electronic Arts, 2016b), beginning in 2000, and the Grand Theft Auto series (Rockstar Games, 2020), beginning in 1997. Additionally, virtual world games *have* been studied for their use by children and offer varying degrees of free play opportunities. This research has however all had goals in mind beyond play. For example, Fields and Kafai, (2010); Kafai and Giang, (2008); and Searle and Kafai, (2012) studied Whyville. While (Marsh, 2011, 2010b, & 2014) and Wohlwend and Kargin (2013) studied Club Penguin.

However, Minecraft's openness and malleability has expanded what sandbox titles can be. This is in part due to the software itself having many options for mode of play, including modes with no prescribed tasks at all, thereby facilitating play centred around "paeidic experimentation" as well as modes prescribing varying degrees of "ludic antagonism" (MacCallum-Stewart, 2013; p. 173). Minecraft's malleability is also due to the relatively relaxed and open approach of original developer Marcus Persson around player modifications to the game software and copyright issues (Lastowka, 2012). This means that Minecraft is particularly well suited to player-created modifications and player-generated content such as YouTube videos which all form part of a diverse Minecraft ecology (MacCallum-Stewart, 2013). Many thousands of Minecraft servers exist and host, in turn, many thousands of games using Minecraft code and mechanics as a base, but often fostering gameplay quite different to that provided by the base game. In these ways, Minecraft can function as a toolbox for the creation of other games, or, as is the focus of this thesis, a site of free play. These points of difference, combined with the coincidence of Minecraft's release with the rapid uptake of tablet devices in families with children (Ofcom, 2014), the popularity of Minecraft, and the association it has with learning (e.g. Ito, 2015) mean that its increasing attention in research is justified and needed. As explained below, however, research on children's Minecraft play has so far followed the same kinds of utilitarian valuing of play that research on other sites of digital play has. There is a need for research inquiry dedicated to illuminating what Minecraft play can involve, outside of school and other institutional settings and outside narrow adult framings of what Minecraft play is.

While there has been a growing body of Minecraft scholarship, as with play in general, much of this has been geared towards using Minecraft to deliver education curricula (Abrams & Rowsell, 2017; Beavis et al., 2017; Bos et al., 2014; Callaghan, 2016; Overby & Jones, 2015)

and therefore involves prescribed tasks rather than free play. Where less-prescriptive play has been included in studies such as Anderson et al. (2017); Danby et al. (2018b); Dezuanni et al. (2015); and Hollett and Ehret (2015), as mentioned already, descriptions of play still tend to be in the background of other findings. This means that academic work does not tend to provide information about what free play in Minecraft *is* and instead jumps to what it can *do*. This reduces Minecraft in a way that potentially narrows adult understanding of contemporary children's playworlds. Section 2.5.2.3 explains why this is problematic.

Another way that children's leisure time engagement with Minecraft is potentially reduced is in the tendency for adult commentators to describe Minecraft in terms of its likeness to Lego. This is evident by media articles which attempt to succinctly explain Minecraft to adult readers by comparison with the more familiar and highly valued block play offered by Lego, as in the following quotes:

"Minecraft is effectively multiplayer Lego." (Cowan & Livingstone, 2020 - quoting game designer Chris Bateman)

"It's not a typical video game: In classic Minecraft, there's no enemy, you don't kill anyone or anything, and there's nothing to win. It's just a virtual version of Lego." (Rosenberg, 2019)

"[Minecraft is] an insanely popular game that is about breaking and placing blocks, kind of like an electronic version of Legos." (Soper, 2014)

"Think of 'Minecraft' as virtual LEGO." (Gilbert, 2017)

In a similar kind of simplification, in *academic* writing Minecraft tends to be introduced by way of an 'on the packet' description of its building and survival elements. For example, Anderson et al. (2017) describe Minecraft as a game where players "create objects out of different resources found in the environment of the game (e.g., castles out of stone)" (p. 2); Hollett and Ehret (2015) write "Minecraft is a game about breaking and placing blocks" (p. 1854); Dezuanni et al. (2015) include survival elements in describing Minecraft as a game where "players fight monsters and gather digital materials to craft items for designing and building" (p. 149) and Danby et al. (2018b) say that in Minecraft "players construct different

virtual terrains and buildings; use avatars to explore caves, mine for different ores such as gold, fight off monsters and zombies and defend themselves against attack” (p. 963).

Appropriate as these descriptions may be for their intended purpose within word-limited manuscripts, there is a risk that scholarly understandings of Minecraft may not be as complete as possible without a corresponding body of work providing dedicated descriptions of how children use it. I am not arguing that Minecraft does not involve the kinds of actions described in academic writing, or that it does not offer play opportunities that overlap with those offered by Lego, or indeed that Lego play itself can be reduced to ‘building and creating’ with physical blocks (Wolf, 2014). Rather, the point is that by only describing Minecraft in terms of likeness to Lego, or ‘on the packet’ descriptions, there is a risk that we may miss something important about the nature of children’s contemporary play. There is *space* for more descriptive work.

Further, there are important contextual differences between Lego and Minecraft that are obscured by accounts which draw the two together based on the blocky, combinatorial features of both. Likening Minecraft to ‘*digital* Lego’ acknowledges that the two differ in form, but the significance of this difference for how Minecraft and Lego are respectively perceived and *valued* as playthings is ignored. As demonstrated throughout this thesis, the very fact that Minecraft is digital, means that it exists as a cultural artefact of childhood quite differently to Lego. Some authors point to the ways that the word “digital” as an adjective is often “exasperatingly imprecise” (Pangrazio & Sefton-Green, 2021; p. 2021). However, in this thesis the word “digital” is used consciously, not only as a scoping tool (focus is squarely on play as it happens on-screen, because that is where research is currently lacking) but also as a marker of how children’s activities are differentially valued according to whether they are seen as digital or non-digital. Describing Minecraft as ‘like digital Lego’ may be a good starting point for understanding, but in this thesis, I look to the possibility that in many ways Minecraft is more than ‘digital Lego’.

2.5.2.3 Why the lack of descriptive work is problematic

The lack of descriptive literature on children’s digital play, likely at least in part resulting from the dominance of an instrumental valuing of play, is problematic for several reasons, which I explain below. First though, I touch upon a confounding issue. That is, the relative

lack of implicit familiarity with digital gameplay among adults, including researchers. Because of the relative newness of digital games, many adults may not have had extensive firsthand experience with play in digital spaces. This is changing, as those entering parenthood now are more likely to have had videogames as part of their own childhood play repertoires and are more likely to be active gameplayers themselves (Brand et al., 2019). However, while a majority of adults are very likely to have some degree of insider knowledge of non-digitally mediated play, informed by their own experiences, significantly less of us have the same level of experience with digital play. Further, the continually evolving nature of game genres, content and platforms means that even adults who may have played digital games in their own childhoods may not be familiar with the sorts of games now popular with children. This means that many adults, including those who research children's play, development, or education, and therefore produce knowledge in these fields, likely have a somewhat opaque understanding of children's contemporary digital playworlds (Merchant, 2015).

Confounding this lack of first-hand experience is the fact that many children now play digital games on handheld mobile devices such as tablets and this reduces the *visibility* of play compared to both non-digital play and digital play via console devices (where often play is on large TV screens and therefore more visible to spectators). Iona and Peter Opie (1969), regarding non-digital play, note that "the places children like best for play are the secret places 'where no one else goes'" (p. 15). Therefore, the lack of visibility of play to adults is not necessarily a new thing, or inherently problematic, but combined with lack of personal experience, adds to the unknownness of goings on in digital play spaces.

Because of this lack of familiarity and the lack of scholarly work describing digital play, there is a strong likelihood that adult understandings of digital playworlds are heavily informed by *assumptions*. Given surrounding discourses about 'screen time' and gaming described earlier, these assumptions may be shaped by polarised public and academic debate about the learning potential of games on the one hand and health and psychological costs on the other. Without detailed accounts of the nature of children's digital play to counter these assumptions, there is a risk that research findings may be overgeneralised. As Willett (2016) notes, in regard to preteen online play:

“Anxieties concerning preteen gaming texts and practices may be based on assumptions about how texts are being read and what preteens are actually doing. Similarly, celebratory accounts concerning new forms of play and learning may ignore the everyday limitations experienced by children” (p. 475).

Further, when research questions are formed based on adult assumptions about what digital play is, rather than what it actually is, there may be missed opportunities for discovering other fruitful lines of inquiry. Relatedly, assumptions about what digital play is may have implications for policy and official advice given to parents. Here, ideas about ‘good parenting’ and ‘good childhoods’ intersect with assumptions about the nature of digital play (Aarsand, 2011; Kutner et al., 2008). What this means in practice is that policy not only “reinforces middle-class values and practices as the normative default” (Livingstone & Blum-Ross, 2020; p. 62) but also that it may be based on assumptions about the nature of digital play, informed by the kinds of discourses described in section 2.2 of this thesis, as much as it is based on research findings. Giving support to the ways that pessimistic discourses and constructions that devalue screen-based activities inform guidelines, Blum-Rose and Livingstone (2017) summarised advice available to parents in the UK and found that it is largely aimed at reducing harm rather than promoting opportunities, and that it is based on a pool of research that focuses on negative effects of media.

In terms of advice regarding digital play specifically, in Australia, there is a sharp divide between advice on play in general and advice on screen-based play. The Raising Children Website is a government funded service which provides expert-reviewed advice to Australian parents regarding children’s health, development, and wellbeing. The ‘othering’ of digital play in advice to parents on this well respected site is evident by the location of information about it within the “Screen time and healthy screen use” sections of the site, rather than in the “play” sections (Raising Children Network, 2020c). Information about digital play on the site heavily focuses on reducing harm, for example in pages called: “Screen time: checklist for healthy use”, “tips for balance”, “healthy video gaming for children and teenagers”. The advice pages related to play in general do not include the frequent cautioning about time spent playing, or potential dangers, that those related to digital play do. Notably, as representative of assumptions regarding positives associated with digital games, Minecraft is listed on the site as an appropriate choice because it rewards “creativity and planning”

(Raising Children Network, 2020d). However, all of the sources listed on this page are quantitative media effects studies, none include information about the nature of play, and none address Minecraft specifically, let alone *how* it rewards “creativity and planning”.

Assumptions about digital play also feed into concerns about a general decline in children’s play, or the quality of that play. Commentary about how children do not play anymore, or do not play *properly* anymore, has existed for centuries. The Opies themselves writing in 1969 note “the belief that traditional games are dying out is itself traditional” (1969; p. 14). Their work, however, and that of others who have taken the time to document play, albeit mostly school playground based, gives strong evidence that this concern about the decline of play is unfounded (Darian-Smith, 2012; Giddings, 2014b; Richards & Burn, 2014; Willett et al., 2013). Concern remains however, as does the tendency to attribute blame to technology. Bishop and Curtis (2001) write: “in the nineteenth century, commentators blamed national schools and the coming of the railway; in the twentieth century, first cinema, radio and gramophone, and now comics, television and video games, are the common scapegoats” (p. 2).

Additionally, there is a tendency toward *nostalgic* recollections of our own childhood playworlds (Page Jeffery, 2019). This intersects with the perceived decline of play and the role that technology has in this. As Giddings (2014) writes: “for generations now it appears that children have played traditional games with friends outdoors, then grown up to a world in which their children seem to be fixed indoors, in thrall to electronic media, solitary and inactive” (p. 68). Nostalgia entails a bias whereby earlier forms of play are seen as ‘good’ in comparison to contemporary forms.

It is worth noting here, that the kinds of play deemed ‘good’ are not necessarily any more developmentally beneficial or positive. As Bishop and Curtis (2001) point out, what is considered ‘good’ is often that which is deemed ‘traditional’ and “the process by which certain things are deemed traditional and accorded respect is a highly selective one” (p. 9). We do not lament the loss of some kinds of play, for example racist jokes and initiation rites. The point is that what comes to be valued as ‘good play’ is not deemed ‘good’ in isolation from broader class-based values, expectations, and exclusions (Buckingham & Sefton-Green, 2003). Here then is another potential problem arising from the void of knowledge about play

in digital spaces. That is, assumptions about digital play are potentially influenced by an unconsciously selective fond recall of play in non-digital spaces, an attribution of blame for a decline of play to technologies and a corresponding hierarchical *devaluing* of digital play.

In sum, play that happens via a screen is predominantly described in literature only as a means to some other ends; digital play is less known and less visible to adults, including researchers; technology has long been implicated in a perceived decline in amount or quality of children's play; and digital play is hierarchically devalued in relation to non-digital play that adults attach a sense of nostalgia to. This results in a situation where parents and researchers are left to make decisions and claims about digital play largely based on assumptions about what it is. For researchers, this leads to the possibility that both positive and negative findings are overgeneralised and that lines of inquiry about the value of digital play beyond specific learning or development outcomes are missed. For parents, this means that everyday decisions about managing digital play are in some cases informed by a lack of personal familiarity as well as by advice from experts. Those experts may, however, also be lacking familiarity with and understanding of what digital gameplay involves and be working from a research base that has assumptions and values baked into it. This has implications for the degree to which adults can best support children's access to play opportunities.

Indeed, supporting children's access to opportunities for play is crucial. Children have the right to play (Article 31, United Nations Convention on the Rights of the Child [UNCRC], 1989). Adults are responsible for providing access to opportunities for play (Cowan, 2020). While Apperley (2015, 2017) has argued for the right to play to include digital play due to the way digital gaming can provide opportunities for digital literacy and civic engagement, beyond this though, children also have the right to play for its own sake. There is a need to ensure that adults involved in shaping opportunities for play have knowledge about the nature of contemporary play wherever it happens, including in digital spaces. Without this, efforts targeted towards providing appropriate, equitable and culturally relevant opportunities for play may, in effect, be ignorant of a vast range of places for and types of contemporary play and therefore not be as effective as possible.

Children also have the right to healthy physical (Article 24, UNCRC) and mental development (article 27), education (articles 28 and 29), and protection from harm and

exploitation⁵ (articles 32-27). However, care must be taken to ensure that concerns about health, development and safety do not interfere unduly with opportunities for play. Given the lack of conclusive evidence linking screen-based play to negative health and development outcomes (Kardefelt-Winther, 2017; Kaye et al., 2020); the lack of scholarly work dealing with ‘the digital’ as a site for play in its own right (due to the issues discussed above); the cultural framing of ‘screen time’ and digital play as only partially legitimate and also potentially harmful; and the ambivalence of parents towards digital gameplay (see Section 2.4), there is a risk that in attempts to uphold one set of rights, adults inadvertently encroach upon another. Just like Bishop and Curtis (2001) champion understanding play in school playgrounds so adults can work out how to “best support it” (p. 3), we also need a dedicated understanding of digital play, in order to best support that too. Study 3 in this thesis dedicates much needed attention to play for the sake of play in Minecraft (as an example of play that happens via digital space). I expand on this argument, in light of my findings, in section 12.4.

2.6 Literature review summary

This review of existing work, relevant to children’s everyday play in Minecraft, has covered a wide range of information tied together by the nested model of contextual layering that informs this thesis (further explanation provided in section 3.4.1). I have shown that existing research demonstrates how children and technology, including digital games, are framed in ambivalent ways by broad cultural discourses and by parents and that relatively little is known about the nature of children’s play in digital spaces despite large numbers of children spending time playing in this way. I have explained how and why Minecraft is an appropriate case study for addressing gaps in existing knowledge, specifically, because it is popular, offers a large diversity of options for play and is uniquely valued. In order to simplify this vast range of information, and how it relates to this thesis, **Table 1** below highlights the gaps in literature identified in this chapter, why they matter, and how they are addressed in the thesis.

⁵ Including commercial exploitation in the form of collection and use of data related to their actions in online playworlds, including online Minecraft play. See section 12.5 of this thesis for acknowledgement of the need for further research in the area of datafication of online play spaces.

Table 1 *Summary of Gaps Identified in Literature Review*

Gap	Why it matters	How it is addressed in this thesis
Lack of research about the discursive construction of children and technology in popular, everyday, Australian discourse (see 2.2.1)	Popular discourse around technology and children contributes to the sociocultural context of everyday moments of play via a framing of debate and reinforcement of children as central to societal adjustment to technological change.	– Study 1 – presented as a publication in chapter 4 – discourse analysis of social media comments
Lack of quantitative information about which childhoods involve Minecraft play (see 2.3.8)	Meaningful conclusions about the role of digital games in childhood cannot be drawn from statistics that treat ‘digital games’ as one homogenous category. Minecraft is anecdotally popular and uniquely associated with positive outcomes. Therefore, Minecraft specific information is needed.	– Study 2a – presented as a publication in chapter 5 – quantitative survey results about rates of Minecraft play in 3-12-year-old children
Lack of qualitative research about parental attitudes toward Minecraft (see 2.4.5)	Parental attitudes shape opportunities for play. Different titles may attract different parental appraisal. Therefore, information about parental attitudes toward Minecraft is needed for a detailed understanding of the context of everyday play.	– Study 2b – presented as a publication in chapter 6 – qualitative analysis of parents’ survey responses about how they view Minecraft
Lack of literature describing Minecraft play for its own sake (see 2.5.2)	Assumptions about what Minecraft play <i>is</i> inform adult decision making around providing opportunities for play. Descriptive work is needed so that assumptions can be replaced with knowledge and therefore appropriate opportunities for play can be facilitated by adults.	– Study 3 – presented in traditional thesis chapter format across chapters 7-11 – ethnographic study of 10 children’s Minecraft play within family and broader playworlds contexts

Chapter 3 Methodology

3.1 Introduction

In this chapter I outline the approach taken to answering the overarching research questions:

RQ1: *What are the sociocultural, discursive, technological, and family level contexts of children's Minecraft play?*

RQ2: *How do children play with Minecraft as part of their everyday screen-based leisure activity?*

The guiding principal in structuring the methodological approach has been how to provide a comprehensive and rich detailing of the phenomenon of interest, as opposed to adhering to a rigid methodological script. This means that the methods used in this thesis range from discourse analysis to quantitative survey data collection; from interviews to recorded play sessions. The overall methodology used does not therefore fit neatly all into an umbrella nomenclature such as 'ethnography' or 'grounded theory' (Crotty, 1998).

However, the epistemological and theoretical underpinnings of each of the studies and their respective methods is consistent throughout the thesis. These underpinnings entail a range of assumptions about what kind of knowledge can be obtained through the research process (epistemology) as well as about how the topics of interest and their relationship to the phenomenon of interest are conceptualised (theory). In order to demonstrate the quality of the work presented in this thesis, these epistemological and theoretical assumptions are made explicit in the following pages where I also explain how they are logically related to the methodology and methods used (Crotty, 1998). I now detail the epistemological and theoretical bases for my three studies and the project as a whole, before describing and justifying my methodology and introducing the methods used.

3.2 Epistemology

Crotty (1998) defines epistemology as “a way of understanding and explaining how we know what we know” (p. 3). Examples of epistemological stances include positivism; post-positivism; interpretivism and social constructionism. This thesis is underpinned by a *social*

constructionist epistemology which sees knowledge as constructed through the active building of multiple realities by human agents through social communication, experience, and attribution of meaning to phenomena (Holloway, 1997). In this way, the knowledge claims arising from research are always necessarily filtered through participants' realities and the researcher's assumptions, underlying theoretical perspectives and choice of methods. Arnott (2016) neatly articulates my stance on the relationship between 'reality' and knowledge generation: "reality is not 'out there' waiting to be uncovered; rather it involves a level of interpretation and construction on the part of the individual" (p. 274). This means that knowledge is *generated*, not 'gathered' or 'collected' (Richards & Morse, 2013) through the research process and is always a product of both participant and researcher characteristics.

3.2.1 Assessing research quality within a social constructionist course of research

The assessment of research quality is necessarily different for work in a social constructionist framework (as opposed to a positivist framework). It is still necessary to address issues of internal and external validity (Holloway, 1997), but the ways these are addressed requires a different approach and according to some authors a different set of terminology (Lincoln & Guba, 1985). Research coming from all epistemological stances, however, shares a common need to establish some kind of claim to the degree to which the research does what it claims to do. In positivist research this might be by ensuring that a measurement tool measures what it claims to measure (internal validity) and that the measure has accurately captured the 'truth' and therefore can be generalised to populations beyond the study participants (external validity). In this thesis, given the view of knowledge as co-constructed between researcher and participants, rather than existing 'out there', quality is instead established through presenting the contributions of participants as accurately as possible, and demonstrating that this has been done (corresponding to internal validity) and through detailed description of the research process and setting which allows for an assessment of the degree to which the findings can be applied to other settings (corresponding to external validity). These means of establishing quality align well with the notions of trustworthiness and authenticity that Lincoln and Guba (1985) outline as alternatives to internal and external validity.

In chapters 4 - 6 I provide, in the published papers, thorough descriptions of the research process. I detail *how data was generated*. In chapter 4, this was social media comments as representative of popular constructions of children, 'screens' and education, and in chapter 6 this was open text responses by parents regarding their thoughts on Minecraft. In each publication I also explain the *process of interpretive analysis* in as much detail as possible given the publication format. In Study 1 (discourse analysis of social media comments, presented in chapter 4) I was interested specifically in how childhood and technology were constructed at a social, cultural level as a broad framing for my subsequent focus on gaming, which meant that discourse analysis with its focus on how language serves to present varying realities, was appropriate. Coding of comments was systematic and consistent and the concept of *interpretive repertoires* (Potter & Wetherell, 1987) aided in the structuring of codes and comments into meaningful contributions to knowledge which I explain throughout the paper. In chapter 6 (parent attitudes toward Minecraft play) where I was interested in categorising responses in more of a face-value manner (as opposed to looking at social constructions underlying varying stances) I chose to follow a constructionist grounded theory method of analysis (Charmaz, 2008). This method of analysis was appropriate for the data which was formed through responses to open-ended questions and therefore more structured than the social media comments. Analysis was systematic as it was with Study 1, but it was more structured given the prescriptive nature of grounded theory as an analysis tool, first coding at sentence level, writing detailed memos, grouping codes into categories and finally making connections between categories and existing literature. In both analyses, the trustworthiness of knowledge claims made is aided by processes that were systematic and rigorous as well as by the transparency provided in detailing those processes (Greckhamer & Cilesiz, 2014).

The quantitative analysis of survey data presented in chapter 5 provides descriptive statistics in order to provide a group level, broad perspective on the role of digital gaming in childhoods. Rigour was established in this case by providing accurate statistics and all relevant information necessary for readers to assess this. I sought help with this process from my university's statistical consultancy service and reviewed my findings with them. However, I present these quantitative findings in a critical fashion and have aimed to apply the same set of quality measures for this data as I did with the qualitative data. That is, the

process is presented transparently, with recognition that choosing which questions to ask and which numbers to crunch was a subjective process and that statistics too are, in a social constructionist epistemology, produced via a entangled set of researcher, respondent and other subjectivities. However, an additional set of measures, those relating to statistical honesty and accuracy, were also required in analysing the quantitative data.

Analyses for study 3 (an ethnographically informed study of 10 families), were different again, but still systematic and rigorous. I present findings from this study in three ways across chapters 8 to 10 – play type descriptions, a case study, and a description of how the technological infrastructure informs Minecraft play. For the play type descriptions, I coded video recordings of play in a top down fashion using a pre-existing taxonomy of play types (Hughes, 2002) as opposed to the more ‘open’, bottom up coding of the social media discourse analysis and the parent attitudes toward Minecraft grounded theory analysis. Analyses for study 3 were given credibility and trustworthiness by a prolonged purposeful engagement with the Minecraft recordings as well as other data sources where relevant (interviews and play tours). I watched each recording several times, with frequent backtracking and replays of particular moments of play. On each viewing I considered carefully which play type category fit best. This felt ‘messy’ at times, as often several types of play were enmeshed in one sequence. I persevered and took the time to untangle what was happening on screen as best I could. I have presented these findings alongside detailed definitions of categories of play types and examples from the recordings. This means that the information necessary to see how I arrived at my conclusions is provided. In chapters 9 (case study) and 10 (how the technological infrastructure informs play), I present findings resulting from a less structured form of analysis. Nevertheless, as detailed toward the end of chapter 7 (where I outline study 3 as a whole), my process of generating knowledge contributions and communicating these was involved, attentive, transparent, and described with enough detail that its rigour can be assessed.

Consultation with supervisors, particularly regarding the qualitative data, throughout the data generation and analysis phases of each study, provided an “honesty” check (Lincoln & Guba, 1985), ways of establishing what was relevant and important to include and the opportunity to deepen my thinking in relation to what knowledge contributions were present in my data,

and how to present these both effectively and in a way that demonstrated credibility (Greckhamer & Cilesiz, 2014). Credibility and trustworthiness were also achieved, in studies 2 (survey) and 3 (household study), by the manner in which participants were informed about the research in a fully transparent way. Detailed Plain Language Statements included explicit mention of my interest in thoughts and practices not the degree to which respondents could be seen as practicing ‘good parenting’. Further, throughout analysis, I maintained an “aura of scepticism” (Lincoln and Guba, 1989; p. 305) regarding responses which functioned as a self-check on my own interpretations of meanings and knowledge. This was especially important given my positioning as, in many ways, a group insider as I discuss more below. With interpretive qualitative research there is a risk that if the researcher is too close to the group being studied, they may miss interesting points because they appear obvious (Lincoln and Guba, 1985).

3.2.2 Subjectivity and reflexivity

A social constructionist epistemology involves assumptions about the relationship between researcher, participants, and data. This has implications for the research process and the establishment of quality in research. Because of the assumption that knowledge can only be formed through the interpretations of people (and their worldviews, histories, existing knowledge and so on) complete objectivity is not possible. Part of establishing the validity of social constructionist research involves acknowledgement of the subjectivities and choices that have framed the research process including overall research design, data generation and interpretation of findings. Rather than trying to completely remove possibly ‘confounding’ variables, social constructionist research aims to instead account for these factors as inseparable from the research process and resulting knowledge generation.

As Holloway (1997) writes, the social constructionist approach does not aim for a “detached and neutral perspective but *reflexivity* about one’s own values and an explicit description of one’s own culture, background and beliefs...the researcher is self-critical and explicit” (p. 149; emphasis original). To this end, I acknowledge my interest in children’s digital play originated in my observations of and anxieties surrounding my own children’s digital play. My children were aged 2, 5 and 7 when I started this PhD. The anxieties I experienced as a parent, I believe, were shaped by the same broad cultural and professional discourses that I

discuss in my literature review (sections 2.2 and 2.4) and therefore are worthy of mention here. Specifically, as a middle-class white mother I have experienced tension around prevailing discourses of ‘screen time’ and children’s desires to play in digital spaces. This has been against a backdrop of happy recollection of videogame play in my own childhood and early adulthood, as well as the current enjoyment I derive from playing videogames with my children and on my own. There has been a dynamic interaction between my pre-existing ideas about play and changes to these ideas via reading through the course of my PhD, research undertaken and concurrent observations of the digital and non-digital play of my own children and their playmates. This evolving perspective, both personal and academic, has influenced the research in this thesis in varying ways, including research design, data generation, and analysis.

Taking a social constructionist approach to knowledge also means positioning oneself as a researcher in relation to participants and knowledge formed from interaction with them, along what Blaikie (2007) describes as a continuum between “insider” or “outsider” in relation to the “researched” (p. 11). Throughout this research project I have been an insider in the sense that I am a parent of children who play digital games within the same broad cultural contexts as my participants. This means that I assumed, for example, in study 3, a shared baseline understanding of key terms and concepts between myself and participating parents, in effect a degree of shared cultural knowledge (Edwards, 1997). I have also been an outsider in the sense that, in study 3, I came to participant households as a ‘researcher’ from an institution and without an understanding of the intricacies of everyday life or the nuances to attitudes and beliefs of my participants. Establishing insider-outsider status in relation to the *children* in study 3 was more difficult and involved an acknowledgement of power hierarchies between myself as ‘adult’, ‘researcher’ and ‘parent’. This positioning of myself in relation to participants and knowledge generation is addressed more fully in section 7.4.1 (page 176).

3.3 Theoretical perspectives

Theory is defined by Tudge, Mokrova, Hatfield, and Karnik, (2009) as “a way of making sense of the world” (p. 80). There are several theories relevant to this thesis. In some forms of research, theory is *tested* and perhaps built upon through data collection and analysis. In this project however, theory is used as a *way of seeing* the various subjects of interest. These

ways of seeing inform the research questions, and the research approach and are also consistent with the underpinning epistemological stance of social constructionism. I have chosen to draw on several theories rather than one unifying theory because each offer ways of viewing key elements in the project. These key elements are: children/childhoods; play; and technological devices. I now describe the theories that informed how subjects at each of these levels have been conceptualised in this project.

3.3.1 New sociology of childhood

A core underpinning theory for this thesis is the set of ideas known as the new sociology of childhood. Not so ‘new’ now, the new sociology of childhood still holds sway as a way of viewing children and childhoods. The paradigm pushes back against the conceptualisation of children as primarily “beings in the process of becoming” (James & Prout, 1997; p. xi). Early academic contributors to this ‘new’ paradigm also noted that childhood itself was often seen within disciplines such as developmental psychology and sociology as a *precursor* to culture and society rather than an active and contributing part of it. James and Prout (1997), in introducing the second edition to “Constructing and Reconstructing Childhood” write that:

“In setting out the ‘emergent paradigm’ we suggested an alternative view which gathered together and focused more recent and innovative thinking: from interactionist accounts we drew on the notion of children as agents in, as well as products of, social processes and from the influence of social constructionism we emphasized the social, cultural and historical variability of childhood and its irreducibility to a given biological reality” (p, xii).

3.3.1.1 Childhood as a social construction

The movement or paradigm known as the new sociology of childhood consists of several core points or tenets (James & Prout, 2015). Most relevant to the current thesis is the notion that childhood is a social construct. This means that what childhood *is*, is not a static universal social grouping but rather a construct formed through discursive interaction between human agents. Inherent in this framing is the idea that ‘childhood’ varies across time, geography and culture, “although they [children] do form a specific structural and cultural component of all known societies” (James and Prout, 2015; p. 3). There are some controversies in what this

means for historical studies of childhood and children, for example, Orme's (2001) critique of Ariès' (1962) bold claim that prior to the 17th century “the idea of childhood did not exist” (p. 125). However, Ariès' “most important idea – of ‘childhood’ as a cultural construct, rather than an immutable biological reality – continues to be influential” (Messenger Davies, 2010; p. 23).

What this means for the current thesis is that childhood is seen not as defined solely by biological immaturity or a universal static grouping of people but rather as a set of related defining ideas held by individuals and shared among related groups of people. This entails an explicit acknowledgment that childhood is not crystallised, not ‘out there’ somewhere but rather a construct based on culturally and historically situated ideals (and their opposites), values and expectations. Inherent in this social construction of childhood is acknowledgment that social constructions change over time. Of particular relevance for this current study of children’s playful engagement with technology is the way that concepts of childhood are actively wielded in adult attempts to come to terms with new technology. In the process, ideas of what childhood entails morph and flex in a dynamic way through discursive processes which attempt to reconcile challenges that technology poses to existing constructs of childhood. I have detailed these discursive construction processes in relation to children and technology in section 2.2 (page 20).

One of the aims of this thesis then is to challenge the often reductionist (Selwyn, 2003), essentialist (Buckingham, 1998) constructions of childhood in relation to technology and technologically mediated play. Study 1 captures historically and geographically relevant popular discourse which builds on the findings of Selwyn and others and serves therefore to appropriately situate the frames of debate in relevant cultural context. The qualitative portions of Study 2 offer insight into the crucial intermediary layer between these broader discourses and children’s everyday experiences, that is, the ways that parents construct digital games in relation to childhood. Finally, Study 3 captures the practices and views of individual families and children which offer a micro view of the relationship between children and digital gameplay which can be seen against the broader backdrop of societal level constructions of childhood.

3.3.1.2 Multiple childhoods

Working from a new sociology of childhood perspective involves the realisation that childhood is not a universal grouping. This is strongly related to the previous point that childhood is a social construct. In critiquing traditional conceptualisations of childhood in developmental psychology for example, James and Prout (2015) note that a core function of research in these disciplines is establishing norms of development and, primarily, deviations from these norms. However, such an endeavour rests on the assumption that there is one universal ‘ideal’ childhood. When considering childhood as a socially informed construct, however, it becomes clear that not only are there multiple possible ways of constructing childhood there are multiple forms of childhood in existence. As Marsh (2010a) sums up: “not only are childhoods diverse in terms of children’s cultural, racial, ethnic and linguistic heritages and socio-economic status, but family structures are varied, with many children living in one-parent families, extended families or with gay and lesbian parents” (p. 12). Marsh (2010a) further notes how a lack of recognition of these variances translates into policy which is often based upon a “universal childhood that is predicated on white, middle-class notions of what it means to be a child in neo-liberal times” (p. 12).

This point is particularly relevant in relation to children’s digital play where parents are given advice that is underpinned by middle-class western ideas about what childhood play *should* be if the end goal of optimal development (itself of course normative) is to be met. As put by Squire and Steinkuehler (2017), critiquing the ‘screen time’ guidelines at their time of writing (no more than 2 hours a day), policy reflects attempts to “regulate behaviour by middle-class norms rather than any evidentiary, or even logical, basis” (p. 20). Rather than assessing how well families manage to produce ‘good childhoods’ in relation to digital gameplay, this thesis is instead concerned with documenting what digital play looks like in a range of childhoods. This does not mean that universal middle-class childhood ideals are irrelevant. But they are seen here as part of the context that multiple childhoods take place in, rather than a standard to be assessed against. Consequently, following Marsh (2010a) and others, this thesis is underpinned by “a pluralistic conceptualisation of childhood...which recognises the diverse nature of children’s experiences” (p. 12).

3.3.1.3 Beings rather than becomings

The new sociology of childhood paradigm entails a conceptualisation of childhood as worthy of study as children experience it in the here and now. Such valuing of children's everyday lives contrasts with dominant traditional fields of inquiry which tend to see children in terms of their progress towards becoming adults. Buckingham and Sefton-Green (2003) note "childhood often seems to be perceived as merely a state of transition – a stage you pass through on your journey to somewhere else. This assumption is implicit, albeit in different ways, both in developmental psychology and in theories of socialization" (p. 395). In terms of play, challenging the ethos that "the young have one purpose, to grow more and more mature" (Factor, 2001; p. 34) opens up the possibility for empirical interest in play as a meaningful and important element of childhood in its own right. In this thesis I am interested in the everyday, here and now play practices of children. I see these practices as important and worthy of documentation without the need to speculate on what play might mean for what children become later. I detail this point more below when outlining how I have conceptualised the role of play in childhoods throughout the thesis.

3.3.1.4 Children as active and agentic in their own lives (but this is complicated)

Finally, another core theoretical consideration for this thesis is nature of child agency. The new sociology of childhood entails recognition that children play an active role "in the construction of their own social lives, the lives of those around them and of the societies in which they live" (James & Prout, 2015; p. 4). This conceptualisation of child agency is however, in practice, nuanced. There is a tension between reducing children to passivity on the one hand and romanticising their degree of agency on the other (Jopson et al., 2014). In this thesis child agency in relation to play is seen as multi-dimensional. At one level, access to digital play spaces is often controlled by parents, but in many households this control is bidirectional and fluid as children push back against rules (Clark, 2011). When it comes to in-the-moment play in Minecraft, children's agency is shaped by the technological limitations and procedures made possible, or not, by the game software (see 0, page 234). Further, and not covered in detail in this study, digital play cultures are built through social contacts in spaces such as school playgrounds where children share cultural knowledge, for example in the form of 'Fortnite dances' (Carter, Moore, Mavoa, et al., 2020) *but* under the

watchful eye of teachers who may curtail less desirable displays of knowledge such as re-enactments of Call of Duty sequences of play (Richards, 2014). Having pointed out these nuances around agency however, the theoretical underpinnings of this thesis include a rejection of the view that children are “simply the passive subjects of structural determinations” (James & Prout, 2015; p. 4). Furthermore, the thesis takes a critical stance towards media effects research which largely constructs children as being at the mercy of media influence on their development.

3.3.2 Theories of play

Theories of what play is and what purpose it serves come from several different disciplines. In relation to *children’s play* the dominant perspectives come from developmental psychology and include the theories of Piaget (1962) and Vygotsky (1967). These theories primarily describe play in terms of its developmental function, particularly the role it has in socialisation development. Other theorists of play come from cultural studies (Huizinga, 1955), sociology (Caillois, 1961), anthropology (Geertz, 1973a) and multidisciplinary origins including folkloric studies, education and psychology (e.g. Sutton-Smith, 1997). A full detailing of the work of these and other influential play theorists is beyond the scope of this methodology chapter (for a more complete overview of varying perspectives on play see Bergen, 2014). Instead, in this section I outline my working definition of what play is and what role play has in childhoods (as related to the aims of this thesis).

Play is notoriously hard to define (Gee et al., 2017; Lewis, 2017). In some formulations the purpose of play is inextricably linked with its definition. For example, definitions that describe play in terms of evolutionary function, as a “complex set of skills necessary for survival and reproduction” (Pellegrini, Dupuis, & Smith, 2007; p. 262). Huizinga (1955) talks about play as “the *primaeval* soil” from which “forces of civilized life have their origin” (p. 5) and in this way play is seen as fundamental to the formation of culture and society. Caillois (1961) takes a less functionalist stance and adds an emphasis on the unproductive nature of play, that is, play as “creating neither goods, nor wealth, nor new elements of any kind” (p. 10). Sutton-Smith (1997) provides a way through these varying theoretical perspectives on play by highlighting the respective “intellectual odour” (p. 8) of each through detailing seven rhetorics of play (see section 2.5.2.1). These rhetorics “express the way play

is placed in context within broader value systems, which are assumed by the theorists of play rather than studied directly by them” (p. 8). In this way, as Lewis (2017) notes, play itself is a socially constructed phenomenon. Therefore, “it is difficult for us to discern play outside the socio-cultural frames that have constructed us and have been constructed by/for us” (Lewis, 2017; p. 11).

These points all demonstrate issues with working out what is meant by ‘play’. To complicate matters further, working out the best way to tease apart *games* and play is also somewhat complicated. However, despite this messiness and the existence of vast amounts of scholarly work dealing with it, for the sake of clarity and consistency I have chosen to provide a relatively straightforward working definition of play that captures well what is meant by ‘play’ in this thesis. In this thesis when I talk of play, the defining characteristics I have in mind are the ones outlined by the International Play Association (IPA) in their general comment on the Right to Play as declared in the UNCRC⁶. This definition was chosen because it ties together a broad range of ideas about play and includes mention of play “for its own sake” which aligns well with how this thesis values play. Their definition is as follows:

“Children’s play is any behaviour, activity or process initiated, controlled and structured by children themselves; it takes place whenever and wherever opportunities arise. Caregivers may contribute to the creation of environments in which play takes place, but play itself is non-compulsory, driven by intrinsic motivation and undertaken for its own sake, rather than as a means to an end. Play involves the exercise of autonomy, physical, mental or emotional activity, and has the potential to take infinite forms, either in groups or alone...The key characteristics of play are fun, uncertainty, challenge, flexibility and non-productivity” (UNCRC, 2013; p. 6).

In section 2.5, I describe the developmental and pedagogical focus of much of the research work concerning children’s play (including digital play). Huizinga (1955) succinctly points

⁶ General Comment 17 was tabled by the Committee on the Rights of the Child in 2013 in response to concern that Article 31 of the UNCRC was not being taken seriously enough by member states. General Comment 17 provides clarification on the intent of Article 31 and reiterates the reasons why Article 31 is included in the UNCRC (United Nations Committee on the Rights of the Child, 2013)

out that these perspectives “attack play direct with the quantitative methods of experimental science without first paying attention to its profoundly aesthetic quality. As a rule they leave the primary quality of play as such, virtually untouched” (p. 2). Sutton-Smith (1997) asserts that this ‘play as progress’ rhetoric is most dominant in perspectives on *children’s* play. Despite a small body of research showing that children themselves tend to see play in terms of ‘fun’ and pleasure (Baek & Touati, 2017; Dixon & Weber, 2007; Marsh, 2010b; Willett, 2016) research and parental perspectives tend to give primary value to outcomes *beyond* the moment of play. This valuing of play, including digital play, in utilitarian terms, is out of step with the new sociology of childhood approach, taken in this thesis, which constructs childhood as *more than* simply a road to maturity.

Further, Plowman et al. (2012) note how a pedagogical and developmental focus “sits uneasily with the standard definitions of play which emphasise spontaneity, free choice, and fun” (p. 12). General Comment 17 on the UNCRC does indeed mention enjoyment and pleasure:

“Together, these factors [the defining characteristics of play] contribute to the enjoyment it produces and the consequent incentive to continue to play. While play is often considered non-essential, the Committee reaffirms that it is a fundamental and vital dimension of the pleasure of childhood, as well as an essential component of physical, social, cognitive, emotional and spiritual development” (UNCRC, 2013; p. 6).

While mentioning development (albeit a refreshingly broad version of it), the statement also constructs in-the-moment pleasure and meaningfulness as core elements of play. In contrasting this perspective with dominant strands of research Hedegaard (2016) notes “the excitement and tension that play may create has not been in focus” (p. 71). Willett (2016) also explicitly acknowledges that “not all play needs to be about learning” and that “placing value only on practices that involve learning and development ignores and dismisses particular play practices might be functioning to provide pleasure or in ways that are more subversive, risky and nonsensical” (p. 475). In line with these points, in this thesis play is valued and studied from a here-and-now view. I am concerned with documenting play in context not with assessing what this means for the process of becoming an adult.

I want to make it clear that by critiquing and largely setting-aside developmental rationale in my work I am not arguing for a cessation of research in this area nor arguing that development and the role of play in development is unimportant. What this thesis does, rather, is consciously *illuminate* digital play practices in a way that a) addresses the paucity of detailed *description of play* in existing research and b) *values* digital play as important and meaningful *in the moment*.

3.3.2.1 Sociocultural approach to play

There are other criticisms of developmental approaches to play besides the detracting of attention away from here-and-now meaningfulness. Of most relevance to this thesis is the criticism that the influential “grand theories” of development, such as Piaget’s, see children’s development as somewhat detached from their sociocultural environment (Hedegaard, 2009). Hedegaard (2009) states that missing from early “grand theories of development” is “a view of children’s development as influenced by norms, values, and power relations—for who is the development important, desirable, and even moral?” (p. 60). Later developmental theorists such as Vygotsky (1967) do account for the role of immediate context but are seen by Tudge (2008) as not quite going far enough in factoring in contextual influences on play and therefore development. Tudge (2008) advocates for Bronfenbrenner’s Person-Process-Context-Time (PPCT) model as a more complete way of theorising child development including the role of play (see 3.4.1). While my focus is not on development but rather moments of play themselves, such a focus also requires a strong situating in context if a truly ‘thick description’ is to be achieved (Geertz, 1973b; Holloway, 1997). Further, Tudge (2008) concurs with Hedegaard’s (2009) proposition that while Bronfenbrenner’s model advances theory in terms of effectively combining individual and contextual features, it still does not take a necessary critical view of the role that values and beliefs play in shaping contexts and practices. Tudge (2008) therefore advocates for a comprehensive contextual approach extending beyond the immediate home environment and its objects and inhabitants to include the *values and beliefs* that underpin everyday practices.

With this important addition to Bronfenbrenner’s contextual model in mind, my theoretical approach can be described as sociocultural. Taking a sociocultural approach in studying children’s digital play means seeing everyday instances of digital play as occurring within a

variety of childhoods, households, with varying availability of devices for play with varying parental attitudes towards digital devices and digital play and with varying daily demands on time and routines (Plowman et al., 2012). In this way, my theoretical underpinnings in relation to children and play can be said to broadly fit within the related and in many ways overlapping spheres of the new sociology of childhood paradigm and a sociocultural approach to researching children's play.

3.3.3 Theories of technology in relation to children's play

Now I have outlined my theoretical perspectives on children, childhoods, and play. The final core element to this study is the technological devices used for play. While Plowman et al. (2012) and Bronfenbrenner's PPCT model do account for the role of technological devices in instances of play, it is necessary to briefly outline directly how this thesis conceptualises devices used for play. This is necessary because of the key role that devices themselves have in popular discourse regarding children's digital play. iPads, gaming consoles and computers are not merely bits of metal, plastic, and code. They have socially constructed meaning attached to them and therefore I need to make clear the way that I view devices used by children for play in this thesis.

Taylor (2009) outlines a conceptualisation of digital play based on 'assemblages' and this is helpful for detailing the role of devices in instances of children's digital play. This approach has a strong affinity with the other theoretical underpinnings of this thesis discussed above. This is clear from the way that Taylor describes the varying components that make up moments of play involving technological devices:

"Games, and their play, are constituted by the interrelations between (to name just a few) technological systems and software (including the imagined player embedded in them), the material world (including our bodies at the keyboard), the online space of the game (if any), game genre, and its histories, the social worlds that infuse the game and situate us outside of it, the emergent practices of communities, our interior lives, personal histories, and aesthetic experience, institutional structures that shape the game and our activity as players, legal

structures, and indeed the broader culture around us with its conceptual frames and tropes” (Taylor, 2009; p. 332).

This provides a framework for tying together the machinic elements of digital play with the contexts it occurs in including broad cultural “conceptual frames and tropes”. It is useful in mapping out a non-deterministic view of the relationship between children and digital games. In this way, the concept of assemblages helps to account for technological devices as not existing in a social or historical vacuum while also rejecting “the tendency to see particular new technologies as having an ‘impact’ on the home, households, children and so on” (Giddings, 2014; p. 60). The alignment between this view of technology and that of sociocultural children’s play approaches is clear when considering how Stephen and Plowman (2014) describe the theoretical positioning of technologies in their work as “a material, social and cultural feature of childhood in the twenty-first century” (p. 9).

I have chosen to draw upon Taylor’s assemblages of play as supplementary to the previously described theories of the new sociology of childhood and sociocultural approaches to children’s play. The latter theories serve to make central the unique contextual factors that inform *children’s* play in a way that I do not think Taylor’s writing does. I also want to put instances of play at the forefront of inquiry rather than the modes through which the play happens. I see these instances of play as situated within all kinds of context and formed through the ‘looping together’ (Giddings, 2014a) of various tangible and intangible elements. But, where an assemblages approach seems to involve focus on “images of tangled technocultural networks” (Giddings, 2014a; p. 60) my approach aims to put the play itself in sharpest focus while not being separated from the varying components of the networks that create it.

3.4 Methodology

Crotty (1998) defines methodology as: “the strategy, plan of action, process or design lying behind the choice and use of particular methods to the desired outcomes” (p. 3). Given the theoretical focus as outlined above on digital play within context, the methodology I have employed in this thesis has been crafted to direct inquiry where most relevant and provide the kinds of data most appropriate for each component of the research goal. In this way I

have developed a mixed-method approach drawing on multiple data sources and forms of analysis in order to understand the layered and contested contexts of children's digital play. In the following section I give further explanation of Bronfenbrenner's PPCT model; detail how I have employed this model as a means of structuring inquiry; outline the rationale behind adopting a mixed-methods approach; and address potential epistemological issues in using both quantitative and qualitative methods.

3.4.1 Bronfenbrenner's PPCT model as structuring device

This thesis uses Bronfenbrenner's PPCT (Process-Person-Context-Time) model as a way of structuring inquiry at layers of context relevant to everyday digital play practices. Bronfenbrenner's model is widely used in developmental psychology research for testing theory and for designing research that includes elements of context as variables (Tudge, 2016). The PPCT (Bronfenbrenner & Morris, 2006) model is the 'mature', and more developed form of Bronfenbrenner's earlier ecological systems theory of child development. This 'refined' version accounts more for the role of individual characteristics (e.g. past experiences; physical presentation to others; temperament etc.) than the earlier ecological systems theory. Bronfenbrenner's earlier work focused heavily on the role of context in child development. But he "later engaged in self-criticism for discounting the role the person plays in his or her own development and for focusing too much on context" (Tudge et al., 2009; p. 199). This saw the introduction of additional elements to the theory and model. These additional elements are: processes, primarily proximal processes (repeated interaction with people and objects in the child's immediate environment); person (individual differences in temperament etc.); and time. Thus, the model became known as the Process-Person-Context-Time model.

Bronfenbrenner's theory posits that child development occurs through a child's repeated interactions with elements of the immediate environment. These interactions are called proximal processes and Bronfenbrenner and Morris (2006) include as examples "playing with a young child, child-child activities, group or solitary play" (p. 797). Proximal processes include interactions with objects as well as people. Proximal processes occur in context. Context here is broken down into four layers or systems, in a nested fashion. The macro-system includes "any group (culture, subculture, or other extended social structure) whose

members share value or belief systems” (Tudge et al., 2009; p. 201). The macro-system impacts development via “resources, hazards, lifestyles, opportunity structures, life course options and patterns of social interchange” (Bronfenbrenner, 1993; p. 25). The exosystem includes influences from environments that the child does not directly inhabit but that may have an indirect influence, such as parent workplaces. Microsystems are environments in which the child spends significant amounts of time such as the home. The mesosystem represents interactions between the other layers. Finally, the chronosystem accounts for changes over time such as historical developments, and in the current thesis, include technological development such as domestication of mobile touchscreen devices. The chronosystem is denoted by ‘time’ in the Process-Person-Context-Time naming of the model.

It is important to note that context is not seen in this thesis as static or “flat” (Plowman, 2016; p. 197). In alignment with the sociology of childhood paradigm, Plowman (2016) urges researchers to avoid the temptation to see context as just existing around the child and acting upon the child. Instead, we need to see context as something which is also acted upon by children. This perspective is echoed by Dourish (2004) writing from a Human Computer Interaction perspective. Dourish (2004) writes: “context and content (or activity) cannot be separated. Context cannot be a stable, external description of the setting in which activity arises. Instead, it arises from and is sustained by the activity itself” (p. 23). Culture and other influences outside the home are not necessarily distal and removed from everyday practices as is sometimes gathered from their positioning on the outer of Bronfenbrenner’s concentric circle model. Rather, influences from outside the home are *woven through* all of the other elements of context in a bidirectional way (Plowman, 2016). It may be difficult, perhaps impossible, to trace a clear route from, say, popular discourse about kindergarten children using iPads to everyday leisure play of children at home with Minecraft. But what a contextual approach offers is a holistic “fluid, emergent and multiscalar understanding” of children’s digital play practices (Plowman, 2016; p. 191).

I use Bronfenbrenner’s model as a way of presenting what I consider to be a holistic and rich account of the phenomenon of interest – children’s everyday play in Minecraft. I do not *test* the model but use it as a means of structuring my inquiry. I am not concerned with measuring developmental outcomes or making claims that certain digital play practices lead to particular

outcomes. This is not a media effects study. This is a study aimed at “comprehensiveness and meaningful understanding” (Greene & Caracelli, 1997; p. 10) of children’s digital play practices. I have chosen to use the concentric circles of the PPCT model as a framing and structuring device which aligns well with the theoretical perspectives outlined above.

The structure of this thesis is based on this model. However, it would be very difficult to account for every aspect of context at every level in a single research project. Therefore, my thesis deals with particular aspects of each layer of context. These particular aspects are included, and others excluded, based on gaps in knowledge identified in my review of relevant literature and on relevance to my particular focus on Minecraft play (see **Table 1**). I have utilised Bronfenbrenner’s concentric circle model in the following way in order to reflect my specific areas of inquiry (**Figure 1**).

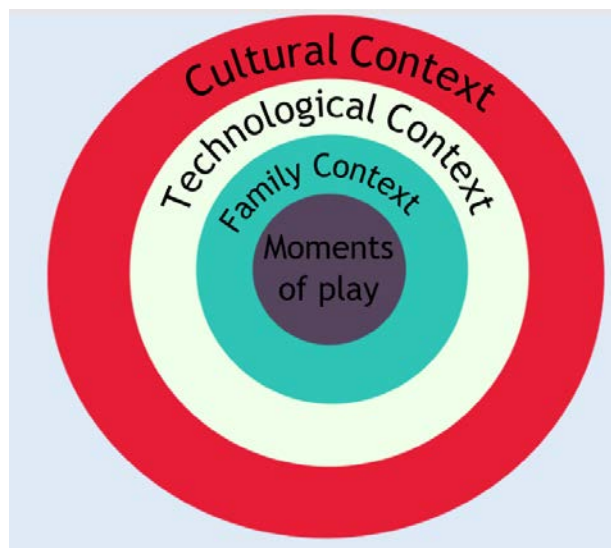


Figure 1 *Structure of Contextual Model Used in this Thesis Based on Bronfenbrenner's (1995) PPCT Model*

The outermost layer in this conceptualisation is the *Cultural* context. In my inquiry this includes popular discourse of adults in Australia at the time of data collection regarding children’s use of iPads and this is covered in Study 1. Next is the *Technological* context. This includes information about what game titles are available and popular with children in Melbourne, Australia and what devices are used for play. This is addressed in the quantitative components of study 2. The next layer in my conceptual adaptation is the *Family* context surrounding children’s everyday digital play practices. This includes parental attitudes

toward digital play, mediation strategies and household cultures around digital play. Family context is addressed in the qualitative components of study 2 and parent interviews in study 3. The innermost circle represents the child playing Minecraft on a digital device – *Moments of play*. Repeated interactions with gaming devices would be called a ‘proximal process’ in Bronfenbrenner terminology. What is of interest at this level, in this thesis, is the form that play takes. This is addressed in my third study.

3.4.2 Mixed methods

With this theoretical backdrop, I have used a range of research methods in order to gain “comprehensiveness and meaningful understanding” (Greene & Caracelli; 1997; p. 10) of children’s digital play. I have *not* used a range of methods as a way of “triangulating” knowledge to improve validity of findings (Holloway, 1997; p. 157). I have used a range of methods in order to best describe children’s everyday experiences of digital play within a range of near and far contexts. In this way, my methodology consists of micro-and macro lenses of inquiry (Greene & Caracelli, 1997; p.13).

I have used both qualitative and quantitative methods of data collection in this thesis. Greene and Caracelli (1997) write about serious potential epistemological conflicts when combining quantitative and qualitative data. Mixed methods studies, according to Tudge (2008), tend to take a “neo-positivistic” approach – still aiming for uncovering some kind of reality with qualitative components used to generate new hypotheses or to allow “some consideration of meaning for individual subjects of research” (p. 59). However, this is only the case when methods are based on different epistemological groundings. Lincoln and Guba (2017) state that “*within* each paradigm, mixed methodologies (strategies) may make perfectly good sense” (p. 169; emphasis mine). In this thesis both the quantitative and qualitative data are grounded on the same social constructionist foundations. The quantitative elements are *descriptive* statistics included in the survey of Study 2. They give one picture of the technological context of children’s digital play. They are not assumed to be representative of the ‘truth’ of every child’s gaming habits but are a snapshot captured via a self-selecting group of parents with issues such as social desirability bias (particularly given the polarised framing of children’s digital play in popular discourse) and using parents as a proxy to get information about children’s practices addressed transparently in the publication.

3.5 Methods

Given the variety of methods used across my three studies, I have chosen to provide detailed description and justification of specific methods in introducing the three studies and findings throughout the thesis chapters. An alternative approach would be to detail each individual method in this current chapter. However, I have chosen to keep this chapter as more of an outlining of overall research approach and below (**Table 2**) I summarise this approach in table form and direct the reader to discussion of individual methods as they occur throughout the remainder of thesis.

Table 2 *Summary of the Approach to Research Taken in this Thesis*

Epistemology	Theories	Methodology	Methods		
			Study 1	Study 2	Study 3
Social Constructionism	New sociology of childhood; Sociocultural perspectives on play; Taylor's Assemblages of play	Informed by Bronfenbrenner's PPCT model and Plowman's (2016) notion of multiscalar inquiry in order to gain richest insights	Discourse Analysis (see p. 899 & p. 94)	Survey – quantitative and qualitative (see pgs. 111; 121-122; 148; 153)	Ethnographic consisting of: interviews; play tours; recorded play sessions (see pgs. 171-182)

3.6 Conclusion

In this chapter I have followed Crotty's (1998) structuring of research project design explanation. I have made explicit the ways that my social constructionist epistemology has informed the varying theoretical perspectives and assumptions underlying the project as a whole. I have contrasted my approach to children's digital play as worthy of study for its own sake to that of inquiry ultimately aiming to put this play to 'good' use. Related to this I have made clear that I see childhood, 'good' play and 'good' use of technology as socially constructed phenomena all shaped by prevailing academic and popular lenses on reality. Using Bronfenbrenner's inherently sociocultural model as a methodological structuring tool, I have explained how this thesis uses a range of tools for generating knowledge in order to gain a comprehensive understanding of children's digital play practices. Crotty (1998) talks

about “building” a course of research. In this chapter I hope to have provided the blueprints for the construction of this research project so that readers are able to assess the foundations and structure as being robust and fit for purpose.

PART II

Studies One and Two: The Cultural, Technological and Family Contexts of Minecraft Play

Chapter 4 Study 1: Discourse study - Constructing the young child media user

This chapter presents Study 1 in the form of a peer-reviewed journal article:

Mavoa, J., Gibbs, M., & Carter, M., (2017). Constructing the young child media user in Australia: A discourse analysis of Facebook comments. *Journal of Children and Media*, 11(3), 330-346.
<https://doi.org/10.1080/17482798.2017.1308400>

I led all stages of the research and writing process. Professor Martin Gibbs and Dr Marcus Carter gave guidance and feedback throughout. This article is presented verbatim as it appears in the publication, following a discussion of how it contributes to the thesis and some detailing of the study that was not included in the publication.

4.1 Introduction

The study presented in this chapter was a discourse analysis of social media comments which allowed for the documentation of a range of discursive constructions of children, childhood, and technology. Children's digital play occurs within a range of contexts and in order to understand this play we must attend to these contexts, including at the broad sociocultural level (Burnett, 2016; Ito et al., 2009; Stephen & Plowman, 2014). In chapter 2 (section 2.2) I reviewed research examining the discursive construction of children in relation to technology and digital games in particular (Narine & Grimes, 2009; Willett, 2015). In the current study I address a gap in the literature outlined earlier (see section 2.2.1). Specifically, I noted from my review of literature that while there was attention given to the need to study how children and technology are constructed, the everyday language of individuals had not been studied from this perspective. Instead, existing work has looked at representations produced by institutions - government (Selwyn, 2003) and (non-participatory) media (Drotner, 1999, 2005, 2013; Narine & Grimes, 2009). In addition, I noted in chapter 2 that there was a lack of empirical work looking at discursive constructions of children and technology that had been done since the release of tablet devices – now a feature of many children's digital device repertoires (section 2.3.5).

Finally, existing literature in this area is dominated by perspectives from Europe and, to a lesser degree, the United States. Therefore, in the interests of including perspectives from outside these locations, thereby expanding knowledge bases, I saw a need to document popular Australian discourse around children and technology.

4.2 Situating Study 1 within the structure of the thesis

Study 1 addresses the above gaps in literature. It also serves to enrich the contextualised presentation of new knowledge about children's digital play practices which is the aim of this thesis. This study addresses the outermost layer of context in my guiding model, that is, the *Cultural* context of children's digital gameplay (see **Figure 1**, p. 83). Study 1 analyses popular discourse about screen media use in general, not digital gameplay or Minecraft specifically. Therefore, it helps illuminate the shape of broader contemporary discourses that inform how specific screen-based activities, such as digital gameplay, are in turn discursively constructed.

4.3 Methods

This study uses publicly available social media comments as data. These comments were made in response to a news article posted on the Facebook page of the Australian Broadcasting Corporation's news channel (The ABC, 2015). The news article was about a kindergarten implementing an iPad program and it gained 753 comments many of which expressed views about the desirability of young children using iPads. These comments were chosen to be used as data because they provided a textual representation of popular discourse around children and 'screen time' that could be analysed unobtrusively and empirically. The comments can be assumed to have been made freely and without any framing and influence that may be present in a research project where participants are aware that their responses are to be analysed. However, I do not claim that the comments are necessarily representative of overall Australian sentiment and acknowledge that they are likely subject to other forms of bias. Further, social media comments occupy a kind of dual positioning as both freely made public comment but also a form of commercial media themselves (posted as they are on commercial media platforms). As Drotner (2013) writes: modern media "operate as a space for voicing of competing perspectives on this

[socially constructed] reality, and hence media are catalysts of often mundane negotiations and reappropriations of what counts as proper social and cultural boundaries for children” (p. 17).

Discourse analysis provides a way of seeing social media comments as actively utilising various social constructions of phenomena in service of particular stances. Interrogating the constructions that form varying stances demonstrates how concepts that may seem relatively straightforward and commonly understood, such as ‘childhood’ or ‘technology’ are constructed through social discourse and are not universal or static.

4.4 Summary of findings and contribution to existing literature

This study found that constructions of childhood, specifically ‘good childhoods’ interact with constructions of ‘screen time’ and screen-based media use in dynamic ways that are often, though not always, polarised. I found that there were three ways that ‘screen time’ was constructed in relation to childhood, and these three sets of discourse are called interpretive repertoires (Potter & Wetherell, 1987). The *status quo* repertoire was dominant throughout the data. The *status quo* repertoire constructs childhood as a period of life that should involve contact with nature and the learning of ‘basic skills’ familiar to traditional concepts of education, and conversely constructs technology as unnecessary and even harmful to ‘good childhoods’. The *future focused* repertoire was the second most common set of constructions and framed childhood as a time of preparation for utilising technology in ways that ultimately benefit society. Finally, the *balance* repertoire was largely based on the same constructions of childhood and technology as the *status quo* repertoire but allowed for these constructions to exist in a non-mutually exclusive manner.

Existing literature also notes polarisation in discourse around children and screens, but this study demonstrates that while polarisation does occur, there is also somewhat of a middle ground in popular constructions of children and screens, that of the *balance* repertoire. The study also details two sets of ‘discursive motifs’ that ran throughout the comments, those using discourses of *loss* and those drawing on a *virtual vs real*

dichotomy. In this way, the findings from Study 1 contribute a very rich and detailed account of not only the surface level presentation of different stances on children and screen media but the sets of constructions of reality that underpin these. Finally, the paper highlights the way that parents are given mixed messages about what ‘screen time’ means for childhoods. On the one hand, childhood is seen as under threat from screen use, and on the other contemporary childhoods involve learning how to use technology to save the world. These constructions are present in the language of government as much as they are in the everyday language of comments on social media.

4.5 Contributions to the thesis

This study details a cultural context where childhood and ‘screen time’ are constructed in ways that often make them seem incompatible with each other. It sets the scene for all the further findings presented in this thesis in the sense that it shows how children’s digitally mediated play, including Minecraft play, occurs within a context where concepts such as childhood itself are contested and constructed in tandem with ‘screen time’, technology, videogames and so on. It justifies the contextualised approach taken throughout, by demonstrating that what ‘screen time’ (and therefore Minecraft) even *is* cannot be assumed to exist ‘out there’ somewhere. Rather, what the thesis deals with, ‘children’s Minecraft play’, exists within a set of socially constructed, fluid realities. In order to understand children’s Minecraft play therefore, explicit acknowledgement and unpacking of these contexts is necessary. This ensures that findings are not presented as artificially cut off from social and cultural factors. An investigation into children’s Minecraft play without this would risk leaving assumptions and differences in how key variables are constructed invisible and unstated which would reduce the quality of understanding gained.

4.6 Publication: Constructing the young child media user in Australia: a discourse analysis of Facebook comments

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ABSTRACT

Children's use of screen-based digital media is presently a topic of intense public debate. In this paper we present the results of a discourse analysis of Facebook comments responding to the proposal that iPads be used by children in early years education. We found that respondents typically drew upon one of three core stances to talk about children and screen-based media use. Of these, the most dominant stance posited that children's "screen time" was problematic. This popular discourse is out of alignment with government discourses promoting the use of screen-based devices in education. By illuminating the discord between different constructions of childhood, the role of education, and screen-based media this paper contributes to an ecologically valid understanding of the role of digital media in contemporary childhoods.

Introduction

Debate about the role of new forms of screen-based media in children's lives plays out in public, academic and political spheres. The effects of children's engagement with screen-based media, on a number of outcomes at individual and societal level is of particular concern (Lemish, 2015). Headlines about how screens are damaging children in a myriad of ways, for example causing addiction (Lambert, 2016), risky online social behaviour (Pillay & Vijandren, 2016), declining academic achievement (Burns, 2015) and obesity (Hagan, 2015) mirror public anxieties about "screen time." Anxiety about children's use of new media has long been prime media fodder (Drotner, 2013) but the debate appears particularly intense at present. In Australia, screen time recently topped the list of child health concerns as rated by members of the public, ahead of obesity, family violence and youth suicide (Rhodes, 2015) indicating that children's use of screen-based media is commonly understood to be potentially pathological. Yet, at the same time, these devices are becoming increasingly prevalent in mainstream teaching practices. The contradiction here is not unnoticed by parents, who are charged with the everyday management of their children's screen-based media use (Dux, 2015; Lemish, 2015).

This paper takes a step back and looks at popular debate about children and new screen based media. It illustrates, through an analysis of popular discourse on social media, the "normative negotiations" that take place in (re)defining "what counts as proper childhood and, on a wider canvas, what counts as the proper directions society should take" (Drotner, 2013, p. 20) during periods of social change brought about by new technology and corresponding new media environments. It shows the way that contradictory realities exist in this particular socio-cultural

and historical context. A context where screen technology is now part of mainstream early primary education, and technology as means of economic growth is endorsed in political discourse, but the dominant popular discourse is one squarely focused on screens as harmful to children and society in a myriad of different ways. This paper provides a timely account of these contradictions and tensions as a means of informing a contextual understanding of the backdrop for everyday parenting decisions about children and screen-based media.

Background

Research trends reflect public concerns and indeed researchers from diverse fields seek to document children's use of screen-based media and establish links between this use and varying outcomes (Messenger Davies, 2010). This research builds on longstanding and continuing bases that have asked questions about children's relationships with other forms of media, particularly television (Himmelweit, Oppenheim, & Vince, 1958; Schramm, Lyle, & Parker, 1961). This body of work is now shifting and adapting to include the unique role of contemporary devices that are mobile, pervasive, internet enabled and that offer a wide range of media content used for both entertainment and education (Lemish, 2015).

Along with this academic interest in the relationships between varying forms of screen based media and childhood, has come public interest and commentary about the role of screen media in reducing the quality of children's lives (Palmer, 2015), and their cognitive functioning (Greenfield, 2015). The moral panic about children and newer forms of screen based media has itself been covered by the news media (e.g., The Guardian, 2017).

However, there has been a dearth of research looking at contextual factors that shape, and mediate, the relationship between child and screen (Vandewater, 2013). One such contextual factor is the role of parent attitudes toward screen-based media. These attitudes impact children's screen-based media use and associated outcomes (Chaudron, 2015; Cingel & Krcmar, 2013; Lauricella, Wartella, & Rideout, 2015). A number of factors, including traditional and social media, may inform parent attitudes and therefore parental behaviour in relation to screen-based media (Lemish, 2015).

Media representations of childhood contribute to culturally specific constructs of what a good childhood should be and relatedly, what a good education should do (Drotner, 2013). "Childhood" itself is a discursive construct (Selwyn, 2003), that is "interpreted and represented according to historical, social, cultural, political and economic contexts" (Olson & Rampaul, 2013, p. 23). The relationships between screen-based media and the contemporary discursive construction of childhood are poorly understood.

Realities and ideologies portrayed in media discourse have great power in shaping public opinion, in defining the objects of discussion and demarcating boundaries of debate (van Dijk, 2014). Media are also a significant means by which the knowledge and "truth" generated by "experts," for example on child development, is delivered to parents (Messenger Davies, 2010). When media conforms to the kind of content seen with media panic, as it appears to be in this instance, it is crucial to consider the ways that this may impact parents (and therefore children) in terms of influencing not only culturally specific constructions of what a good childhood and good education look like, but also the way that the technology itself is represented. The mapping

and defining of these varying presentations provides much needed ecological context to attempts at understanding the role of screen-based media in children's development. As Vandewater (2013) laments, "it seems rather obvious to state that children's use of media and exposure to media content does not happen in a vacuum" (p. 51) but research in this area often does not take into account the broader social context and the ways that this may influence family level factors.

Social media comments

Traditionally, these presentations by media have occurred in a largely unidirectional manner, wherein producers and editors select information for consumption by consumers. Social media alters this dynamic, permitting consumer to consumer presentations, radically altering the contexts in which realities and ideologies are shaped by public discourse. Social media allow consumers to contribute to the process of defining the objects of our knowledge by a variety of means including "commenting." This produces content that is publicly available and produced by "the public" but nested within media corporations and delivered via profit driven, privately owned platforms.

Social media comments have received attention from scholars interested in identity (Seargeant & Tagg, 2014), self-esteem and well-being (Reagle, 2015), the construction of social norms (Carter, Gibbs, & Arnold, 2015) and their function as a site of harassment, particularly of female journalists (Gardiner et al., 2016). However, there has been little attention given to their potential as sites of meaning-making and ideological manoeuvring in relation to children and technology. The current paper looks at a particular form of comment – that is, comments made in response to a post by a formal news agency. In this way, they represent a particularly interesting site. A scene set by a powerful media agency but then handed over to "the public" for debate.

This study gives a situated account of the discursive constructions of childhood, the role of education, and screen-based media, in a sample of the everyday language of Australians on social media in late 2015. It also gives structure to the breadth of ideological stances relating to children and screen-based media present in this genre of discourse in this place and time.

Discourse analysis

The form of discourse analysis used here is underpinned by a social constructionist approach, which sees language as fundamental in the shaping of commonly understood, culturally specific constructs (Yates, Taylor, & Wetherell, 2001). Discourses are sets of language that define and produce the objects of our knowledge, including social groups like children, and give us scope for interpreting and regulating the behaviours of those groups (van Dijk, 2014). Commonly understood, culturally specific discursive constructs change and adapt over time, and discourse analysis asks how language works ideologically in response to social change (Fairclough, 2001). In this case, the contested social change is in the form of challenges to traditional romanticised notions of childhood in the face of increasing technologisation of society.

The data used to provide this mapping and structuring of the discursive constructions of childhood and the role of education in relation to screen-based media, were 711 comments

made in response to a Facebook post by the Australian Broadcasting Corporation (the ABC) in November 2015. The ABC is Australia's state broadcaster and produces a range of content including news. The post, attracting this relatively high number of comments, referred to a news story about one primary school in the state of New South Wales that was about to make iPads compulsory for its kindergarten students (children aged 4 and 5). The post asked: "Do you think tablets and laptops should be compulsory in primary school?" (Australian Broadcasting Corporation [ABC], 2015). Comments spanned a wide range of topics related to children, the role of education, screen based media and technology. It was clear that in answering a question about iPads in classrooms, many people found it necessary to talk about screen-based media in spheres much broader than education and to relate screen-based media to technology in a broader sense.

Procedure

All comments were copied into an online rich-text coding programme called "Saturate.app" (Sillito, 2013). Facebook allows users to alter the order in which comments are presented, and the comments analysed here were presented in "Top Comments" order (comments with the most "likes," and replies to these comments, are presented first). *Replies* to comments were coded in their own right, but with attention given to their interaction with other comments where appropriate (e.g., where meanings of words, or statements of fact were contested between users).

Codes were assigned initially at sentence or lexical item level, based on subject matter, word function or discursive feature. For example, the comment: "when are they going to learn to write? I know a few children in 6th and high school that still print" was coded as: handwriting, mutually exclusive, knowledge validation and role of education. Codes were assigned by the first author and reliability was established through discussion and critique of the codes and coding procedure by all authors.

After this initial coding, authors concurred that the most relevant, timely and interesting dimension of this corpus was the varying and apparently often contradictory ways that children, education and technology were constructed by different commenters. Therefore further analysis focused on those 418 comments which offered some statement relevant to these constructions.

Throughout this pool of comments it became clear that three main stances were being drawn upon when talking about children and screen-based media both in education specifically, as the post had referred to, and in general broader spheres. These stances are conceptualised here as "interpretive repertoires," described by Potter and Wetherell (1987) as: "recurrently used systems of terms used for characterizing and evaluating actions, events and other phenomena" (p. 149).

Results

The repertoires enacted in this data have been labelled: The Status Quo, The Balance, and The Future Focused repertoires. In the following presentation of these repertoires, comments (or extracts from longer comments) are provided to serve as *typical* examples of the way that childhood, education or technology were constructed in each repertoire. Individual word choice

has been detailed in some extracts as a way of unpacking in more detail how varying constructions are formed.

The status quo repertoire

This set of discourse dominated the body of comments, featuring in 269 of them. This shows a persistent dominance of the pessimistic pole of the debate about children and screen media in popular discourse and a desire to maintain the status quo (Drotner, 1999). In this repertoire, clear boundaries were formed around constructs of childhood, education and technology. Screen media was constructed as largely negative and therefore the introduction of screen-based devices to young children was seen as potentially harmful. Childhood was constructed in this repertoire as a phase of human life where tactile, sensory, embodied experiences should be maximised. The following extract is typical of the way that “good childhood” experiences were constructed in the Status Quo repertoire:

Really bad idea. Young children should have hands in dirt, climbing trees, learning to take risks. Play based education should be the norm for this developmental age group.

This comment was posted directly in response to the ABC’s post (it was not a reply to another comment). It prescribes explicitly what children “should” be doing and what form education “should” take for this young age group. Implicitly, it constructs technology as incompatible with “play” and sets up physical contact with “dirt” and “trees” as the *right* kind of experiences young children require. This format where prescriptions about what good childhood *should* involve, with either an implicit or explicit statement made about iPads not offering this, or actively detracting from it, were present in 15 of the Status Quo repertoire comments.

Children here were constructed in line with traditional models of childhood, as dependent on adults for guidance through set universal stages of physical and cognitive development (Marsh, 2010, p. 10). Many comments mentioned negative effects of screen time at a cognitive or neurological level. For example, the following comment was one of 16 replies to a comment asserting that iPads in kindergarten classrooms was a “bad idea” because “Even Steve Jobs refused to let his own kids have an iPad & iPhone.” After this came the comment “And Steve Jobs is the arbiter of all things? His kids don’t need to compete to make a living,” which drew this response:

It’s not about whether Steve Jobs is the arbiter of all things. The point being made is that those people who invented and developed tablets, smart phones, and the like specifically choose not to give them to their own children, because children don’t need them – and all the research shows that it’s detrimental for the development of children’s brains. (If you specifically want details of the research, I’ll hunt it up for you. I just don’t have it in front of me right now.)

Seven comments specifically mentioning harm to “brains” caused by iPads, such as this one, were qualified with reference to “research” in order to provide an expert, epistemologically legitimate (Gieryn, 1999) validation to the reality presented in the comment. In the comment above, the writer’s self-proclaimed knowledge of “all the research” is used to provide weight to their earlier affirmation of the claim that “people who invented and developed tablets” choose to not “give them to their own children.” “Research” saying that technology has not been “proven” to aid attainment of educational outcomes was mentioned in a further 11 comments within this repertoire.

Good primary level education, in this repertoire, was constructed as the teaching of “basic skills.” The most commonly mentioned basic skills in these comments were reading and writing, particularly handwriting. That is, traditional literacies which are understood to be fundamental to later skill and knowledge acquisition. Sixteen comments in this repertoire mentioned the need for learning to be ordered sequentially, with a well understood hierarchy of what skills must be mastered before moving on to higher order skills. The ability to write with pen and paper, and to read, was given great weight and was portrayed as being at risk if iPads become a regular feature of the classroom. The following comments, both made in direct response to the ABC’s post, provide representative accounts of what “the basics” are:

No, they need to learn the basics first, like write(sic), reading and mathematics. So many kids can still not do basic maths or spell properly in high school. We are failing children by not getting the basics right.

Surely little children need to learn basic things like drawing, writing, running around, paying attention, being kind to their fellows rather than using a tablet?

As well as defining “the basics” (writing, drawing, reading, mathematics and so on), and positioning them as a necessary, fundamental base (children “need to” learn these *first*), these comments also exemplify how the acquisition of these skills was constructed in this repertoire as mutually exclusive with tablet use. This is clearest in the second comment where the words “rather than” provide an unambiguous explication of tablets as unable to provide opportunities to learn “basic things.”

Technology and screen-based media devices were generally constructed in this repertoire as monolithic negative entities with agency and great power to change children and society for the worse. The following comment (made in direct response to the ABC’s post and not in reply to another comment), is a particularly illustrative example of this:

Computers in general have done more harm to student learning than good. They have bastardised the research process, shortchanged appropriate proof reading and revision and allowed students to be distracted by other online activities when they need to be doing an assignment. Apart from some very selective activities, I’d get them the hell out of school, especially primary schools. They are time wasters, child pacifiers.

The use of the word “they” and the assertion that “computers in general” have caused harm, illustrates one way that technology used by children was constructed as a single unified entity. An entity that, in and of itself, has “bastardised” and “shortchanged” important elements of a good education. The use of the word “bastardised” is a powerful and telling choice. This is a word that indicates corruption, contamination and ultimately a devaluing of education by technology. In this way the author sets up two countering versions of education, past and present, the former being one that is valued, worthy and correct, and the latter being a lesser, depreciated form. “Computers in general,” in this repertoire, bear responsibility for this reduction in the quality of education.

Apart from this construction of screen-based media, or technology in general, as being harmful to the quality of education, comments in this repertoire also mentioned other forms of harm. These included the causative role of screen-based media in individual level physical harm as well as in marring the quality of social interactions and indeed a diffuse effect on “life” in general. This comment (made in response to the ABC’s post, not a reply to another comment), is notable within the body of comments in the Status Quo repertoire for its extreme and direct implication of technology as a destructive force:

Technology is slowly burning our eyes, destroying social interaction and our normal way of life.

Whilst offering a particularly extreme construction of reality, this comment is not isolated in terms of constructing “technology” (or “screens,” or tablets or iPads) as directly responsible for varying forms of harm to “our normal way of life” – to the status quo. These forecasts of varying forms of harm, coupled with the construction of children as particularly at risk of this harm, make the assertion that children should not be using screen-based media devices in education, and ideally not at all, appear common sense.

Future Focused repertoire

The Future Focused repertoire was the second most dominant repertoire in this data, enacted through a total of 91 comments. However, this repertoire was largely shaped by, and contributed to, by one user who wrote 31 comments in total, some in response to the initial post, and some as part of a string of replies to other comments. The strongest point of difference marking this repertoire, was the way that children, in this version of reality, were constructed as the collective future versions of themselves. This is in contrast to the almost static, immature, “close to nature” beings that were talked about in the Status Quo repertoire for example. The following two extracts are taken from longer comments made by one individual in response to two different comments by other users. These extracts are shown as examples of the way that children were constructed in the Future Focused repertoire:

These kids will be creating the next app, the next medicine the next x science breakthrough ...

Our kids are the best to learn and create now, for all our futures. (*sic*)

These two comments are typical of this repertoire in that they made clear direct connections between the kindergarten children of today and the adults of the future who will harness the good of evolving technology to benefit “all our futures (*sic*).” With this futuristic viewpoint, children therefore bear a weight of responsibility that is not evident in the other two repertoires.

Additionally, children in this version of reality were constructed as agentic and in possession of more power than in the status quo repertoire. Rather than passive receivers of experiences provided by adults, they are active participants in their lives who communicate with adults about what “works” and what does not. This construction of childhood is in keeping with new sociological models of childhood, where children are seen as active participants in their own, and broader, “social worlds” (Marsh, 2010, p. 13). The following comment was made in response to another user who had questioned the “unknown Wi-Fi health problems” associated with internet enabled devices:

I do agree that we don’t know all health issues, but we don’t know that for many things, but that doesn’t stop us. Our kids will tell us the problem and solutions if we let them go crazy with science and technology

As this comment illustrates, in the Future Focused repertoire adults have responsibility too. It is up to us to overcome any fear of change in order to allow children to learn how to use technology in effective and innovative ways to solve meaningful problems.

The role of education shifted quite dramatically in this repertoire with focus largely on cognition for solving problems rather than output such as handwriting, which was portrayed as becoming obsolete. There was much less mention of “basic skills” and their importance or relevance was therefore apparently diminished by omission. Education, according to these comments, must

prepare children with *ways of thinking* that will be useful in economic structures that value information and ideas more than physical labour which will be increasingly automated.

Screen-based media use by children was, in this repertoire, not surprisingly, constructed as largely positive. Somewhat ironically (in light of the antithesis in the Status Quo repertoire of technology in relationship to anything “natural”), the use of “new” technology in education was seen here as logical and as part of a natural progression. The below comment was made in reply to a user lamenting the loss of handwriting and outside play:

The times they are a changing ... No one chisels in stone or writes on papyrus anymore, either. And how about that newfangled printing press.

Several comments, like this one, made reference to other technological developments and how, for example, writing on paper, is accepted as appropriate and not harmful to children, but was once “new” technology too. Therefore screen-based media slots into concepts of childhood without the resistance or friction that is evident in the Status Quo repertoire.

Balance repertoire

The interpretive repertoire we have labelled the Balance repertoire, was the least prevalent set of discourse in the data, present in 58 comments. Constructions of childhood, education and technology were fundamentally very similar to those formed in the Status Quo repertoire. The key point of difference was that there was an explicit focus on a construction of a reality where screen-based media use is *not mutually exclusive* with any of the core attributes of good childhood or good education. The construct of childhood here was robust enough to include some screen-based media use without any major degradation. The example comment below came in response to another comment stating that iPads in classrooms should not be allowed because this is akin to not allowing “children to be children.” The meaning of “being a child” was therefore actively contested in this brief, but illuminating exchange:

Children being children doesn’t mean being a slave to pen and paper either. The problem is people are acting like one will get rid of the other, having access to technology doesn’t automatically negate the desire to go outside, to play or to do anything else.

This captures the premise that, in contrast to the reality presented in the Status Quo repertoire where the introduction of technology necessarily entails the formation of a new, separate and inferior childhood experience, the introduction to technology in classrooms does not wipe out all other pre-existing elements of “good” childhood. It also hints at children having slightly more agency, with the word “desire” being used to explain the means by which valued aspects of childhood such as going outside or playing, are not “automatically” at the mercy of technology.

The construction of the role of education in this repertoire focused on “basic skills” (as in the Status Quo repertoire) but some allowance was made for those skills being developed with the aid of technology. Within this repertoire there was the emergence of discourse about digital skills and digital literacy which were absent in the Status Quo repertoire. The following excerpt, from a longer statement that came near the end of a thread of 20 replies to one comment saying tablets might be acceptable in high school but not in kindergarten years, serves as an example of this. The discussion up until this point had covered varying points of view on whether literacy skills would suffer if tablets were used in classrooms:

No one is saying put down the books and pens but it is quite obvious that if students aren't competent with technology then they will struggle to get jobs in the future which is why it is essential that basic IT skills and programming is taught as early as possible!

Predictions about future careers are linked here with the need for digital skills, particularly "programming," which are constructed as fundamental elements to the role of education today. The comment also illustrates a reflexive stance on the debate about technology in education by putting forward an extreme version of events, where books and pens are abandoned in favour of technology based learning, within a statement that is essentially distancing the commenter from this extreme position whilst advocating for the inclusion of technology in early education.

Other comments in the balance repertoire constructed screen-based media and technology as just one element of effective education and/or as enriching to teaching more generally, without specific mention of digital skills. For example, this statement comes from a longer comment, made directly in response to the ABC's post, and talks of "a range of teaching tools":

I think it is great as long as it is part of a range of teaching tools and if it is used to complement quality teaching.

This particular comment also mentions "quality teaching." In contrast to the Status Quo repertoire, where teachers were portrayed as at risk of being made irrelevant by technology, here the role of teacher exists alongside new devices and methods. In much the same way that "childhood" can adapt to include the use of screen-based media devices, so too can teaching practices. Screen-based media devices were constructed as potentially augmentative to teacher led learning experiences and childhood in general, as in this next example:

We've had them at my children's kindergarten for some time now. They have been an excellent addition to the program, they are rotated in and out of the program at different times, the children have limited time and take turns without a problem. They are no more or less popular than the traditional toys/activities/craft/drawing etc. Technology is an essential and inevitable aspect of education.

Screen-based media in this repertoire was presented as a necessary part of life and therefore as something that should be part of our children's lives – albeit in controlled doses. As the above comment alludes to, children's use of technology was commonly understood in this repertoire to be something that needs parental or teacher regulation and monitoring. Several comments explicitly mentioned that screen-based media devices should only be used for set periods of time, with several specifically referring to the 2 h maximum recommended time limit proposed (and now under revision) by the American Academy of Pediatrics (2013).

Discursive motifs

We have outlined three interpretive repertoires that give structure to the range of stances on children's use of screen-based media present in this sample of popular discourse. Running throughout the entire body of discourse, and used in differing ways within each repertoire, were several discursive motifs. We will now describe two of the most dominant motifs, those mentioning varying forms of *loss* and those utilizing a *virtual versus real* dichotomy.

Loss

Discourse about loss, of varying forms, permeated the body of comments. Loss featured in several ways in the Status Quo stance, often providing an emotional valence to commonly

understood consequences of young children using screen-based media. Because screen based media, in this stance, was constructed as something negative and harmful, particularly to children's physical and cognitive development, the sense of loss appears congruous and appropriate.

The comments as a whole, illustrated that there is a pool of skills and abilities that are commonly understood to be at risk in some way from children's use of screen-based media. This pool of consequences was frequently drawn upon to legitimate a cautious stance on children and screen-based media. These fall into losses of particular skills, such as handwriting and social skills, and physical harm, such as changes to brain structures or damage to eyesight or posture. The attributes at risk of loss were talked about in this data in notably different ways. Neurological and cognitive harm or loss was often supported by mention of "research." Other forms of loss, such as loss of social skills, or damage to eyesight, were left without such validation and were positioned as meaningful and representative of the "truth" in a standalone ideological manner, as in the following example, which was part of a thread of 16 replies in response to a comment saying that iPads should be compulsory in kindergarten classrooms:

I have been mentoring graduate recruits in my workplace. I think many of them have ADHD. I tell them to look up legislation on a particular topic and when I swivel my chair to look at their screen, they are on social media sites. These are smart people but the least productive because they have lost the ability to concentrate thanks to over exposure to technology.

A causative relationship is presented here between "over exposure to technology" and the loss of the ability of otherwise "smart people" to concentrate. This negative consequence is given tangible meaning by linking lack of concentration with lack of productivity. These relationships were stated as a matter of factual knowledge, and the meaning of the comment is certainly clear without any detailing of the mechanism of the relationship between technology and concentration.

Handwriting, the need for it, and the ways its function might change, or assertions about its impending irrelevance, were present in 57 of the total number of comments. In the Future Focused repertoire the loss of handwriting as we know it was not a negative, but a natural kind of process of obsolescence where one skill will be replaced with another.

In the Status Quo stance however, handwriting was given such precedence that the perceived dramatic reduction in its value was notable and often accompanied with emotive negative language, as in this example, written in response to the ABC's post directly:

The beginning of the end to writing and text books as we know it. Eventually we can forget about handwriting altogether! Sadly we are becoming too reliant on such technology.

Despite the lack of any specific mention of children in this comment, talk about how "we" are edging toward "the end," where handwriting will be forgotten, is in keeping with this "loss" motif. This is portrayed as a result of our reliance on technology, which lessens, and eventually will completely erase the need for handwriting. The framing of this scenario within the negative emotion of sadness affirms that this loss is indeed a bad thing.

Relatedly, loss of traditional literacy skills in general was a commonly understood inevitable and upsetting consequence of children using screen-based media for large amounts of time either at home or in educational settings.

Other, more obtuse forms of loss were also mentioned, such as a loss of *childhood itself*, where young children using screen-based media was presented as not allowing “kids to be kids.” Additionally, screen-based media by children was framed as a *loss of time* spent on more worthy pursuits (that is, activities associated with the version of “good childhood” constructed in the status quo repertoire, such as spending time physically interacting with the environment, using a pencil and paper, or engaging in face to face interaction with other people). This notion of displacement, has been a standard feature of debates about children and screen-based media since at least the 1950s (Schramm et al., 1961). As the following excerpt from the current data indicates, loss is not only forecast for individual children as a result of the wrong amounts of screen-based media use, but for society as a whole:

There is limited time in the day. How that is spent takes time away from other things. The guidelines are very clear that no more than 2hrs of screen exposure (tv, computer, tablet etc) is suitable for a child. This must be a factor when deciding these things. And with such a crowded curriculum, increasing use of technology will push out other things, and children and society will suffer.

Comments about this form of loss often invoked the word “generation” to link the experiences of children now to adults of the future. For example, “It will result in an entire generation with poor vision and poor posture.” Use of this generation wide discourse further solidifies the scale of the problem and makes screen-based media use by children an issue for *everyone*.

Virtual vs real

The distinction between “real” and “virtual” interactions and activities featured strongly in the Status Quo interpretive repertoire. Despite the contestation of these categories in academic discourse, in this sample of popular discourse the boundaries around “virtual” and “real” experiences were structured as concrete and unproblematic.

Childhood, as we have seen, was constructed in this set of discourse as a distinct phase of life where closeness to and connection with nature and other people are beneficial to the child now and in the future. The virtual-real dichotomy was used to augment the preference for natural, sensory, embodied and human-human interactions of early childhood experiences that do not involve screen-based media. This version of reality rests on a series of presuppositions, outlined by (Soraker, 2012) about the inherent value of an experience, for example the notion that social interaction with others is a crucial part of optimal childhood development, and that virtual worlds do not offer opportunities for social interaction, or at least social interaction of comparable *value* to real world interactions. The following comment, made in response to the ABC’s post directly, clearly made use of these presuppositions, with an either/or presentation of the relationship between virtual and real worlds:

Children in kindergarten need to spend time building social skills not lost in the ether.

Either, children can be “building social skills” or “lost in the ether.” The preference for the real, where social skills can be built, is made imperative by asserting that children “need to” be doing this and this is reinforced by describing the alternative as “lost in the ether,” which implies that when children interact with virtual spaces they are somehow in another plane of existence, which is separate and not fully understood therefore “lost.” It also relies on another of Soraker’s (2012) presuppositions, that is, the idea that virtual activity, as well as being inferior to the real,

actively detracts from the real therefore representing a kind of doubly undesirable state of affairs.

Discussion

In negotiating social change brought about by technology, children occupy central roles. Selwyn (2003) notes that:

Children and “childhood” have been long established as discursive sites through which adults can conceptualize and (re)construct past, present and future aspects of society. In this way the notion of the “child” acts both as a nostalgic and futuristic device through which societal changes are portrayed and discussed in popular and political arenas. (p. 351)

The temporality that Selwyn notes was strongly present in the current data. Constructions across all repertoires made significant use of idealised notions of present, past or future realities in answering the initial question about whether iPads should be used in kindergarten level education. Romanticised notions of the child innocent being threatened by screen based media, which is commonly understood to be harmful at an individual level and also at a societal level, jar against futuristic predictions of benevolent technological change and the role that the children of today, and their caregivers, have in ensuring those predictions come to fruition.

The comments analysed here also show an enduring persistence of a binary panacea versus affliction discourses in constructions of children’s use of technology, particularly screen-based media, what Drotner (2005) calls “discursive dichotomies” (p. 40). We see in this sample of the everyday language of social media comment, two distinct and largely opposing constructions of childhood and of technology. Children are at risk of having their childhoods completely erased by technology and simultaneously, are hailed as future masters of the technology that will redeem humankind. This contrasting set of realities gives real-world backing to Jenkins’ (1998) positioning of children as “caught somewhere over the rainbow – between nostalgia and utopian optimism, between the past and the future” (p. 5).

However, the Balance repertoire seen in the current data, which constructed realities not necessarily at either pole of the dystopia/utopia scale indicates some shift away from the binary. Perhaps this is a function of the affordances of social media as a site of discourse. Moral panics of the past have thrived through profit making media outlets and sensationalised newsworthy information. The intersection of news with input from members of the audience, in the current participatory media context, allows not-so-sensational accounts and information, to become a part of the debate.

The current analysis also confirms that the debate about the role of screen-based media in children’s lives is emotional and ideological. This again echoes previous media panics in response to new technology (Drotner, 1999). Media exposure is constructed as something that can and should be controlled by parents, with “good” parenting involving careful management of screen-based media exposure in terms of content and quantity (Willett, 2015). It is also commonly understood that early childhood experiences have significant impact on physiological, neurological and psychological outcomes (Messenger Davies, 2010). This means that parenting is a high stakes endeavour with significant consequences that concern not just individuals, but society as a whole. The strong emotive language used in the majority of the comments seen here, and the dominance of perceived negative consequences in relation to any positive, gives

context to the observation that parents make decisions about screen-based media use by their children with harm reduction a key consideration (Chaudron, 2015).

As Messenger Davies (2010) points out, the debate about children and media is also fundamentally political. The political appears more acutely felt now with technology and screen-based media being used in mainstream *early* education. We now have discourses not only about kids' media use outside of school hours IT classes in the later school years, but also about very young children using these devices as part of their formal education. The perceived inferiority of technological devices as a means of teaching traditionally valued "basic skills" and to some degree concern about the potential reordering of what skills form the foundations for later education, featured strongly in this sample of popular discourse.

Whilst there has been longstanding academic interest in the use of television in early years education (e.g., Schramm et al., 1961), the progression of "new" devices into formal education adds an additional layer of complexity. The interactivity of these devices appears key in the divergence of debates and tensions regarding television and other screen-based media, such as iPads in early education (Radich, 2013). This is different to concern about older children being taught to use computers in later education, in part because younger children are seen as more vulnerable to the ill effects of screen-based media (Livingstone, 2007).

This appears to be not just concern about lack of control over device use, but also an uneasiness about a forecast reduction in *value* ascribed to the kinds of literacy that have for the last several hundred years been seen as fundamental to all other skills. Indeed, this kind of concern is mirrored in discourse about teaching methods and forms part of the "literacy wars" playing out in Australia (Snyder, 2008). Reports of falling literacy levels and what to do about them have become somewhat of a media panic themselves, with discussions of what literacy *means* in the twenty-first century core to the debate (Snyder, 2008).

This discourse about technology and screen-based media infiltrating formal education falls within a broader political context where technology is touted as both something that will foster economic growth (via "innovation") and also something that could potentially provide the means for an alternative economic structure altogether. For example, predictions of a shift toward new economic models such as "postcapitalism" where "cognitive capital" is greatly valued and core to the functioning of a networked society (Mason, 2015). The version of reality constructed throughout the Future Focused repertoire in the data analysed here aligns closely with these broader popular discourses.

The kind of language used in the Future Focused comments analysed here is also very similar to that used by the Australian Government in the promotion of its "National Innovation and Science Agenda" (Commonwealth of Australia, 2016). As Selwyn documented in 2003, children feature strongly in government attempts at promoting technology. Indeed, a video advertisement for the Innovation and Science Agenda features frequent shots of children engaged in varying forms of screen-based activities, and finishes with a zoomed in shot of a new-born infant with the voiceover saying "welcome to the ideas boom." The website for this agenda also has a section called "Embracing the Digital Age," which, under an image of some children peering joyously at an iPad, describes how education focused on digital technology contributes to economic growth:

Ensuring the next generation of students have the skills needed for the workforce of the future is critical to ensuring Australia's future prosperity and competitiveness on the international stage ... (coding) is a powerful and engaging tool that teaches kids to think and problem solve while acquiring an understanding of how technologies can work for them. (Commonwealth of Australia, 2016)

The dominance of the Status Quo repertoire in the everyday language of Australians on social media in contrast with the dominance of the Future Focused repertoire in the language of the Australian government, represents a significant discord that clearly indicates flexibility in discursive constructions and how these serve to promote or restrain varying ideologies in processes of social change.

These contradictory versions of reality have an impact on parents who are told on the one hand by one group of experts, and one set of media discourses, that "screen-time" is something inherently dangerous for children and that it must be monitored and controlled to avoid harm from overuse. And on the other, by another group of experts (teachers, principals, education policy-makers), and politicians, that these devices synonymous with "screen-time" are also crucial components of quality twenty-first century education (AVG, 2014; Green & Holloway, 2014). Media and child development scholars must acknowledge and consider these mixed messages when seeking to decode the relationship between child and screen.

Future directions

These comments and the corresponding realities they contribute to are representative of adult voices. We also must hear children speak about their relationship with screen-based media, their hopes and concerns, their construction of their place in an increasingly technologised world.

Other sites of public and private discourse should also be given attention as a means of gaining further insight into the contextual features of the broader space in which children use screen-based media. Relatedly, the discourse of parents as a group rather than "the public" could be mapped from this perspective.

Conclusion

We have outlined here, through an analysis of the language used on social media, an account of the way children are predominantly constructed as "innocents" in need of protection from screen-based media. Media and technology in general, are correspondingly constructed as responsible for potentially pathological damage to children, and to society as a whole.

We have demonstrated the emergence of new popular discourses of fear and loss in response to changing media and technology landscapes where screens are now common tools in education, including, as discussed here, early primary education. This infiltration of the objects of fear ("screens") into legitimate, highly regulated and policy driven spaces such as kindergarten classrooms, prompts intensified concern related to increased total screen time, as well as new discourses about the predicted decline in focus on traditionally valued skills in education and the reordering of value ascribed to particular skills, both at an individual child and a societal level. This has shown that the debate about children and screen media is not entirely static. Rather its form morphs according to the socio-cultural and historical context that surrounds and informs it (Drotner, 2013).

The contrast between this popular discourse of concern and the coexisting political discourse of hope and positive change, which informs education policy and practice, highlight the existence of two contradictory realities, which parents must somehow reconcile in their everyday parenting decisions, and which researchers interested in children and media must be cognisant of.

Disclosure statement

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Chapter 5 Study 2a: A survey of children's digital play

In the following two chapters I present findings from Study 2 of this project. Study 2 was a survey of parents about the digital game habits of their children and also their thoughts on Minecraft specifically. Findings are presented in the form of two publications. The first is presented in this chapter and deals with *quantitative* findings and the second is covered in the next chapter and deals with *qualitative* findings.

The publication in the current chapter is:

Mavoa, J., Carter, M., & Gibbs, M. (2018). Children and Minecraft: A survey of children's digital play. *New Media & Society*, 20(9), 3283–3303.
<https://doi.org/10.1177/1461444817745320>

The article is included verbatim. I led all stages of the research process and received input from my supervisors, Dr Marcus Carter and Professor Martin Gibbs in the writing of the paper.

5.1 Introduction

In the previous chapter, findings regarding the broad discursive *Cultural* context of how children and technology are constructed were presented. Now, in the current chapter, focus narrows to digital play as a form of technology use. The survey conducted for Study 2 of this thesis deals with the *Technological* context of Minecraft play and the attitudes of parents towards Minecraft. In the current chapter, the technological context of Minecraft play is addressed. In the next chapter, Study 2b, I deal with parental attitudes towards Minecraft. Below I outline the background, justification, and findings from the quantitative component of the survey. I also outline the overall survey method used in this section, and that information is not repeated in my prefacing of Study 2b.

Part of the context for children's Minecraft play is the technological context, that is, the way that Minecraft is a game title that exists alongside other game titles, played on devices purchased by parents, and within transmedia structures including YouTube, also accessed on a range of devices. The statistical information reviewed in section 2.3 (pages

25 – 33) helps give an idea of the role that technological devices used for playing games have in a range of childhoods. We know that not all children play, that rates of play and time spent playing increase with age, and that there are significant persistent gender differences in rates and time spent playing. However, what is missing from this body of work, useful as it is for giving an overall view, is information about *what* children are playing on digital devices. Scholars have recently advocated for a much more nuanced approach to collecting information about children’s ‘screen use’ including their digital play (Holloway et al., 2013; Houghton et al., 2015; Przybylski & Mishkin, 2016; Straker et al., 2013) and one way of gathering more accurate information at a statistical level is by asking about titles played.

The aim of this thesis is to understand children’s digital play within layers of context, and knowing what titles make up the contemporary pool of cultural technologies of gaming is an important part of this context. The survey asked questions about digital game habits in general and then some Minecraft specific questions. It is the responses to the Minecraft specific questions that are included in the publication. I asked Minecraft specific questions because the information reviewed on pages 55 - 62 and other anecdotal information indicated that it was a title dominant in many children’s digital play repertoires for a variety of possible reasons. The reasons for publishing the Minecraft-related information were that the survey results provided striking statistical evidence of Minecraft’s popularity with children that previously had not been quantified, and the findings serve to situate the rest of the thesis findings within a group level account of Minecraft’s place in children’s overall digital gaming repertoires.

5.2 Situating this paper within the thesis

The quantitative findings from Study 2 fit within the overall structure of the thesis by addressing the layer of context I have labelled the *Technological* context in my use of Bronfenbrenner’s model (**Figure 1**, p. 83). Study 1 found that ‘screen time’ is constructed as often incompatible with ‘good childhoods’ and findings presented here, in the current chapter, show that despite this broader ambivalence, many childhoods feature digital gameplay, and much of this is Minecraft play. The second part of study 2 (presented in the next chapter) shows how parents assess Minecraft in generally positive ways although

ambivalence reflective of the broader discourses found in study 1 also features in the ways that parents talk about Minecraft. Taken together, these findings describe a context where digital gameplay devices and titles exist as features of many childhoods alongside constructions of them as potentially problematic to ‘good childhood’.

5.3 Methods

In section 3.4, I explained that this thesis has used a range of methods in order to gain a comprehensive understanding of children’s everyday Minecraft play. Study 2 used a survey to generate data. This was done to capture a group level picture of Minecraft play to complement the smaller scale and more rich, fine-grained information collected in Study 3 in relation to individual families. I had read many large-scale surveys regarding children’s screen media use (reviewed in section 2.3, pages 25 – 33) and noted that they had benefits in terms of providing ‘the big picture’ but did not ever ask about individual titles. This meant that, as I explain in the paper, the information had limited usefulness.

In the survey for Study 2 of this thesis, some questions required participants to select answers from a limited range of options, for example, questions about age and gender and others asked for open-text responses. This meant that both quantitative and qualitative analyses were used to generate findings from responses. The survey was delivered online using REDCap which is a secure, university hosted online data gathering and storage tool (Vanderbilt, 2016). Because I wanted parents of children aged 3-12 years to fill out the survey and had high hopes of obtaining a large sample size, I used early learning centres and primary schools as the primary mode of advertising and delivering the survey. This meant that the ethics approval process involved public and private education bodies as well as the University’s committees (detailed in the paper). Contacting schools and early learning centres was a time-consuming process and involved a lot of emailing, following up, and lack of response or refusal to pass on the survey to parents. I had underestimated how overwhelmed primary school administration staff were on a day to day basis. I also found that, particularly with the early learning centres, there was a reluctance to pass on the survey details to parents not just because of the administrative burden involved but also, as several centre managers told me, a sense that children in those younger years do not play digital games. So, while I’m speculating here, I do wonder whether the kinds of

discourses around ‘screen time’ described in Study 1 and in the literature review of this thesis had a role to play in the relatively low number of early learning centres that agreed to participate.

753 responses were eventually received, and the quantitative portions were analysed using SPSS (IBM Corp, 2013). Analyses were descriptive rather than inferential. Tests for differences between groups were performed and presented with corresponding confidence intervals. The University of Melbourne’s Statistical Consultancy service was of great help in ensuring that the presentation of findings was accurate and appropriate.

5.4 Summary of findings and contribution to existing literature

The paper tells us that Minecraft is a popular site of digital play for children aged 3-12; that it is most commonly played on tablet devices; and that there are gender differences in Minecraft play. To summarise, the main findings were:

- Minecraft was listed by parents as being one of their child’s current favourite digital games *three times* as often as the next most popular group of titles (Lego games) and almost half of the 753 responses said that their child had played Minecraft in the past week.
- 6-12-year-old children were much more likely than 3-5-year-old children to have played Minecraft recently.
- More boys than girls were regular Minecraft players in ages 3-8. Boys were more likely to play on console devices, to start playing at a younger age, to play in *Survival* mode and to watch Minecraft YouTube videos.
- Mobile devices, tablets, and smartphones were the devices most used to play Minecraft across all age ranges and genders.
- Most children play Minecraft most often in *Creative*, single-player mode.
- A large minority (37% of the sample) of children watched Minecraft YouTube related videos and this was more likely for older children.

These findings go well beyond pre-existing knowledge of how Minecraft features in contemporary childhoods. Existing work had advantages in terms of larger, representative

sample sizes but disadvantages in terms of a lack of granularity of information. Previous studies presented information about children's 'screen time' in lump sums heavily shaped by concerns with amount of *time* spent using 'screens' and did not specify in any great detail what children's screen use consisted of. The paper included in this chapter therefore contributes a more nuanced picture of a large number of children's Minecraft play, as one particular kind of 'screen time'. This information is useful for making claims about the presence of Minecraft in digital game cultures of childhood. It helps give an understanding of the technological context of Minecraft play and therefore supports the thesis aim of describing Minecraft play within context. However, it still does not tell us anything about what Minecraft play actually involves, what children actually do when they 'play Minecraft'. Study 3 (an ethnographically informed study of 10 families) therefore builds on this paper by providing this even more fine-grained view of children's Minecraft play.

5.5 Contributions to the thesis

These findings provide two main contributions to the thesis. First, they provide a picture of the way that Minecraft as a digital game title permeates 3-12-year-old Melbourne children's overall digital play repertoires. This forms part of the context of individual children's play, including the participants in study 3's Minecraft play. It means that I have confirmed that Minecraft is a significant part of the current digital gameplay landscape at a group level and therefore has a strong presence in childhood gaming culture. I also found that gender differences found in rates of play from larger studies are also a feature of children's Minecraft play. These findings are worthy contributions to literature in their own right (as explained in the paper). In addition, though, this knowledge contributes to the overall aim of this thesis by showing that Minecraft play and related knowledge are part of a pool of cultural referents and practices that are likely to in some ways inform opportunities for and the shape of Minecraft play. As already mentioned, therefore, it provides one view of the place of Minecraft as a part of the broader context of individual instances of Minecraft play. The second contribution is that the findings relating to age guided the design of study 3. Because the survey found that Minecraft play was most

likely in children aged 6-8, I included children in this age range in the ethnographic study

3.

5.6 Publication: Children and Minecraft: A survey of children's digital play

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Abstract

Digital games such as Minecraft currently hold a position of significance in the media diets of many children. However, little is known explicitly about just who plays, with whom and how. This article presents the quantitative results of a survey of 753 parents of children aged 3–12 years about their child's engagement with Minecraft. Our results establish Minecraft as the dominant digital game title played by this age group, particularly on tablet devices. We provide evidence of a marked early gendering of children's Minecraft play and engagement with meta-game material. This research gives particular impetus to efforts aimed at ensuring gender equity in digital game-related cultural spaces inhabited by children. It also highlights the importance of collecting game specific descriptive information, rather than limiting studies to aggregate measures of 'screen time'.

Keywords

Children, digital games, digital play, gender, Minecraft, survey, tablet devices

Introduction

With over 100 million copies sold, Minecraft (Mojang, 2011) is one of the most popular games ever produced. This enormous popularity has coincided with drastic changes in younger children's access to digital game play due to the ubiquity of tablet computing, the rise in popularity of digital game-related content on YouTube (MacCallum-Stewart, 2013), and the 'mainstreaming' of gamer culture more generally (Golding and Van Deventer, 2016). As a result, research ranging across education (Nebel et al., 2016), culture studies (Apperley, 2014; Potts,

2015; Willett, 2015), game studies (Dooghan, 2016) and psychology (Baek and Touati, 2017) has begun examining the Minecraft phenomenon, its impact and ways to leverage its potential benefits.

However, despite this attention, there has been a lack of fine-grained quantitative research on children's digital play in general (Holloway et al., 2013; Houghton et al., 2015; Straker et al., 2013), with many studies homogenising games as a subset of overall screen use (Przybylski and Mishkin, 2016). This is a significant gap, considering the growing interest in the benefits of children's digital game play (Beavis et al., 2017; Granic et al., 2014; Hayes, 2008; Toppo, 2015), the release of an education version of Minecraft (Microsoft, 2016a) and the linking of Minecraft play in particular (Hughes, 2017) with efforts to increase gender diversity in Science Technology Engineering and Mathematics (STEM) disciplines.

In this article, we present an analysis of children's Minecraft use, based on the results of a broader ($N = 753$) survey of parents about the digital game play habits of children aged 3–12 years (digital game play was defined as any game played on a digital device including video games, computer games and game apps). Our results show the strong dominance of Minecraft among children in this age range, as well as the dominance of the tablet as a game play device and the gendering of Minecraft play. We present our results following a review of related work, before discussing the significance and relevance of our findings, focusing, in particular, on how our results may assist researchers in reframing the narrative around Minecraft play, and digital play more generally, and as a guide for future qualitative work.

Background and context

Screen time

In a recent survey of Australian adults, excessive 'screen time' was rated as the top child health concern (Rhodes, 2015). In this context, children's digital game play exists within a unique and polarising discourse (Mavoa et al., 2017a). On one hand, digital games are, in popular discourse, associated with violence, addiction, antisocial behaviour, passivity and poor physical health (Ferguson, 2010; Mustola et al., 2016; Shin and Huh, 2011), while on the other, they are also associated with 'tech-savviness' and broader digital literacy skills (Mustola et al., 2016; Narine and Grimes, 2009).

In the face of these conflicting presentations, it follows that parents seek information about how to manage the digital play of their children (Holloway et al., 2013; Willett, 2015). However, guidelines specifically regarding digital games are sparse. In addition, up until recently, guidelines around 'screen time' in general have been heavily centred on time limits (Blum-Rose and Livingstone, 2017). This advice has recently changed. The American Academy of Pediatrics' (AAP) 2016 policy statement on children's media urges consideration of content and context as fundamental to questions about children's media use (AAP Council on Communications and Media, 2016). In fact, they suggest that the term 'screen time' is itself obsolete. This perspective is echoed and built upon by Blum Rose and Livingstone (2017) who state that what children do with their screen-based media 'cannot be homogenised as a uniform or inevitably problematic activity' (p. 27).

In keeping with this perspective, there have been calls to take a more fine-grained approach to the way quantitative information about children's general media use is collected (Holloway et al., 2013; Houghton et al., 2015; Straker et al., 2013). Advice about restricting media use tends to make connections between statistics on overall 'screen time' with research making claims about effects of media on children (McPake et al., 2013). The risk of this approach, when it comes to digital games, is that we miss crucial information about what type of play children are engaging in, as well as the 'social and cultural dimensions of use' (Plowman, 2016: 6).

Digital games

Ito (2017) argues that children have potentially missed out on opportunities offered by digital games because of the legacy of the AAP's previous time-based, non-content sensitive guidelines (AAP Council on Communications and Media, 2013). Referring specifically to digital games research, Przybylski and Mishkin (2016) urge researchers to delve into 'kinds' and 'amounts' of play. Their own findings show evidence of content, play-style and genre differences in relation to outcomes. This points to the need to gather detailed descriptive information about children's digital play in a nuanced, game-specific manner.

Prior descriptive information about children's digital game play outside of school hours has often been captured as a subset of information within broader media-use surveys, and using varying methods. For example, Rideout (2013, 2016) employed a device level down approach, asking about 'video game' usage (frequency and duration) based on the device used, in American

children aged 0–8 years (2013) and 8–16 years (2016). While Houghton et al. (2015) instead asked about game genres (e.g. ‘indie games’, ‘action adventure’ and ‘shooter games’) and specifically whether Australian children aged 8–16 years generally exceeded 2 hours per day playing ‘video games’. In the United Kingdom, the Ofcom (2015) media uses and attitudes report, capturing information about children aged 3–15 years, asked about devices used to play games (both with others and alone), amount of time spent playing and attitudes to in-game purchases but not about the types of game played.

Marsh et al. (2015) took a more nuanced approach in their ‘Technology and Play’ project. Although here, surveyed types of play were broken down into different categories (such as ‘creating virtual worlds’ and ‘role play’), potentially obscuring play with titles that include elements of more than one category. Holloway et al. (2013) further note that ‘virtual worlds’ lacks a consistent definition. Furthermore, complicating this task is the ambiguity of terminology about digital games in general (Apperley, 2006), where even genre classifications (e.g. those used by Houghton et al., 2015) are open to different interpretations by both participants and researchers.

While acknowledging the inherent difficulties in gathering descriptive information about children’s media use (Rideout, 2016; Vandewater and Lee, 2009), the lack of content and context details in these approaches increases the likelihood of a ‘reductive and narrow rejectionist agenda’ (Marsh, 2010: 25) in advice given to parents about managing their children’s digital play. Therefore, in our research, we sought to gather descriptive information by game title, allowing for more reliable description of children’s digital play diets. In this article, we present the results of our survey that specifically asked parents about their children’s outside of school hours Minecraft play.

Minecraft

Minecraft is a ‘sandbox’ video game first released to the public in 2009, where players control a virtual avatar in a Lego-like world made up of blocks that can be moved to construct buildings and used to create items and structures. Because of the multitude of play options both within Minecraft, and surrounding it in the form of modifications (‘mods’) which can be downloaded to add various alternative game play elements (Duncan, 2011), the game has the potential to appeal to a wide age range. This means that play can adapt as a child’s ability and interest develops (Ito, 2015). Based on its sales figures (Microsoft, 2016b), the US\$2.5 billion purchase

price paid by Microsoft for the title (Stuart and Hern, 2014), and the fact that ‘Minecraft’ was the second most searched for term on YouTube in 2014 (Lang, 2015), Minecraft is an established cultural phenomenon. It is a game particularly popular with children (Dredge, 2014; ETonline, 2015).

We also know that Minecraft is different to other successful titles because of its perceived virtues. These include purported educational affordances that have seen Microsoft release Minecraft.edu, a version of the game marketed as a ‘collaborative and versatile platform that educators can use across subjects to encourage 21st-century skills’ (Microsoft, 2016a); claims that the game itself helps children gain cognitive and social skills (Haxton, 2015; Ito, 2015); its likeness to Lego, a toy that has long held a reputation as being beneficial to children beyond instances of play (Smith, 2016); and because it is as much a setting for digital play as it is a ‘game’ (Lastowka, 2012). It is therefore not surprising that there is an emerging academic interest in the game, from a variety of different fields, though most notably education (e.g. Dezuanni et al., 2015; Kervin et al., 2015; Schifter and Cipollone, 2015) and culture studies (e.g. Apperley, 2014; Potts, 2015; Willett, 2015).

Yet, despite these benefits and the game’s apparent popularity, very little research has examined Minecraft specifically in terms of who plays, how and with whom. However, we are aware of two studies that have detailed some Minecraft specific results. Marsh et al., in their study of 0- to 5-year-old children’s use of tablet devices, found that Minecraft was the fifth most popular app used by this group. Parents also indicated that 30% of children used apps for ‘creating virtual worlds (e.g. Minecraft)’ (Marsh et al., 2015: 61). However, as mentioned earlier, we do not know whether parents included other titles in their responses to this category, so this result could include titles other than Minecraft. Beavis et al. (2015) report the results of a survey of 9- to 14-year-olds’ digital game practices at home as part of a larger project looking at using digital games to promote learning and literacy. The children in this sample most frequently mentioned Minecraft as a favourite title, well surpassing the second most frequently mentioned title, ‘Call of Duty’.

However, these two studies do not account for the Minecraft play of children between the ages of 5 and 9 years. Given that the Ofcom (2015) and Rideout (2013, 2016) reports indicate this age group as significant digital game players, and because of the importance of Minecraft described above, there is a need to collect game-specific information about this age group.

On gender, while surveys of adult populations have found trends towards equity in male and female rates of digital game play (Bertozzi and Lee, 2007; Fisher and Jenson, 2017), surveys of children routinely find that boys are more likely to play digital games at all (Ofcom, 2015; Rideout, 2016), play for longer (Beavis et al., 2015; Houghton et al., 2015; Nikken and Schols, 2015; Ofcom, 2015; Santaliestra-Pasías et al., 2014), play on consoles (Rideout, 2013; Ofcom, 2015) and play online with people unknown to them (Ofcom, 2015). While some narratives around Minecraft suggest that it is equally appealing to boys and girls (Davies, 2016; Gauquier and Schneider, 2013; Youth Digital Blog, 2016), both Beavis et al. (2015) and Marsh et al. (2015) found more boys than girls played Minecraft. Interestingly, Minecraft was the only title mentioned as a favourite by both girls and boys in Beavis et al. (2015).

A more detailed understanding of any gender differences in Minecraft play is warranted because of the use of Minecraft as an educational product (Microsoft, 2016a), the situating of digital games (Apperley, 2015), particularly Minecraft (Ito, 2015), as a pathway to STEM careers, as important for digital citizenship (Dezuanni et al., 2015; Ito, 2015), and increasing attention paid to the problematic long-term effects of gendering children's digital play (Hughes, 2017; Kafai, 2008). Understanding engagement with Minecraft on YouTube is also key to these questions, as it is noted as a key site for how children engage and develop literacies with Minecraft (Ito, 2015).

It is also necessary to examine which devices are used and what modes of play are preferred because – as called for by the AAP Council on Communications and Media (2016) – understanding the context and content of children's digital play is extremely important. Thus, a detailed picture of which devices are popular will provide insight into how (and at what age) digital games introduce children to various levels of digital literacy, such as that associated with tablets, consoles or desktop-computers. The rate of tablet ownership has increased dramatically since the release of the Apple iPad in 2010, potentially changing the digital play landscape, as these devices are easier to use by younger children who may have difficulty with the motor and technical skill requirements of desktop-computers or game consoles (Beschoner and Hutchinson, 2013; Chaudron, 2015; Plowman, 2016). While we do have information about what devices children use for digital game play generally (e.g. Ofcom, 2015; Rideout, 2013, 2016), we do not have this for Minecraft play in particular.

Minecraft also features distinct play modes; in Creative mode, play is focused on creative construction as resources are freely available and avatars can fly. In Survival mode, players can't

fly, can be injured by falls and hostile creatures, and must manually collect resources to build structures. Playing Minecraft in Survival mode, therefore, entails a degree of competition which is not inherent in Creative mode. Beavis et al. (2015) suggest that this choice of play mode may 'help to explain girls' and boys' shared interest' in Minecraft (p. 27). Minecraft can be played solo, with others over local area networks, or with strangers over the Internet. Taken together, these differences are relevant because the complexity of Minecraft affords different types of play and thus potential literacy and social benefits. Homogenising the types of Minecraft play would erase this useful granularity in examining how Minecraft play varies across age and gender.

Method

To address some of the concerns outlined above, we have sought to provide quantitative, statistically reliable information about trends in Minecraft play across age and gender.

Participants and procedure

Parents and carers of children aged between 3 and 12 years living in Metropolitan Melbourne completed the survey. Lists of all primary schools and early learning centres (ELCs), including kindergartens, preschools and child-care/day-care centres, in Metropolitan Melbourne were randomised. Working down these randomised lists, schools and ELCs were emailed information about the study and invited to participate by either forwarding the study advertisement by email to parents, handing out paper-based advertisements about the study to students/parents, including the advertisement in newsletters or some combination of these.

The advertisement asked, 'Do you want to help screen time research?' and 'Are you a parent or carer of a child aged 3-12 living in Melbourne?' as well as a brief statement about the survey and a link to it. The plain language statement gave further background to the study (including a statement saying that we were interested in hearing from parents of children who play digital games and those who do not) and was included in the survey preamble before parents were asked to select whether they did or did not consent to participate.

The project was approved by the Human Research Ethics Committee of The University of Melbourne, The Victorian Department of Education and Catholic Education Melbourne. In order to increase response rates, an amendment to ethics approval was made to also allow for

recruitment via word of mouth and social media. The survey was open between November 2015 and May 2016 (this included a school holiday period when recruitment was paused).

Instrument and measures

Data were collected using the REDCap (Research Electronic Data Capture) survey tool (Vanderbilt, 2016) hosted on The University of Melbourne data centre infrastructure. Questions began with basic demographic information related to the target child, then asked about general digital game play, followed by a set of Minecraft specific questions, YouTube use, general 'screen time' and finally basic parent demographic questions.

Data analysis

Descriptive results and inferential statistics were calculated using SPSS software, version 22 (IBM Corp, 2013). Missing and 'don't know' responses were not included in the analyses. Differences were considered statistically significant if p values were less than .05. All p values reported are results of Fisher's exact test for differences in proportions. Confidence intervals (CI) are reported for estimates of population proportions and estimated differences in proportions where pairwise comparisons have been conducted; in all cases, these are 95% CIs.

Results

A total of 753 completed responses were received. The sample was collapsed into age groups for analysis. Responses were from 277 parents of 3- to 5-year-old children, 243 parents of 6- to 8-year-old children and 233 parents of 9- to 12-year-old children. The sample consisted of 57% male and 43% female children. Parents were predominantly aged between 36 and 45 years (67% of responses were from this age range), and most were university educated (75% of the sample).

Who plays Minecraft?

Parents were asked to list up to three of their child's favourite games at the time of the survey. Minecraft was mentioned approximately three times as frequently ($N = 259$) as the next most dominant title (Lego games, $N = 76$). Parents were then asked, 'Has your child played Minecraft in the last month?' Almost half (45%; $CI = [42\%, 49\%]$) of the parents reported that their child had played Minecraft in the month prior to completing the survey.

Older children in the sample were statistically significantly more likely to have played Minecraft than those in the 3- to 5-year-old group, with only 11% (CI = [7%, 16%]) of the youngest children having played in the last month compared to 53% (CI = [47%, 60%]) of 6- to 8-year-olds and 68% (CI = [62%, 74%]) of 9- to 12-year-olds ($p = <.001$).

At the whole sample level, parents reported significantly more boys (54%; CI = [49%, 59%]) than girls (32%; CI = [27%, 38%]) had played Minecraft in the past month ($p = <.001$). Gender differences in Minecraft play were present across the younger two age groups (Table 1). Statistically significantly more 3- to 5-year-old boys and 6- to 8-year-old boys than girls of the same age group had played Minecraft. No significant gender differences in overall Minecraft play were present in the children aged 9–12 years. However, when broken down into 2- rather

Table 1. Percentage of children who had played Minecraft in the past month.

Age group (years)	Played Minecraft		Difference of percentages		
	Boys (%)	Girls (%)	Boys – Girls	95% CI	<i>p</i>
3–5	14	3	11	[4, 17]	.004
6–8	68	29	39	[27, 50]	<.001
9–12	66	63	3	[-10, 16]	.882

CI: confidence interval.

Table 2. Percentage of children who had played Minecraft in the past month - 2-year age groups.

Age group (years)	Played Minecraft		Difference of percentages		
	Boys (%)	Girls (%)	Boys – Girls	95% CI	<i>p</i>
9–10	72	64	8	[-8, 2]	.416
11–12	54	62	-8	[-21, 6]	.622

CI: confidence interval.

than 3-year age groupings (Table 2), a higher proportion of girls aged 11–12 years had played Minecraft than boys of the same age and this is largely due to a drop off of boys playing from 72% of boys aged 9–10 years to 54% of boys aged 11–12 years. This difference between 9–10 and 11- to 12-year-old-boys was not statistically significant (estimated difference between percentages: 18%; CI = [0.08%, 35%]; $p = .056$).

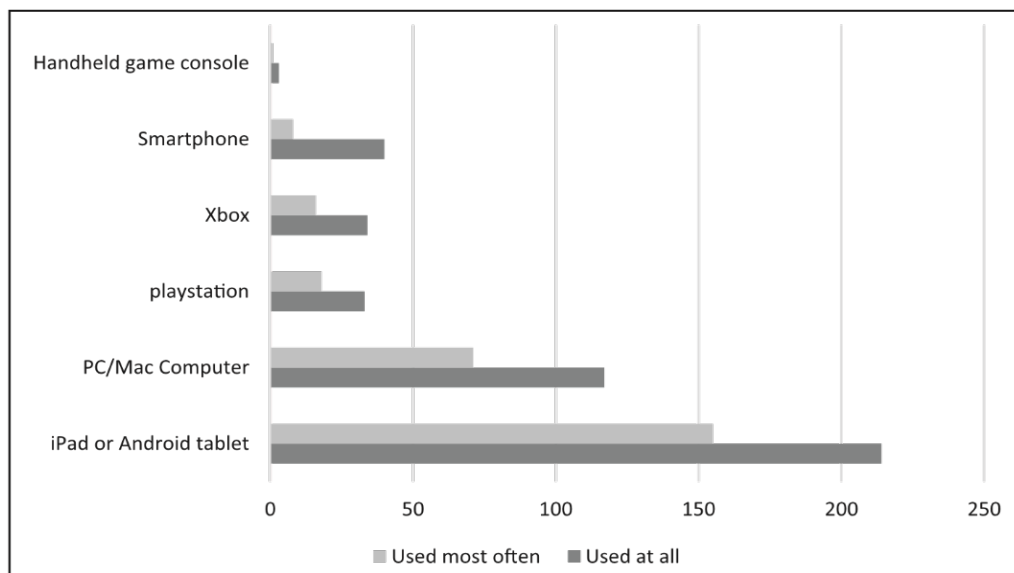


Figure 1. Devices used to play Minecraft.

What devices are used to play Minecraft?

Minecraft is played on a range of devices. Our results indicate that tablets are the device used most at all for Minecraft play and most often for Minecraft play (Figure 1). More children in the 9- to 12-year-old age group compared to the other age groups most often played Minecraft on a PC/Mac computer according to their parents (Table 3). However, tablets and smartphones remained dominant in this group. Consoles were the least used device for Minecraft play in all age groups and both genders, but the children who did play Minecraft most often on a console were statistically significantly more likely to be boys (estimated differences between percentages: 19%; CI = [9%, 28%]; $p = .03$). Minecraft was not available for the Wii or Wii U at the time of data collection.

Table 3. Devices used most often to play Minecraft.

	Tablet/smartphone		PC		Console		<i>p</i>
	%	95 % CI	%	95 % CI	%	95 % CI	
Age group (years)							
3–5	70	[46, 88]	15	[3, 38]	15	[3, 38]	<.001
6–8	74	[64, 82]	15	[9, 23]	11	[6, 19]	
9–12	50	[41, 59]	37	[29, 45]	13	[8, 20]	
Gender							
Boys	58	[51, 66]	26	[20, 32]	15	[11, 21]	.057
Girls	66	[55, 77]	29	[19, 40]	5	[1, 13]	

CI: confidence interval.

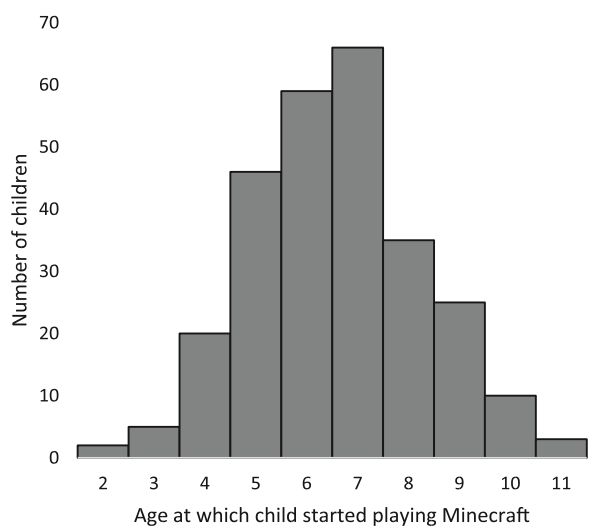


Figure 2. Age at which children start playing Minecraft.

When do children start playing Minecraft?

In total, 46% of parents in this sample reported that their child started playing Minecraft at age 6 or 7 years (CI = [40%, 52%]). There was a sharp increase in the number of children starting to play Minecraft from 4 to 5 years. Relatively few children in this sample picked up the game after the age of 7 years (Figure 2).

Near equal proportions of parents of boys (25%; CI = [19%, 32%]) and girls (24%; CI = [15%, 35%]) reported that their child started playing Minecraft at age 7. Both boys and girls were more likely to start playing at 7 years or younger (74% of all children who play Minecraft; CI = [68%, 79%]); however, a statistically significantly higher proportion of girls (39%; CI = [28%, 50%]) than boys (22%; CI = [16%, 28%]) started playing at 8 years or older (estimated difference in percentages 17%; CI = [5%, 29%], $p = .006$).

How long do children play Minecraft for?

The vast majority of parents reported children played Minecraft for 'less than and up to one hour per day' on weekdays with children tending to play for longer on weekend days (Table 4). More children played for 'more than 2 hours per day' on weekend days (compared to weekdays) $p = <.001$. There were no statistically significant age or gender differences in length of play either on weekdays or weekend days.

Table 4. Frequency and duration of Minecraft play.

	%	95% CI
Frequency		
Daily/more than once daily	22	[18, 27]
One to a few times per week	54	[48, 60]
Less than weekly	24	[19, 29]
Duration weekdays (hours)		
<1	84	[79, 89]
1–2	11	[8, 16]
>2	5	[2, 8]
Duration weekend days (hours)		
<1	49	[43, 54]
1–2	31	[25, 36]
>2	20	[16, 26]

CI: confidence interval.

Single-player or multi-player Minecraft?

A higher proportion of parents reported that their children played Minecraft in singleplayer mode most often (Table 5). There was no gender difference in single- or multiplayer preference, with boys and girls equally likely to prefer single-player. Children aged 9–12 years were more likely to play most often in multi-player mode.

Table 5. Mode of Minecraft played usually.

Single-player mode			Creative mode				
%		95% CI	<i>p</i>	%		95% CI	<i>p</i>
Age group (years)							
3–5	55	[32, 77]	.882	71	[42, 92]	.644	
6–8	72	[63, 80]		81	[71, 89]		
9–12	41	[33, 50]		78	[69, 85]		
Gender							
Boys	55	[47, 62]	.652	75	[67, 81]	.018	
Girls	57	[45, 68]		89	[79, 96]		
All	55	[49, 61]	–	79	[73, 84]	–	

CI: confidence interval.

Creative or survival?

Most parents reported children usually played Minecraft in creative mode, and this is the case across all age groups (Table 5), with no statistically significant difference in mode of play across age groups. The minority of children who did usually play in survival mode, were more likely to be boys.

Who do children play Minecraft with?

This question is about play with other people, either play in multi-player or single-player mode (with other players in separate games or spectators nearby). In total, 80% of parents reported

Table 6. People who children play Minecraft with.

	At all		Most often	
	%	95% CI	%	95% CI
On own	59	[53, 65]	55	[49, 60]
Siblings	50	[44, 56]	26	[20, 31]
Friends	46	[40, 52]	13	[10, 18]
Internet/not known to child	13	[9, 17]	3	[1, 6]
Parents	11	[8, 16]	3	[1, 5]
Other relatives	8	[5, 12]	0.07	[0.1, 3]
Either siblings, friends, other people not known to child, parents or other relatives	80	[75, 85]	45	[39, 51]

CI: Confidence interval.

that children who played Minecraft had at times played with other people (siblings, friends, other people online, parents or other relatives; Table 6). A slight majority of children most often played Minecraft on their own, while the remainder most often played with other people.

Children aged

3–5 and 9–12 years were both more likely than 6- to 8-year-olds to play with other people, $p = <.001$. There was no gender difference in sociality of play, with 53% (CI = [46%, 60%]) of boys and 60% (CI = [48%, 71%]) of girls most often playing alone, $p = .35$.

Minecraft YouTube videos

Respondents were asked whether their child had watched any YouTube videos in the last week, if so how often, and what kind. Only responses relating to Minecraft videos are presented here. A total of 37% of children in the entire sample had watched Minecraft-related videos (CI = [32%, 41%]) in the week preceding their parent completing the survey.

According to respondents, boys aged 6–8 years were statistically significantly more likely than girls of the same age to watch Minecraft videos (Table 7). A higher percentage of girls aged 9–12 years watched Minecraft videos compared to boys of the same age, though this difference was not statistically significant. Older children, overall, were statistically significantly more likely than the younger children to watch Minecraft YouTube videos (Table 8).

Table 7. Minecraft YouTube videos watched – differences between age group and gender.

Minecraft YouTube videos		Difference of percentages			
Boys (%)		Girls (%)	Boys – Girls	95% CI	<i>p</i>
Age group (years)					
3–5	5	2	3	[–2, 8]	.305
6–8	32	9	23	[13, 32]	<.001
9–12	34	43	–8	[–21, 4]	.261
All	31	14	17	[12, 23]	<.001

CI: confidence interval.

Table 8. Minecraft YouTube videos watched – differences between age groups.

Age group (years)	Minecraft YouTube videos		
	%	95% CI	<i>p</i>
3–5	4	[2, 7]	<.001
6–8	22	[17, 28]	
9–12	32	[26, 39]	

CI: confidence interval.

Discussion

Prior to this research, there has been a lack of fine-grained quantitative information regarding children's (aged 3–12 years) digital play (Holloway et al., 2013; Houghton et al., 2015; Straker et al., 2013). Instead, previous research has focused on games as a subset of overall screen use without acknowledging games as a different form of media (Przybylski and Mishkin, 2016). In this article, we have presented an analysis of parents' reports of their child's Minecraft practices, based on the results of an $N = 753$ survey. Our results have shown that Minecraft is the most dominant digital game title played by children in this age group, and that the tablet is the most dominant game play device. These results are significant as they highlight the rapidly changing landscape of contemporary digital play. We have also identified several differences in play practices based on both age and gender.

The dominance and sociality of Minecraft play

This survey has verified that in Melbourne, Australia, Minecraft is the most dominant digital game, by a significant margin, played by 3- to 12-year-old children. Almost half of the parents in this sample reported their child had played Minecraft in the week prior to completing the survey. This proportion increases with age such that a clear majority (68%) of 9- to 12-year-old children were Minecraft players at the time of the survey. We found that children are most likely to have started playing the game at age 7 and identified possible evidence that Minecraft play begins to drop off from 11 years. Children tend to play Minecraft frequently, but there is no evidence in this data set that the game is played to excess by many children. These findings validate the importance of research into the Minecraft phenomenon, removing the need for reliance on proxy measures, such as sales figures, of the game's popularity.

Furthermore, nearly half of the parents in this sample reported that their child most often played Minecraft with other people, and the majority of them at times played Minecraft with other people. This makes claims or concerns about digital play being a predominantly solitary activity (e.g. Mundy et al., 2017) appear overstated, at least in the case of Minecraft. We also found that children aged 3–5 and 9–12 years are both more likely than 6- to 8-year-olds to play with other people. This could be because younger children require assistance from older siblings or parents to play (Plowman, 2016). Older children may be giving this assistance and may also be more likely to have friends who play Minecraft. These older children may also have more digital literacy skills than younger groups and therefore be able to access multi-player games, which require several additional steps in game set-up. Children aged 9–12 years in our sample were indeed more likely to play multi-player Minecraft (where other players are in the same game world). Having said this, development of digital skills does not necessarily follow a solely age-dependent trajectory (Cameron et al., 2011), so future qualitative research could further probe the reasons for this difference in shared play.

Also of note is the finding that relatively few children in this sample ever played Minecraft with parents. This indicates that, when it comes to Minecraft, parents are not necessarily heeding the advice of those advocating co-play as a mediation strategy (Brown et al., 2015). This is surprising, as prior work would suggest that Minecraft's positive perception would increase the likelihood of co-play (Shin and Huh, 2011). However, our results do not mean that parents are not actively mediating their children's Minecraft play in other ways. They may be talking to their children

about Minecraft worlds, or otherwise taking an interest in their children's Minecraft play and related practices. Indeed, text responses to other parts of this survey included many references to Minecraft being the focal point of child–parent conversation. Our findings also do not lead to the conclusion that parents do not co-play with their children at all, but perhaps that they do not have the desire to play Minecraft in particular.

Our data also support the findings of the Ofcom (2015) media uses and attitudes report which found relatively few children (2% of those aged 5–7 years and 9% of those aged 8–11 years) play digital games online with people unknown to them. In our sample, parents reported just 13% of children ever played Minecraft with other people unknown to them online and 3% most often played this way. While we have purposefully only asked about Minecraft play in the current survey, and there are numerous other avenues for playing with unknown people, these numbers should help provide some context to sensationalised reports of the dangers of online Minecraft play (Family Zone Team, 2017; Jenkins, 2015; Newton, 2016).

Tablet-based play

A further notable finding from this study has been the confirmation of the dominance of tablets in children's digital game practices, including Minecraft play. Previous studies have found either consoles the most used device for game play overall (Rideout, 2013) or tablets being used only slightly more than other devices in particular age groups (Ofcom, 2015). Our research has instead found that tablets are the primary play device across all age groups and genders in Melbourne-based children.

Given that overall rates of tablet ownership in the United Kingdom and Australia are similar (Google, 2016), and the two countries share many similarities both being representatives of the 'global North', perhaps the differences in tablet use found by the survey reported in this article and the Ofcom (2015) report are due to a higher proportion of schools in Australia having BYOD (bring your own device) programmes. These programmes encourage families to provide a tablet device for their child to bring to school each day for learning, and as a result, children potentially also have access to these devices for leisure purposes after school. In Australia and New Zealand, 54% of schools encourage students to bring their own device (Softlink, 2015), compared to 30% of secondary and just 9% of primary schools in the United Kingdom (Bird, 2016). Alternatively, these findings may be due to an increasing pervasiveness and acceptability of tablet use by children.

One of the core affordances of tablet devices is the mobility of the platform. Whereas desktop and console-based play is restricted within the home to specific locations, and under specific supervisions, the adoption and growth of tablets means that spaces previously off-limits to digitally enabled play are now opened up as potential sites for this kind of play. Public libraries, for example, are now sites of digital play (Cilauro, 2015), with children gathering to play after school with the devices they have been using for school work during the day transitioning from tools for education to tools for play. However, handheld consoles were infrequently used by children in the current survey, suggesting that the appeal of tablet devices extends beyond portability.

How Minecraft play is gendered

Our research has contributed deeper understanding into the highly gendered nature of children's digital play. While the original developer of Minecraft, Notch, has claimed that 'gender doesn't exist' in Minecraft (Persson, 2012), and popular discourse commonly refers to children's digital play in Minecraft as un-gendered (Davies, 2016; Youth Digital Blog, 2016), our results indicate that this does not translate to parity in play.

The gendering of adult digital play is well researched in studies of games (for a review, see Fisher and Jenson, 2017). This research has consistently shown that women play digital games on average less than men, although the most recent studies (Bertozzi and Lee, 2007; Brand, 2015; Fisher and Jenson, 2017) show this gap is decreasing. Our study similarly found that girls are much less likely to play Minecraft at all ages, until age 9, at which point the difference disappears, with a full reversal of the difference at age 11 (possibly due to boys moving on to other titles as evidenced in other parts of this survey). Our study showed boys are more likely to start playing at a younger age and are more likely to play in the more competitive and challenging Survival mode. Beavis et al. (2015) note that boys in their sample were more likely than girls to rate 'competing' as a 'very important' aspect of game play, perhaps explaining this difference (p. 29). However, grouping interest in game elements by gender is contentious and potentially obscures more meaningful individual differences (Hayes, 2008; Wilhelm, 2016).

Our findings also show that boys aged 6–8 years are significantly more likely than girls of the same age to watch Minecraft YouTube videos. While there is no statistically significant difference in children aged 9–12 years, a large percentage of boys move away from playing Minecraft at this age which may explain the shift. However, the strong differences in children

aged 6–8 years we observed do point towards a gender-based disparity in engagement with the Minecraft ‘metagame’ (Carter et al., 2012; Consalvo, 2007). This corresponds with earlier findings that girls are less likely to create in-game or outof-game content such as recorded walk-throughs or fan-fiction (Hayes, 2008).

Taken together, these results indicate that not only is the practice of children’s digital game play gendered, so too is early immersion in other parts of gaming culture. Indeed, these results are not surprising. ‘Gamer’ culture is notably constructed to be hostile towards women. Studies of female player experiences have found that there are a number of gate-keeping mechanisms that effectively demonstrate to women that they are not welcome in this space (Bergstrom, 2013; Graso, 2016; Kuznekoff and Rose, 2013). Our results point to the need to interrogate the presence and nature of these prohibitive features presented to female children. Furthermore, there is evidence to suggest that parents consider digital games differently in relation to boys and girls, and that this may impact girls’ opportunities for play and engagement with surrounding media. For example, Nikken and Jansz (2006) found that parents were more likely to mediate the digital game play of girls overall and to also use more restrictive mediation strategies than for boys. Smette et al. (2016) also found parents of boys to be particularly concerned with the risks they attributed to digital games. Consideration should also be given to the fact that the vast majority of Minecraft YouTubers are male, therefore reducing opportunities for gender-based identification for female children.

There are significant consequences to the gender differences in Minecraft engagement. Prior work recognises that gendered digital play, as well as non-digital play, has the potential to ‘limit children’s play experiences in ways that stifle skill development’ (Sweet, 2016). Hayes (2008) notes that an interest in gaming outside of formal education fosters a range of skills including both technical and social, which are indicators of future information technology and STEM interests and careers. There is a well-documented gender disparity in academic graduates and STEM industry workforces (Office of the Chief Scientist, 2016). Minecraft in particular is often framed as a game that encourages skills relating to STEM disciplines (Ito, 2017). Numerous text responses from parents in other parts of our survey mentioned attributes such as planning, spatial awareness, building and design as positive benefits of playing Minecraft (Mavoa et al., 2017b). These skills map well onto descriptions of STEM focus in school curricula.

Our findings overall support the provision of measures to ensure that girls, particularly those aged 8 and under, do not miss out on opportunities for, and potential benefits of, digital play. It is promising, however, that despite some notable and important differences in the amounts and types of Minecraft play between genders, many girls do indeed play the game and interact with Minecraft content outside the game.

Limitations

Because of our survey methodology, there will have been a degree of self-selection bias involved in shaping the final sample. This could mean that parents with a particular interest in 'screen time' and digital games would be more likely to take the survey and perhaps the children of these parents have media habits that are different to other children. Our sample consisted of a large percentage of parents with university-level education which is also a limitation in terms of the degree to which our findings are representative of other populations. However, very similar rates of digital game play were found between this survey and the large nationally representative Ofcom (2015) report, as well as the Digital Australia Report (Brand, 2015) which used an online panel of paid survey respondents.

We asked parents to complete the survey rather than children themselves. This decision involved trade-offs in terms of the risk that parents may not have accurate knowledge of what their children are playing (particularly older children), and that responses may be prone to social desirability bias given the polarised discourse surrounding digital games (Ferguson, 2010; Narine and Grimes, 2009; Rideout, 2016; Vandewater and Lee, 2009). On the contrary, children from as young as 3 years may not have sufficient recall or ability to answer questions about their digital play (Rideout, 2013). In the interests of consistency in data collection across the sample, we decided to have parents answer the questions.

Conclusion

As a whole, our findings make a significant contribution to understanding the contemporary play worlds of children. By examining parent reports of Minecraft play specifically rather than relying on aggregate measures such as 'screen time', we have provided a set of descriptive information that is more refined than previous surveys of children's media use. Our results signal Minecraft as the dominant title engaged with by children aged 3–12 years at this point in time, and tablets as the go-to device for Minecraft play. Finally, we have provided evidence that Minecraft play is

gendered. This information indicates that further investigation into how and why children use games such as Minecraft, and how this use relates to non-digitally mediated play and other uses of leisure time, is significantly warranted.

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Chapter 6 Study 2b: Parental perceptions of Minecraft play

This chapter presents the *qualitative* findings from the survey conducted as Study 2 in the form of a peer-reviewed conference paper:

Mavoa, J., Carter, M., & Gibbs, M. (2017) Beyond addiction: Positive and negative parent perceptions of Minecraft play. *Proceedings of the Annual Symposium on Computer-Human Interaction in Play*, 171–181.
Amsterdam, The Netherlands: ACM.
<https://doi.org/10.1145/3116595.3116638>

The article is included verbatim. I led all stages of the research process and received input from my supervisors, Dr Marcus Carter and Professor Martin Gibbs in the writing of the paper. I presented the paper at the conference.

6.1 Introduction

This chapter presents findings about parental attitudes towards Minecraft play. This is important information to include in this thesis because the ways that parents think about varying forms of ‘screen time’ content impact children’s day to day experiences with this content. As Marsh et al. (2015) write: “The values, beliefs and previous experiences of parents directly shape children’s engagement with digital objects” (p. 22). Therefore, parental assessment of Minecraft forms a crucial part of the context of everyday leisure time Minecraft play.

6.2 Situating this paper within the thesis

In the previous chapter I presented quantitative information about the presence of Minecraft in children’s digital gaming repertoires including: rates of play; age and gender trajectories of Minecraft play and what devices children use to play Minecraft. That provides a view of what I am calling the *Technological* context of Minecraft play (in the sense that it describes a statistical view of interaction with Minecraft as software that is experienced via digital devices with screens). In the current chapter I move from describing this technological context to look at a more social element of context, noting

that these are not discrete units but part of a tapestry of different factors that form the technological and sociocultural backdrop of everyday Minecraft play.

This chapter deals with the *Family* level layer of context in my use of Bronfenbrenner's model for structuring this contextualised project (see **Figure 1**, p. 83). The information relates to group level parental attitudes towards Minecraft. These are used here to help give a broad sense of the kinds of attitudes parents have towards Minecraft. I include this within the *Family* context layer of the thesis because it gives a sense of the range of family contexts that Minecraft play happens in, in terms of parental framing and appraisal of the game.

While study 1 describes broader level, popular discourses surrounding children's interaction with technology, particularly 'screen time', in this paper I narrow focus to *parents* and to *Minecraft*. Both studies found that children's use of 'screens' (or Minecraft) is situated within ambivalent sets of adult constructions/attitudes. Both also share findings related to *time*. That is, in study 1 the dominant *status quo* interpretive repertoire involved frequent assertion that time children spend with 'screens' is time not spent doing other more valuable things. And in the current study, the downside of Minecraft most often mentioned by parents was that it is a form of 'screen time' and, again, takes time away from other pursuits. Likewise, in Study 1, the *future focussed* interpretive repertoire constructed children as *becomings* (rather than *beings*) and their relationship with technology as primarily fruitful for their lives as future workers, particularly in jobs involving STEM skills including creativity. In the current study parents most often mentioned creativity and skills aligned with STEM (such as planning, problem solving etc.) as an appealing aspect of their children's Minecraft play.

The information presented in this chapter is richer than other empirical work on parental attitudes towards videogame play which tends to be quantitative often assessing parental attitudes via Likert scale check boxes (e.g. Nikken & Jansz, 2006; though not always, see Jiow et al., 2017). The current study helps to provide a more participant led understanding of parental attitudes because responses were in open text format and in response to open ended questions. This means that it has captured themes that are not necessarily accounted for in studies where parents select answers from a predetermined list of options.

There is benefit to looking, as this study does, at group level data. I do not claim that the 378 responses analysed in this study are representative at a population level or necessarily generalisable. However, they do give a broader view than interviews with smaller numbers of parents. This gives an idea of what the pool of parental attitudes are and allows for a top-level view which can inform understanding in its own right and also serves as a guide for more in-depth interview-based research. Study 3 in this thesis does this more in-depth, family specific data generation. Therefore, the current chapter provides a group level view of parental Minecraft attitudes and this is useful for seeing dominant views and points of connection with both the broader popular discourses about ‘screen time’ from study 1 and the nuances and fine texture of individual family perspectives generated in study 3.

6.3 Situating this study within existing literature

In the literature review section 2.4 I detailed what is known about parental attitudes toward digital gameplay and pointed to how this is related to mediation strategies and ultimately play experiences. From that information, it is clear that parents hold a range of different beliefs about the role of digital gameplay in childhoods and that these beliefs shape mediation strategies (though the relationship between mediation strategies and actual gameplay practices is less clear due to child agency/pushback and day to day household happenings). In addition to forming an important and necessary part of this thesis, as explained above, the information presented in the paper also contributes to gaps in existing literature.

There are two main gaps in this existing literature. First, there is a lack of qualitative research looking at parental attitudes related to the gaming practices of younger children. Jiow et al.'s (2017) study is very fruitful and provides much needed gaming specific qualitative information on mediation strategies and includes information about parent attitudes. However, this study (unique in that it deals with gaming specific attitudes and is qualitative) deals with parents of children aged 12-17. Conversely, Marsh et al. (2015, 2018, 2016) present qualitative information about parental attitudes but only for parents of children aged 0-5. While Willet (2016) includes some qualitative insights into parental attitudes in describing the context of preteens (age 7-12) online gaming practices, the

focus in this work is more on describing overall contexts rather than detailing parental framing of digital games. Given that large scale statistical surveys such as the Ofcom (2020) report and Rideout (2017) indicate that children in the early primary school years do indeed make up a significant portion of digital game players, and that my quantitative survey data show that Minecraft use peaks around ages 6-9, there is a need to have an account in the literature of parents of children in this age range. The current qualitative analysis accounts for perspectives of parents of children aged 3-12 years, addressing this gap.

A second key gap in existing literature is title specific information. This is important because the range of play opportunities provided by the range of titles available, means that some games are likely valued differently to others. In terms of children's day-to-day experiences with digitally mediated play, nuances associated with different titles are likely to make a difference to what digitally mediated play is allowed, encouraged, restricted and in what ways. Looking at parental attitudes toward individual games is therefore highly relevant to understanding the permissive and restrictive forces operating on children's digital play experiences. Jiow et al. (2017), for example, only included the perspectives of parents of children who played First Person Shooter (FPS) or Massively Multiplayer Online Role Playing games (MMORPG). This focus is well justified by the authors but leaves open scope for detailing parental perspectives on other titles.

In the previous chapter I explained that the quantitative portion of my survey showed that Minecraft was very popular with children aged 3-12. This popularity is perhaps sufficient enough justification for documenting Minecraft specific information, but there are other reasons why such accounts are warranted. I described on pages 45-46 and page 56, how Minecraft is constructed in academic and popular discourse as being uniquely well suited to educational ends but not immune from concerns about 'screen time' and addiction. I also described how Minecraft is unique in terms of the range of possible play actions allowed for due to its sandbox nature and the lack of obvious prescribed goals in *Creative* mode. Because of these factors, understanding parental beliefs about Minecraft in particular is necessary for getting an accurate picture of the family level context of children's Minecraft play. Existing literature deals tangentially with educators' beliefs about what Minecraft offers children (as evidenced through the large number of studies

assessing the use of Minecraft in classrooms). Willett (2015) also provides empirical evidence of how Minecraft is constructed in news media and in its own marketing material as in alignment with ‘good parenting’. Anecdotal information about parental Minecraft beliefs is available through sources such as Common Sense Media’s review of the game and the comments posted by parents in response to this (see page 46). The current chapter therefore helps address the lack of Minecraft specific empirical scholarship about parental attitudes.

A third gap is that existing literature regarding parental attitudes toward digital gameplay is largely from studies conducted prior to the introduction of iPads and other tablet devices into the digital play landscapes of children. Marsh et al. (2015, 2018, 2016) did focus exclusively on tablet use, but only in – 0-5-year old children. Kousari and Mehrabi’s (2017) research was conducted post iPad but it is not clear whether the boys in their study played on iPad or consoles and Jiow et al.’s (2017) restriction to MMO’s and FPS games might mean that iPad play was not a feature of many of their participants’ ideas about gaming. It is important to collect information from parents of children who likely have digital game experiences via tablet devices because they have had an impact on the ways that play can happen and the range and accessibility of titles available.

6.4 Research method

I address these gaps by a grounded theory (Charmaz, 2008) informed analysis of parent responses to open-ended questions regarding the positives and negatives they associate with their children’s Minecraft play. These questions were included in the survey that forms study 2 of my project. I coded responses first at sentence topic level then grouped them according to categories which form the findings presented in the paper. Some basic descriptive statistics are also provided in the paper as a way of contextualising the qualitative findings. In the paper I also outline some design implications based on both the findings presented and other literature. This is somewhat outside of the scope of the thesis but was included due to the nature of the conference and suggestions by reviewers.

6.5 Summary of findings

The main findings from this analysis are as follows:

- A greater proportion of parents said that they thought there were some positives associated with Minecraft (244 said “yes” and 23 “no”) compared to those that said they thought there were negatives (125 “yes” and 142 “no”). This means that in this sample parents held a generally positive view of Minecraft but that many had mixed views and a relatively small number had only negative views.
- Parents associate a range of positive outcomes with their child(ren) playing Minecraft and these are grouped into the following themes:
creativity/imagination; sociality; problem solving;
learning/literacy/mathematics; spatial skills; digital literacy;
planning/strategy/tactics; resource knowledge/management; enjoyment; play;
self-esteem/achievement/mastery/social capital.
- Creativity was the most commonly mentioned positive associated with Minecraft.
- Negatives associated with Minecraft were grouped into themes of: time (too much; displaced; needing regulation; not spent outside); cyber safety; addiction and obsession; violence; physical ill effects; negative impacts on behaviour.

6.6 Contributions to the thesis

These results provide a much-needed account of the ways in which parents of child Minecraft players think about the title. They support anecdotal accounts of parent views and also reflect the portrayal of Minecraft in advertising and news media. Common to all of these presentations is the ambivalence parents experience regarding Minecraft. On the one hand it is seen as favourable for the ways it is thought to contribute to valued development and learning goals, most notably creativity. On the other it is nevertheless still seen as a form of ‘screen time’ and is therefore prone to the same sets of negative appraisals as ‘screen time’ overall. Particularly, Minecraft is seen in terms of the time it takes up and the displacement of time away from other pursuits more in alignment with ideas of ‘good childhood’ such as time spent outdoors.

The findings are also interesting for the way that Minecraft is constructed by parents in relation to play. The results echo broader ideas about play being primarily a means to a developmental end. This is evident in the fact that so many parents when asked an open

ended question “what are the good things about Minecraft?” tended to volunteer accounts of how Minecraft is good for something else, and this something else was most often a skill acquisition. Only a relatively small number of responses mentioned that a good thing about Minecraft was that children enjoyed it, or that it was a source of fun. Relatedly, where play was mentioned, in all but one response, it was framed as play *for* something. Further, the number of responses mentioning play at all were relatively low. Often when play was mentioned it was in terms of Minecraft displacing time away from play (‘good play’). When viewed in light of the literature reviewed earlier which overwhelmingly frames digital play as a source of *learning* I argue that these responses indicate that parents may see Minecraft as primarily a source of ‘edutainment’ rather than a site of play. This aligns with academic and media presentations of digital play and, as I argue in the General Discussion (chapter 12), reduces Minecraft play in a way that is potentially problematic.

6.7 Publication: Beyond addiction: Positive and negative parent perceptions of Minecraft play

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ABSTRACT

Parent perceptions of game play have a crucial role in forming the context in which children engage with digital games. However, little empirical information is known about these perceptions. The current study addresses this gap by describing a detailed analysis of open text responses by parents about their views on the popular game

Minecraft. We show that parents are able to identify a broad range of both positive and negative outcomes associated with the game. We situate these observations within historical discourses about the role of screen media in children's lives, and the way that play itself is valued. Combining the insights from our data with these broader perspectives informs scholars interested in children's digital play and points to design implications.

Author Keywords

Minecraft; parents; children; digital games; attitudes.

ACM Classification Keywords

K.8.0 [Personal Computing]: General – *Games*.

INTRODUCTION

Digital gaming is a prominent part of contemporary childhoods with the vast majority of children, including the very young, now playing some form of digital game(s) regularly [4,40]. However, digital gaming is a form of screen time and occurs in a cultural context where 'screen time' was rated by the Australian public as the top child health concern ahead of obesity, family violence and suicide [41]. It follows then that digital gaming is a part of childhood that is understood to be something that requires careful monitoring and restriction by parents [57].

Despite the existence of generic, non-context sensitive guidelines for parents about managing 'screen time' [1], digital play does not occur in social or cultural isolation. Rather, children's engagement with technologies that facilitate digital play is surrounded, and informed, by the attitudes and behaviours of influences within the home, school and wider community [15,44,55]. One crucial variable surrounding the play experience of children is the way that parents perceive the digital games their children play [22].

This paper contributes empirically grounded insight into how Minecraft play is perceived by parents of children aged 3-12 years. Our analysis is based on open-text responses to open-ended questions. This is in contrast to much existing literature regarding parent attitudes toward gaming, which asks parents to select the degree to which they endorse preset statements about digital games. This paper therefore contributes a rich account of the positive perceptions of Minecraft play, alongside parental concerns. We discuss possible design implications arising from the predominantly instrumental valuing of digital games among parents apparent through our analysis. Beyond this, we also offer insight into the context of children's Minecraft play via parent attitudes. We situate our findings within broader historical and contemporary discourses surrounding the digitally mediated play of children. This perspective will be of interest to scholars studying child-player experience in its own right, in line with Carter et al.'s notion of the '*practice*' paradigm of games research within HCI [5, p.33].

Parent influence on child-player experience

Parent views about new forms of 'screen time' and internet use are emerging in the literature [7], and

these attitudes have been found to be related to the amount of ‘screen time’ children engage in via differential mediation strategies [8]. Hiniker et al. [20] in their interviews with parents of children aged one to five years, found that negative perceptions of screen media use by children were dominant. Specifically, parents identified screen time as something requiring limits and monitoring in order that it does not displace time spent on non-screen based activities. Ito et al. [22], describing the findings from an ethnographic study of media use in families, notes that parents influence the user experience of children through a number of mechanisms. These include the provision (or not) of screen based devices, location and time limits on use, and contentbased restrictions. Ito et al. provide numerous examples from interview data illustrating the close link between attitudes toward media and these parent-led impacts on the experience of child media users.

Existing research about attitudes towards digital games in particular suggests that parents vary in the value they attribute to digital games. Some studies report both positive and negative perceptions associated with digital games by parents [3,25,37]. Others find more negative associations [26,27,56]. For example, Wartella et al. [56] found that parents rated ‘video games’ less favourably than television, computers and mobile devices in terms of perceptions of how they contribute to behaviour or learning and Kousari and Mehrabi [26] in their interviews with Iranian parents found a dominance of concern about negative effects of digital games on children’s concentration, learning and ‘real-life’ behaviour. Kutner et al. [27] found, through focus groups with parents of adolescent boys, that displacement of time away from school work and physical activity were primary concerns.

Schott and van Vught [45] looked at parent attitudes to Grand Theft Auto IV and found that the overwhelming parental framing of the game was in terms of its moral bearings and parent concern about violence. Concerns about ‘screen time’ in general also frame attitudes toward gaming in particular, with parents in Sobel et al.’s. sample noting that even Pokémon Go, while virtuous in terms of implications for physical activity, was “*still screen time*” [46, p. 1489]. Anxieties about addiction and obsession in relation to digital games are additional concerns among parents [13,22,50]. On the other hand, Nikken et al. found parents in their sample were more likely to agree with statements about the positive effects of ‘video games’, though parents with a lack of personal experience of digital gameplay were more likely to endorse negative statements [39]. Part of the reason for these differences in findings could be due to the

types of information gathered. In some of these studies parents were only asked about negative effects, and many relied on set questions and rating scales which precludes participant generated themes.

Literature on mediation strategies in relation to gaming provides evidence of the link between parent attitudes and child player experience. Following Nikken and Jansz’s 2006 study [38] examining the ways that parents think about and mediate children’s digital play, several authors have consistently found that parents who hold predominantly negative attitudes toward the effects of digital games are more likely to use restrictive mediation strategies [13,26,44,47]. Restrictive mediations strategies include limiting children’s gaming time, and restricting play to certain titles. Conversely, parents who hold more neutral or positive views are more likely to co-play with their children and to apply fewer restrictions on gaming [26,39,44,47].

Stephen et al. [53] took an ecological approach to their study involving families with young children aged four and five years, which aimed to “*identify features of the home environment that make a difference to playing and learning with technological resources*” [p. 151]. They found family perspectives on the “*efficacy of technology as an educative tool*” [p. 157] were a crucial factor in shaping the lived experience of children with digital games via the degree, and type of encouragement offered to children and provision of particular games in favour of others. Relatedly, other work has shown that parents of children aged zero to five years make game purchasing decisions either on their own or in consultation with their child, whilst children rarely are solely responsible for purchase decisions and parents tend to select games that they perceive as educational [32].

Whilst our study does not draw specific links between mediation strategies and attitudes, it does provide a comprehensive description of those attitudes, in relation to Minecraft, beyond those illuminated via pre-set Likert scale questionnaires which inform the bulk of existing studies on parent perceptions and attitudes in relation to digital games.

Minecraft

Minecraft [34] serves as a particularly useful case study in examining children’s gaming and related behaviours and attitudes. The game is hugely popular, particularly with children [14,28]. Minecraft is notably different to other mega successful gaming titles however, because of its perceived virtues. These benefits include the popular proposition that

Minecraft offers educational and cognitive benefits [19,21]. The game is also frequently likened to Lego, which is commonly understood to be beneficial to children beyond instances of play [49].

However, Minecraft is, in its purest form, played via a screen. Therefore, it is also subject to the same concerns mentioned earlier about 'screen time'. Furthermore, the game is represented in media as being 'addictive' [23], potentially dangerous [36] and not as 'educational' as some claim [29]. These "*discursive dichotomies*" [8, p. 40] surrounding the game make it well suited to investigations of parent attitudes, as the lack of clear consensus leaves parents with the task of forming their own constructions and attitudes about the game. We sought parent perspectives on the game Minecraft as part of a larger survey about children's gaming and other screen media use [33].

METHOD

Participants and Procedure

The survey from which the current data was drawn, aimed to capture a mix of quantitative and qualitative information about the digital gaming habits of children. It was advertised via randomly selected primary schools and early learning centres (ELC's) in Metropolitan Melbourne. After initial contact with schools and ELC's yielded low rates of participation, an amendment to ethics approval was made to also allow for recruitment via word of mouth and social media. Parents and caregivers of children aged between 3 and 12 years completed the survey. The survey advertisement informed potential participants that questions would be about digital games such as Minecraft and 'screen time'. Further background provided in The Plain Language Statement indicated that we were also interested in hearing from parents of children who did not play digital games.

The project was approved by the Human Research Ethics Committee of The University of Melbourne, the Victoria Department of Education and Training, and Catholic Education Melbourne. The survey was open between November 2015 and May 2016 (this included a six week school holiday period when recruitment was paused).

Instrument and Measures

Data was collected using the REDCap (Research Electronic Data Capture) survey tool [54] hosted on The University of Melbourne data centre infrastructure. Questions began with basic demographic information related to the child, then asked about general gaming, followed by a set of Minecraft specific questions, YouTube use, general

screen time, and finally basic parent demographic questions [33].

Data Analysis

In one section of the survey parents were asked: 'Do you think there are any good things about your child playing Minecraft?' and 'Do you have any concerns about your child playing Minecraft?' If parents answered 'yes' to either of these questions, they were then presented with an open text box and asked 'What sort of good things are there about your child playing Minecraft?' and/or 'What concerns you about your child playing Minecraft?'

The text responses were analysed using a constructionist grounded theory approach [6]. The responses were coded in an online rich-text collaborative analysis tool called Saturate.app [48]. Codes were applied at the sentence level and emerged initially from subject matter (for example, the code 'addiction' was given to any response mentioning addiction). Then on subsequent readings, codes were also applied to categorise observations of the way that responses related to one another, or represented some position on a subject (for example, the code 'time displacement' was given to responses that mentioned Minecraft detracting from any one of a range of other pursuits). Multiple codes were attached to individual single sentences as required. During this phase, detailed memos were made as a way of both unpacking the meaning of individual codes as well as situating them within the broader body of responses. The first author initially coded all responses, and validity was established via regular meetings between all authors where data and coding were reviewed and discussed in detail.

RESULTS

We will first present some quantitative information from the survey as a way of contextualising the responses reviewed in detail subsequently. A total of 755 completed responses were received to the survey. Respondents were predominantly between 36 and 45 years of age (67% of responses were from this age range), and most were university educated (75% of the sample). **Table 1** presents descriptive statistics of the portion of the sample who had indicated that their child played digital games (n=665). Statistically significantly more boys than girls had played Minecraft in the last month (54% of boys [95% CI: 49.1%, 59.2%] vs 32% of girls [95% CI: 27%, 38.4%]), $p < .001$. Older children in the sample were significantly more likely to have played Minecraft than those in the 3-5-year-old group, with only 11% [7.4%, 16.4%] of the youngest children having played in the last month compared to 53% [46.6%,

59.8%] of 6-8-year-olds and 68% [61.8%, 74.3%] of 9-12-year-olds, $p = <.001$.

Positives Associated with Minecraft

91.4% ($n=244$) of parents of children who played Minecraft answered ‘yes’ to the question: ‘Do you think there are any good things about your child playing Minecraft?’ and 8.6% ($n=23$) answered ‘no’. A total of 236 responses were entered in answer to ‘What sort of good things are there about your child playing Minecraft?’

Below we present categories of positive factors associated with Minecraft. Each is described, with the number of occurrences given in brackets next to category title. Typical examples from the data are given in *italics* after each description. The response numbers are given in round brackets after each example.

Social ($n=59$)

A range of social aspects of Minecraft play were mentioned. Some comments talked about this in a standalone manner, with ‘social’ or ‘interaction’ being construed as desirable in their own right. However, many more mentioned collaboration, cooperation, communication or teamwork. These particular responses speak more to the productive gain associated with social interaction, in terms of working effectively with others toward an end. Fourteen specifically mentioned play between siblings. Of these, the most common words used to talk about play between siblings were collaboration, cooperation, communication and interaction. Four of these also mentioned that the children enjoyed playing Minecraft together.

Age Group		Male	Female	Total
	Minecraft Play	n (% of gender in age group)		n (% of age group)
3-5	No	96 (83%)	92 (96%)	188 (89%)
	Yes	20 (17%)	4 (4%)	24 (11%)
	Total	116	96	212
6-8	No	39 (30%)	69 (69%)	108 (47%)
	Yes	92 (70%)	31 (31%)	123 (53%)
	Total	131	100	231
9+	No	44 (31%)	26 (32%)	70 (32%)
	Yes	97 (69%)	55 (68%)	152 (68%)
	Total	141	81	222
		n (% of gender in total sample)		n (% of whole sample)
	No	179 (46%)	187 (68%)	366 (55%)
	Yes	209 (54%)	90 (32%)	299 (45%)
	Total	388 (58%)	277 (42%)	665

Table 1. Descriptive statistics of the survey sample including proportions of children in each age and gender group who had played Minecraft in the past month. Responses from participants who indicated their child did not play any digital games are not included.

Creativity/Imagination ($n=158$)

Creativity was the most frequently mentioned positive and was often mentioned in a standalone manner but was also linked to concepts of design or construction, problem solving and spatial ability. 10 responses mentioned Minecraft in relation to Lego. 8 of these made direct links specifically with the ‘creativity’ of Lego. Imagination was also mentioned frequently, often in conjunction with talk of ‘creativity’. Imagination appeared to be constructed as more of a repository to be drawn on in the process of being productively creative. *“creative thinking”* (10); *“creativity in building”* (14); *“It is much like Lego in the way that it is Creative”* (13); *“being very creative, using his imagination”* (17)

Two responses mentioned ‘being part of a community’ and three talked about learning via social interaction in or around the game, either between friends or siblings. *“Teaches her to be creative and to work with other people on a project”* (33); *“being part of a virtual ‘community’”* (40); *“We use it to spend time together”* (79); *“The thrill of being like his big brother”* (234)

Problem Solving ($n=32$)

Problem solving was mentioned frequently and either referred to as a way of thinking (often tied to creativity), or as a skill that could be taught and involved a series of steps. *“Creative problem solving”* (80); *“teaches problem solving skills”* (84)

Learning/Literacy/Mathematics (n=31)

Six responses mentioned the child either learning new vocabulary through playing Minecraft, comprehension skills or benefit to 'language' without further explanation. Ten responses mentioned reading specifically. Seven of these said that Minecraft offered practice and increase in reading ability. Three mentioned the game being an incentive to read, either in game text, Minecraft texts outside the game or texts related to aspects of the game. Seven respondents talked about mathematics, either in terms of Minecraft 'developing', 'teaching' or 'aiding' mathematical concepts. Seven respondents mentioned that Minecraft had triggered their child to seek out information about things that the game had sparked interest in. This also led to conversations about these interests. *"has also learnt new words about food, building materials and nature and mostly asks us there meaning or can figure them out due to the visual pictures"* (101); *"Encourages him to do research and read more to understand game mechanics"* (2)

Spatial Skills (n=22)

Spatial aspects of the game were described in varying ways including spatial awareness, 3D orientation, spatial creativity, spatial dexterity, spatial reasoning and spatial relationships. *"Digital spaciality (sic)"* (183); *"creative spatial play"* (35)

Digital Literacy (n=19)

Varying forms of digital literacy were mentioned including: hardware skills – typing, using mouse; software skills – skills used to produce new content (coding, mods) and skills used to find out information (using Google to find out how to do something in the game). *"mouse/keyboard"* (224); *"screen dexterity"* (180); *"learning to code through mods"* (54)

Planning/Strategy/Tactics (n=18)

Planning was mentioned either in a standalone manner or in relation to creativity, strategy or tactics. This suggests acknowledgement of the game-like elements of Minecraft. In this way, planning is not necessarily a purely procedural process but involves cognitive flexibility in the face of immediate obstacles provided by the game that threaten the success of the longer term objective. Some responses talked about planning as being a social process where children communicated with siblings, friends or parents about what they wanted to achieve in the game and how to go about doing this. *"building*

planning skills and putting creative plans into action" (118); *"Planning and tactics"* (224)

Resource knowledge/Management (n=17)

Nine respondents said that Minecraft had contributed to learning about stones, elements and so on. Six of these spoke about knowledge gain directly from the game, while three also said that the game had triggered an interest in geology that had led to the child investigating the topic further outside the game. Twelve respondents mentioned that the game gave an understanding of where 'things' (food, wood, and other resources) come from. *"Learning ie chop trees to get wood"* (188); *"understanding of where materials come from"* (55)

Enjoyment (n=17)

Enjoyment was talked about in relation to specific elements that children liked, which were often linked to other codes. For example, enjoyment associated with creativity. Others mentioned enjoyment in its own right. These responses are unique in that they refer to a state of being that is valuable in and of itself, rather than a benefit actively tied to productivity either within the game or in other aspects of the child's life. *"Talk, laugh, have fun"* (17); *"shared enjoyment and connecting with friends"* (167); *"She really enjoys creating the animals and building houses"* (232)

Play (n=17)

Play was mentioned in varying ways: as creative or exploratory play, or as social, collaborative or cooperative play. Just one comment mentioned the game being a space for a child to play in (without mentioning the type or function of play). Therefore play was primarily talked about in terms of its purpose, or in terms of its quality. *"Fosters creative, imaginative play"* (30); *"playing as a team with others, communicating with others"* (236); *"creativity in making a world to play in"* (39)

Self-esteem/achievement/mastery/social capital (n=12)

These responses relate to the child gaining a sense of achievement, accomplishment or sense of mastery. Or, a gain in confidence, self-esteem or a feeling that they possess a degree of expertise in the game. Three of these responses stated that the child had relative weaknesses in other areas of their lives and that the child's Minecraft knowledge/expertise had provided a counterpoint to these. This was linked to improved social status where children's Minecraft knowledge was valued by peers. *"mastery in a controllable environment"* (62); *"Significant ego boost for my child because he is very good at minecraft (eg. school*

mates ring him at home for advice)" (126); *"Gaming is something she can feel good at unlike school where she struggles"* (70)

Concerns About Minecraft Play

46.8% (n=125) of parents of children who played Minecraft answered 'yes' and 53.2% (n=142) answered 'no' to the question: 'Do you have any concerns about your child playing Minecraft?' A total of 124 responses were entered in answer to 'What concerns you about your child playing Minecraft?' The same format is used to discuss concerns about Minecraft play as in the previous section.

Time (n=48)

Concerns about time fall into those to do with:

- a) *Too much* time spent on the game or too much 'screen time'. Some comments in this category did not elaborate on why too much time spent on screens or on Minecraft was a bad thing. It is commonly understood that 'screen time' is potentially harmful if done 'too much'.
- b) *Time displaced* away from other pursuits. Responses made specific mention of time spent playing Minecraft taking time away from other pursuits that are commonly seen as valuable by parents, such as school work, reading, physical activity, and playing outside.
- c) *The need to monitor and regulate* the amount of time children spend on Minecraft. Several comments said that the child would prefer to play Minecraft to the exclusion of these other activities if given the opportunity. This was mentioned 17 times and often included statements that children would keep on playing indefinitely if time restrictions were not in place. Seven parents said that children were only allowed to play on weekends, and others said that children were only allowed to play for a certain amount of time, or after completing other activities such as homework.
- d) Ten responses mentioned that one of the things that Minecraft displaces time away from is activities that are done *outside*. Three talked about outside activities as involving physical activity, or stress relief by exposure to nature. Four responses said that the child not being outdoors was a concern in itself without explanation about why being outside was beneficial.

"Amount of screen time" (85); *'too much time on screen, less time for play and study'* (97); *"If I didn't stop the time she was playing I'm sure she would play for a lot longer"* (113); *'She should be outdoors'*

(87); *"I would rather him play outdoors than fixed to a screen"*(101)

Cyber safety (n=30)

A range of concerns related to safety were reported. These centred on children playing with unknown people on online servers. Most responses in this group stated that 'being online' or 'playing with strangers' was concerning without explaining why/how. Three responses specifically talked about grooming and predation. Six others said that concern was about their child being exposed to the inappropriate behaviour (swearing, bullying, cruelty to animals, meanness) of other players. Two responses said that they were worried that they did not know enough about how to block content or to how to tell if their child had overridden parental controls. *"Interactions with unknown adults, grooming children"* (25); *"encountering harmful behaviours of other human players"* (52); *"playing with unknown persons, not being able to be up to date on dangers /warnings about games and what to look out for as parent"* (40)

Addiction and Obsession (n=27)

The vast majority of these used the word addictive or addicted as matter of fact, plainly understandable terms that did not require further explanation. This indicates that the word 'addiction' is commonly understood, and is readily applied to children's gaming. Many comments seemed to define addiction as a child having a desire to play Minecraft for longer than parents would like. Mention of negative behaviours after being asked to stop playing, or if denied limitless access to the game, were also mentioned several times in relation to addiction. Some responses talked about children being obsessed with the game, including talking excessively about the game and this being unpleasant for parents who have little interest in Minecraft. *"Addiction!"*(11); *"It appears to be quite addictive"* (84); *"Addictive nature/desire wanting to play more than allocated"* (42); *"Obsessed with talking about Minecraft with parents to point of parental frustration."* (77)

Violence (n=20)

The majority of comments mentioning violence talked about children either partaking in or witnessing violence or aggression toward in-game characters. Inferred consequences of this were rarely mentioned explicitly. Though, two raised the possibility that the child would learn that such behaviour was acceptable in realms outside of

the game. One postulated a possible link between a child's talk of suicide and Minecraft. Other parents talked about their own personal reactions to the violence in the game, effectively expressing a proxy dislike of certain gameplay elements because of the anti-social, unacceptable place these things have in broader culture and the strong negative emotion these acts elicit in adults. *"I do get concerned as to the culture of other users (school, friends) perhaps being more 'violent' and him thinking by 'association' with the game that this is acceptable despite my husband and my reminder to not be violent/aggressive"* (3); *"We have heard him refer rather flippantly to 'killing himself' on Minecraft in the past. In moments of great upset or drama for him in real life, he will say he wants to kill himself."* (104); *"Will sometimes switch to survival on other peoples devices, I find this quite gruesome and violent"* (63)

Physical ill effects (n=16)

Displaced time away from physical activity was mentioned 11 times. The majority of these said lack of activity was concerning on its own, though one specifically mentioned the game being *"a contributing factor to childhood obesity"* (13). Five responses said that negative effects on eyesight were concerning, one said posture, and one said *"brain function and fatigue"*(76). *"Too much screen time - not enough physical activity"*(102); *"Not good for his eyes"*(48)

Behaviour (n=14)

These responses talked about the attribution of problematic behaviours displayed by children in relation to Minecraft play, or rather the cessation of play. Most of these responses talked about undesirable behaviours occurring when children were asked to stop playing, or when told they could not play. Some also mentioned that conflict arose between siblings or friends during the course of play. Two comments also talked about frustration as a concerning aspect of the game. *"We have noticed that she often becomes quite irritated and displays poorer behaviors on the days she plays this particular game"* (121); *"after a couple of hours both kids usually end up fighting and moody and tantrums fly"* (125); *"Gets addicted then angry when taken away"*(98); *"when they get frustrated they can become mean to the other players or destroy some of their buildings in anger"* (108)

DISCUSSION

In keeping with earlier research on parent attitudes toward screen media in general [3,25,37,42] parents recognise a wide range of both positive and negative aspects of Minecraft play. The game is not

constructed in a single unified manner by individuals. In fact, there are some elements that are perceived in wholly opposite ways by different parents. The degree of violence in the game, for example, is perceived to be relatively low by some parents, and high by others. This discrepancy also reflects the fact that Minecraft offers so many different modes of play which have implications for the way the game is experienced in terms of content and sociality.

Despite this variety, there were some ideas that dominated in this sample. Minecraft as 'creative' but also as time consuming and detracting from 'reality', were pronounced trends across the sample. This dichotomous construction of the game is in keeping with historical trends in relation to perceptions of screen based media in the lives of children. For example, in introducing their observational studies about children's engagement with television between 1958 and 1960, Schramm et al., note: *"On the one hand, it is argued that television keeps children at home and gets the family to do things together. On the other hand...it encourages withdrawal from reality and makes addicts"* [27, p. 5]. Our study has shown such *"discursive dichotomies"* [9, p. 5] persist in a technological and cultural context markedly different to the one Schramm et al. wrote about in 1961.

Furthermore, the current study provides evidence that parents consider play in terms of its potential to contribute to the development of their child. Specifically, parents spoke about this particular game contributing to the development of creativity, problem solving, planning and collaboration (among a range of other skills). This replicates the findings of Marsh et al., in relation to parents' self-reported app purchase decision making. Parents of children aged zero to five years old in that study most frequently cited motivation for app purchase as: *"to support their learning"* and *"to encourage play and creativity"* [19, p.12]. The preponderance of functional benefits mentioned by parents in our sample further highlights the popular construction of children's play as productive.

Related to this idea of childhood as production, is the way that children feature in government campaigns aimed at economic growth. The Australian government is currently trying to increase the number of children, particularly female children, who will go on to have careers in the fields of Science, Technology, Engineering and Maths (STEM) [9]. Digital play is presented in popular media [52] as a gateway to STEM fields, and indeed there is literature to suggest this link is valid [16]. Our data indicate that parents see Minecraft as a form of digital play

particularly well suited to the development of STEM skills. The most frequently mentioned benefits parents identified in relation to Minecraft were creativity and problem solving. These skills also feature strongly in the Victorian STEM Education State Plan document [10]. Educators also talk about ‘21st century learning’ as a means of overcoming the perils of automation. Again, ‘creativity and collaboration’ are proposed as the means through which children will have hope at future employment [2].

Turning now to the concern parents had about Minecraft play, there was a strong sense throughout our data that the ‘screen’ or the game, exists in a state of constant competition with all of the other things that parents want their children to do. Minecraft is construed as so appealing to children that it dominates their thinking. It causes constant struggle on the part of parents to direct children’s attention to other activities (homework, being outside, socialising, playing) in the pursuit of balance, and variety. In some instances there’s almost a sense of resentment toward the game for being so alluring. Relatedly, this data confirms that digital gaming as a form of ‘screen time’ is commonly understood to be something that requires active limitation. So, parents are clearly in a position where they are charged with the difficult task of maximising the putative benefits of digital play whilst at the same time minimising the putative harms associated with ‘too much’ play via screen.

Another prominent feature of the responses about concerning aspects of Minecraft play was talk of cyber safety. Such concerns fit into well-established discourse about screen media in general and preconceived norms about video games. As Willet [57] notes, high-profile risks such as contact with unknown people “*have strengthened the discursive construction of children as vulnerable in relation to their media use, and the home environment as a place for extra safety measures*” [p. 1063].

It is worth noting here that elsewhere in the survey from which the current data is drawn, only 11% of parents indicated that they ever co-played Minecraft with their children, and only 13% indicated that their child ever played Minecraft online with other people not known to them. Therefore, it appears that these concerns are indeed less about direct experience or observation of children’s gameplay, but rather, are heavily influenced by normative representations of what parents should be concerned about. Whilst education about safety in online spaces is crucial, there is a risk that progress in forming evidence-based guidelines for parents around digital play may be

hindered by reliance on the protectionist ethos of previous waves of recommendations that do not adequately account for the lived experiences of children with online media, including online games [30,35].

Paying greater attention to parent attitudes and their antecedents is one means by which researchers can contribute to reducing this risk. Increasing parental gaming literacy is one possible means to do this. Parental mediation of children’s digital play is likely to be influenced by “parents’ prior experience with and knowledge of video games” [13,24]. Schott and van Vught [45] found that parent perceptions of the game Grand Theft Auto IV were drastically altered after just a short period of playing the game. They propose that “*little direct knowledge of games as a played activity...might be responsible for the misconstruction of the moral and ethical frameworks governing game worlds*” [p.2]. Parents reported that the experience of playing the game gave them knowledge about the context and consequences of in-game actions, and also about the complexities of moral decision making that the game required.

It should be noted that constructions of digital play and its value are likely to be class-bound [22,39]. Whilst our analysis did not explicitly delineate different class structures during analysis, the sample did consist predominantly of parents with university level education (a marker of middle-class status). Willet [57] notes that providing children opportunities to play digital games that cater to middle class definitions “*achievement*” constitutes “*good parenting*” [p. 1063]. Further research, with more attention given to the class status of participants, would provide valuable insight into the way that digital games are viewed across a population.

Design Implications

Based on their findings, Schott and van Vught [45] recommend that efforts aimed at reducing harm associated with digital games should consist of “*educating the public and supporting parents in learning about digital games*” [p.10]. We concur with this approach and suggest that in practice this could occur on a range of levels including policy, regulation and education (via schools as part of digital citizenship curricula for example). Game designers could also consider ways to enhance the gaming literacy of parents through features that increase the likelihood of coplay, or otherwise encourage parents to display an active interest in their children’s gaming, beyond monitoring for inappropriate content and time spent playing. Some developers of game apps designed for young children

currently include such features. When opening a Sago Mini app for example, a ‘for parents’ icon appears. When selected, a detailed explanation of the game appears including a section titled ‘to talk about’ where suggested prompts for co-use are included (for example, parents are told to ask questions like: ‘what do you think the character will do next?’ and so on) [43]. Games aimed at older children, including Minecraft, tend to not include such explicit parent-involvement features. There is no literature explicitly directed to parents on the game’s primary website, and Minecraft contains no tutorial or internal “help” to players [12,31]. In order to play the game, even in the less challenging ‘creative’ mode where the process of ‘crafting’ items is not central, and there is no threat element, a degree of gaming literacy is required. Whilst this may provide opportunity for child-led instruction and an empowering variation on standard power dynamics between parent and child (as mentioned in several of the comments in the current study), such a ‘bare-bones’ framework could act as a barrier to the involvement of parents who may not have personal repertoires of gaming experience to draw upon [38] nor an intrinsic interest in digital gaming as a medium [51].

One game that has successfully facilitated co-play between parents and children is Pokémon Go. Based on survey data and interviews with guardians of children playing Pokémon Go in public spaces, Sobel et al., [50] suggest that beyond the effect of the game requiring physical activity to be played (and therefore countering concern about gaming leading to inactivity), the game also has “*simple gameplay mechanics*” that allow for focus on content and play rather than technical aspects [p. 1491]. This, combined with a range of other design features outlined by Sobel et al, led to shared enjoyment of the game parents and children and point to design elements that could foster co-play, and therefore increased parental gaming literacy.

Recognition of the common construal of digital games, in this case Minecraft, as ‘addictive’ and difficult for children to stop playing points to other possible design considerations. One factor sometimes associated with the game’s ‘addictive’ qualities is the assertion that there is no end to the game [17]. Indeed, two responses in our study explicitly mentioned this in describing difficulties associated with getting children to switch tasks. Such conflict surrounding transitions away from screen media were documented by Hiniker et al. [20]. They found that parents of children aged one to five noted smoother transitions away from ‘screen time’ when aided by technology, for example, by a movie ending without an auto-play feature presenting further content.

Hiniker et al., suggest that screen based media technologies could include: prompts to set time limits at the outset of engagement; popup prompts at natural time breaks asking whether the child wishes to continue; asking the child how many more minutes she would like to keep using the technology; and the presentation of a ‘two-more-minutes’ warning/prompt. Whilst the participants in Hiniker et al., predominantly engaged with movie and television content, we propose that the design features they suggest are equally applicable to open-world, sandbox games such as Minecraft. Designing natural breaks in game play and consideration of the ethical implications of games designed to foster limitless engagement should also inform future games for children [18].

We have shown, using Minecraft as an example, that parents value play that involves opportunity for problem solving and creativity. Marsh et al., [32] provide a range of suggestions, based on their observational studies of zero to five year old children, for design that fosters creativity. They recommend: open-ended games where the focus is on process rather than outcome; embedded meaningful problem-solving, critical and abstract thinking tasks; prompts in the form of questions or statements that stimulate play or experimentation; opportunities for creation of content within or surrounding the game, particularly co-creation involving parents or siblings; and the promotion of linkage between in-game and in ‘real life’ play activities.

CONCLUSION

We have provided comprehensive, qualitative empirical insight into the specific ways parents of young children perceive and interpret the game Minecraft. This represents a significant contribution to the literature because it considers, in detail, one of the most influential variables associated with the lived experience of children in relation to digital games. Research that aims to maximize the benefits, and reduce the harms associated with children’s use of digital games, needs to take into account the myriad of contextual factors that surround any one child’s gameplay, including the views of parents. We have shown that parents particularly value digital play opportunities that allow for creativity and problem solving, while they are also concerned about the amount of time children spend gaming and contact with unknown people during online play. Game designers should therefore consider ways to ensure games designed for children allow ample opportunity for player directed creativity, but within time bound parameters. Increasing parent gaming

literacy will also aid in positive outcomes for children by reducing the risk of longstanding negative popular discourse about digital games clouding perceptions of the reality of children's everyday gaming practices.

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PART III

STUDY 3: Household Study

Outline of part III

In the following 5 chapters I detail the third study in my PhD project. Some of the findings from this study have been described in conference proceedings (Mavoa et al., 2020) but the bulk of the work is included here as traditional thesis chapters rather than as already published work as in Studies 1 and 2. This study involved several ethnographic methods of data generation and provides a micro-level view of children's play in Minecraft. I interviewed children and parents, had children conduct play tours of their home and recorded Minecraft play sessions. In terms of the overall structure of the thesis, this study/chapter represents the inner-most circle in my use of Bronfenbrenner's model (see **Figure 1**, p. 83). That is, it addresses everyday *moments of play* with Minecraft. This aligns with my overall aim of describing Minecraft play in detail, with conscious recognition that the context which it occurs in is not static or 'flat' (Plowman, 2016).

Chapter 7 begins with a brief reiteration of the justification for descriptions of everyday Minecraft play before outlining the data generation methods then explaining how my findings are presented. Chapters 8, 9 and 10 cover the findings from this study. Findings are presented in three ways, with recorded play sessions central but not disconnected from other data. In Chapter 8, I describe the play types observed in recordings of Minecraft play sessions in order to give a broad view of the variety of play that can happen in Minecraft. Chapter 9 presents a case study of one participant, six-year-old James, particularly the way he plays 'schools' across both physical and digital spaces. Chapter 10 addresses the ways in which the technological infrastructure of Minecraft shapes play and is shaped *by* children during the course of play. This presentation helps articulate some of the ways that digital play is enacted differently to non-digital play beyond noting how it is more or less *like* non-digital play. In Chapter 11, I draw on findings to argue that Minecraft is best understood as primarily a setting for free play (within contexts detailed in studies 1 and 2 that in many ways construct digital play as inauthentic or only partially valued).

Chapter 7 Study 3: Introducing the household study

7.1 Introduction

Expanded justification for the need for detailed description of Minecraft play, within context, is provided in section 2.5.2 and I briefly reiterate the justification here. In section 2.5 I reviewed existing research concerned with children's digital play from a variety of perspectives. I noted that the written reports of this research lacked detailed description of moments of play and suggested that this is largely due to the instrumental valuing of children's play meaning that working out what play *does* is seen as more necessary than working out what it *is*.

Other scholars have noted the lack of description of play practices and have called for work that fills this gap. For example, Ito and Bittanti (2009) note "focus has been almost exclusively on what people hope or fear kids will get from their play, rather than on what they actually do on an ongoing, everyday basis" (p.197). Willett (2016) calls for "more in-depth research of children's gaming practices" (p. 476). Davidson (2010) speaking about studies linking digital play to social outcomes says that "they do not provide detailed descriptions of what children actually do" (p. 376). Björk-Willén and Aronsson (2014) in framing their work, note that despite academic discussion around the polarisation of discourse in relation to 'child gamers' "there are only a limited number of studies that describe what children actually do" (p. 5). Searle and Kafai (2012) set claims of educational engagement value for boys using 'computer games' against their observation that "we know surprisingly little about boys' actual video game play" (p. 286). Writing about game studies in general, Golding (2013) explains how even within a discipline dedicated to the medium of games, scholarly work overwhelmingly takes a 'from above' view which produces less helpful readings of games than can be achieved through a 'from below' perspective where player navigations of games are foregrounded. Despite scholars having noted the lack of description of digital play and numerous calls for a rectification of this, I argue that descriptions of digital play are still predominantly in the *background* of attempts to link play to outcomes (social, pedagogical, or other). The aim of Study 3 was to address this gap.

7.1.1 Need for documentation of self-directed, leisure time, everyday play outside of institutional settings

Much of the work described in section 2.5 that does to varying degrees describe children's digital play, is produced from studying children in school or after-school club settings (e.g. Anderson et al., 2017; Bailey, 2016; Burnett, 2016; Burnett & Bailey, 2014; Dezuanni et al., 2015; Fields & Kafai, 2010; Hayes, 2011; Ito, 2012; Wohlwend & Kargin, 2013). Some work is based on both home and school settings (Danby et al., 2018; Marsh et al., 2018), and Hollett and Ehret (2015) observed the play of a child while in long-term hospital admission. Research which includes documentation of children's digital play practices only at home includes Marsh's (2010b, 2011, 2014) study of 5-11 year old's play in Club Penguin, including recording of three 11 year old children as they played at home, about implications for identity, literacy and social relationships; Kervin et al.'s (2015) description of simultaneous Lego and Minecraft play of two seven year old children on a playdate; and Given et al. (2014) who describe play of 3-5 year-olds with technology objects in the home including computer and tablet games. Therefore, while there is some work that documents play at home, descriptions of digital play in the literature are heavily skewed toward play that happens at school or an organised after-school club. Stephen and Plowman (2014) note "much of the available literature is concerned with experiences in educational settings" (p. 4). This has ramifications for what sorts of play make it into the historical record of children's play (Opie & Opie, 1969).

There are practical reasons for conducting research on play in digital spaces both at school and at "not-school" (Sefton-Green, 2012) or "hybrid" Burnett and Bailey (2014) sites such as access to reliable and consistent technology and the freedom for researchers to prescribe in-game tasks (Burnett, 2016). It seems that research on children's digital play has largely involved observation of play in school or school-like settings not because this is where play tends to happen, but because it is easier to study there, and can be managed in a way that ultimately aligns with fostering educational outcomes.

However, there are important differences between the types of play possibilities offered in these settings and the everyday play of children at home (or other non-institutional settings). For example, while some studies offer relatively open opportunities for play to children being

studied (e.g. Ito, 2012; Kafai & Giang, 2008), others prescribe tasks to children. The children in Burnett and Bailey (2014) were “invited to collaborate to ‘create a community’” (p. 53) in their lunch-time Minecraft club. Further, in these settings rules need to be in place regarding acceptable behaviour, mode of play, and in-game resource availability (Burnett & Bailey, 2014). There are practical requirements like having to have volume turned down and having to use highest safety settings on games (where available) in order to prevent possible safety issues, time limits on devices, the need to have children monitored and so on (Wohlwend & Kargin, 2013).

There is value in capturing information about the ‘everyday’ practices of children, when they are directing their own play, for play’s sake (Aarsand, 2013; Giddings, 2014a; Hedegaard, 2009; Sawyer, 2002). Free play away from adult intervention, after all, is the sort often associated with romanticised ideals of what childhood play looks like (Cowan, 2020). Therefore, in this study I look at everyday, child-led play at home, while recognising that this play may be influenced by the research process. Now I will describe how the study was conducted.

7.2 Recruitment

Participants were recruited using purposive sampling strategies aimed at gaining as wide a variety of family situations and play practices as possible. Each participating family received a \$50 major retail shopping voucher on the third visit. This was donated by the Microsoft Social Natural User Interfaces Research group⁷. Additionally, the primary participant child in each family was given a scrapbook and pack of felt-tip pens just prior to the parent interviews. These items were funded by me and the total cost was approximately \$100. Study recruitment advertisements were posted to my personal social media accounts. In this way, my recruitment strategy was predominantly that of snowball sampling (Blaikie, 2015) or “snowball networking” (Willett, 2016; p. 468). More families with boys contacted me, but

⁷ “The Microsoft Research Centre for Social Natural User Interfaces (SocialNUI) was a partnership between Microsoft Research, Microsoft Australia, the University of Melbourne and the Victorian State Government between 2014–2018, hosted by the Human Computer Interaction group in the School of Computing and Information Systems at the University of Melbourne” (The University of Melbourne, 2019; n.p)

there was enough interest overall to get a satisfactory gender split without actively targeting families with girls (4 girls and 6 boys were primary participants).

Because of my recruitment strategy of “snowball networking” and my own social class the initial respondents were overwhelmingly white and middle-class. I therefore chose to decline some families and actively direct recruitment efforts in communities from areas with lower SES and greater cultural diversity. I did this by posting my advertisement in one ‘buy, sell, swap’ parent Facebook group for residents in a broader geographical and social range than my initial posts. This effort was only partially successful with just one family (family 9) being recruited this way. Worth noting here is a conversation I had with a group of girls who live in the local public housing estate. They told me that they did not play Minecraft because their parents had not wanted to (or were unable to) spend money on the relatively high (for tablet games) purchase price. The difficulty I had in recruiting diverse families for this study may be at least in part be reflective of broader inequalities in access to certain media content (see also section 12.5).

Ten families participated in the study. Given time and resource constraints, a “saturation” method of guidance on number of participants was not favourable (Blaikie, 2015; Holloway, 1997) and instead I used similar research for guidance on how many families to include. My sample size of 10 families follows the precedent set by similar studies conducted by Willett (2016) who collected data from eight families (including 11 children), Edwards (2013) who collected data from 10 families, and Marsh et al. (2015) who conducted in-depth case studies of preschool children’s use of tablet apps in six families. The aim was not generalisability in a quantitative methods sense.

7.2.1 Age of primary participants

The primary participants (that is, children who had their Minecraft play recorded, conducted play tours, and participated in child interviews) were all between the ages of 6 and 8 years. There were two main reasons for this. First, the small number of previous studies that have looked in relative detail at what sort of play happens in digital spaces have largely involved either preschool children (e.g. Marsh et al., 2015; Verenikina & Kervin, 2011) or children in early high school years (e.g. Burnett & Bailey, 2014; Fields & Kafai, 2010). Secondly, the

quantitative portion of my survey (see Chapter 5) indicated that most children start playing Minecraft at age 6,7 or 8, and that 53% of this age group regularly played Minecraft at the time their parents took the survey (Mavoa et al., 2018). Participating families are outlined in *Table 3* below.

7.2.2 Participant information

Table 3 *Participant Information*

Family Number	Primary Participant Pseudonym, Age	Parent Pseudonyms	Sibling(s) Pseudonym and Age
1	Olivia, 8	Jackie and Fraser (both participated in parent interview)	Gabe, 10
2	Archie, 7	Samantha and Toby (Samantha participated in parent interview)	Parker, 5
3	James, 6	Jasmine and Dave (both participated in parent interview)	Josh, 12 months (Cousin Brad, age 8 present in recording)
4	Beth, 7	Kate and Frank (both participated in parent interview)	Jacob, 5; Ben, 4; Mark 20
5	Zane, 6	Davina and Richard (Davina participated in parent interview)	Rosie, 4
6	Caleb, 6	Henry and Jessica; two other adults live in the house (Henry, Jessica and one of the other adults participated in the parent interview)	Xavier, 10; Josie, 4; Kevin, 6 weeks
7	Sean, 7	Jacinda (Jacinda's partner and mother also live in the house. Jacinda participated in the interview)	11-year-old brother not currently living in same house
8	Linh, 8	Thien and Huong (Thien participated in parent interview)	Anh, 14
9	Deepti, 6	Banu and Harold (both participated in parent interview)	Aashish, 9
10	Brodie, 8	Julia and Pedro (Julia participated in parent interview)	Seb, 10

7.3 Methods

This study used a “cluster” (Plowman et al., 2012; p. 32) of ethnographic methods in order to provide insights into children’s Minecraft play practices within family contexts. The core aim of this study was documenting instances of everyday play. However, given the strongly contextual approach taken in this project overall, it was not sufficient to *only* observe this play. Instead, I wanted to get a holistic account of family practices, attitudes and values surrounding each child’s play. This reflects a dedication to providing ‘thick descriptions’ (Geertz, 1973b) of play in digital spaces. These household contextual factors not only shape opportunities for play in concrete ways, for example via choices around the purchase of particular games and not others, rules (or lack of) about when and where and for how long play can happen, but also in harder to pin down ways such as the family ethos (Livingstone, Marsh, et al., 2015) around digital play.

7.3.1 Data generation tools

7.3.1.1 Play tours

My Play tour method was adapted from Plowman et al. (2012) and Marsh et al. (2015, 2018, 2016) and allowed the children to describe what their overall ‘playworlds’ consisted of, without restriction to site or form of play. Pink (2007) notes that ethnographic studies using video recordings alone risk presenting findings that have been plucked out of their surroundings, leaving important contextual information behind. I wanted to avoid a presentation that reinforced what Weber and Dixon (2007) describe as a tendency to view “video game play as an isolated activity cut off from the rest of childhood play forms and spaces” (p. 17). In conjunction with child interviews and recordings the play tours also served to ensure that children’s voices and perspectives were central to knowledge generation.

During play tours, primary participants guided me through their homes. Audio was recorded and photographs were taken, with the child’s consent, of particularly meaningful objects or sites of play, such as: Lego builds; bikes; soft toy collections; book collections; computers and gaming consoles; trampolines and so on. My tour guides were generally very eager to make sure they gave me plenty of information, and evidently, talking about play without actually playing can be challenging. Play tour data has not been analysed in any systematic

fashion or separated from other data generated. The data generated from play tours has been used in the case study below as part of the rich description of James's play. It also served as a prompt for questions during child interviews in some cases.

7.3.1.2 Parent interviews

Semi-structured interviews with parents were done for the purpose of adding further depth to describing the context of children's digital play. This was with conscious recognition that individual family flows, routines, structures, values, and attitudes towards play form an important part of the context of children's everyday play practices. As Tudge (2008) writes, for a satisfactorily 'thick' description it is necessary to work out how parents "...value different things for their children, have different beliefs about how to attain those valued goals, make available different activities for their children to engage in, encourage their children to engage in some activities, discourage involvement in others, and so on" (p. 101). Furthermore, while recordings of play are core to this study, as with play tours and child interviews, parent interviews serve to avoid recordings being plucked out of households without context (Pink, 2007).

I asked parents about their thoughts on play in general, and digital play specifically, their own videogame histories, household strategies for managing 'screen time', and their thoughts on Minecraft in particular. This was with the knowledge gained from my literature review and qualitative components to the survey in Study 2 (see Chapter 6) which found parents engage in an active comparison process between Minecraft and other digital games. I wanted to probe into group level findings from Study 2 more thoroughly in interviews, as interesting in their own right, but also, for the purposes of Study 3, as important in shaping opportunities for Minecraft play.

In parent interviews I also asked parents to list all the digital devices in the house, in a similar way that Plowman et al. (2012) conducted "technology audits" of households. I asked which devices the primary participant child used for play and roughly when and where in the house. This information was collected as further contextualisation of the child's digital play and Minecraft practices. The amount and type of digital devices that can be used for digital play vary across households. Like Plowman et al. (2012) I found that responses from parents in interviews indicated that differences in devices used for digital play were more about

attitudes toward ‘screen time’, perceived utility and family interests than about financial limitations.

Length of parent interviews ranged from 45 minutes to 1 hour and 50 minutes, with an average length of 1 hour and 15 minutes. I detail findings from the parent interview of family 3 in the case study presentation of Chapter 9.

7.3.1.3 Recorded play

In order to document everyday digital play practices of children in Minecraft I opted to video record play sessions rather than sit and watch children as they played. Existing research has used a range of methods for recording children’s digital gameplay (Aarsand, 2010; Aarsand & Aronsson, 2009; Björk-Willén & Aronsson, 2014; Kervin et al., 2015; Marsh et al., 2015; Schneier & Taylor, 2018; Stephen et al., 2013). However, all of these methods have limitations in terms of ‘technical difficulties’ and amount of information able to be captured. The main problem with them is that only the screen or only the child are recorded. Therefore, I devised my own method of recording, which was tailored to each family (based on device used for play, furniture configuration and the presence of infants at risk of toppling camera tripods etc.)

I recorded Minecraft play from two perspectives. In some families however, this was not possible, or it was attempted but unsuccessful (see **Table B 1**, page 326). Video cameras recorded children’s bodies in space so that I could see facial expression, interaction between players, body movements and to some degree household goings on surrounding the child. I also recorded the screen where play was taking place, although in some cases (see **Table B 1**, page 326) this did not work. I then edited footage so that for analysis I could see side-by-side videos of the screen and the child(ren). Table B1 (page 326) shows the configuration of recording in each family as well as the number and length of recordings. In total 653 minutes of recorded play were included in analysis. The length and number of sessions to be recorded was left up to families (see procedure below).

7.3.1.4 Child interviews

The final method of data generation used in this study was semi-structured interviews with children. This builds on previous work that has explicitly included children’s voices in

research about their digital device use (e.g. Dezuanni et al., 2015; Marsh, 2010b, 2011, 2014; Willett, 2016; Willett, 2016; Willett et al., 2013). Such an approach is in line with the new sociology of childhood paradigm which underpins this thesis. My interviews with children asked how they perceived and valued play and what they thought about household rules relating to digital gameplay. I also wanted to get a sense of how children saw their Minecraft play, what they enjoyed, what they felt skilled in, and what sort of meaning is attached to different ‘worlds’ they had created, or wanted to create, in Minecraft. My interview questions were based on Nicholson, Shimpi, Kurnik, Carducci, and Jevgjovikj's (2014) study of children's perspectives on play in general.

Child interviews ranged in length from 49 minutes to 1 hour 40 minutes, with an average length of 1 hour and seven minutes. These lengths reflect the amount of time I had the recording device on. However, in many cases the child interviews were a bit of a stop-start affair. I did not want to risk shutting down conversation by insistence on moving on (also risking further framing myself as bossy parent/researcher) but, as with the play tours, managing participants’ desires to tell me everything about Minecraft, while also gathering the specific information I wanted, was difficult. Data from interviews with children have not been analysed in a standalone manner but information from the interviews has been used to supplement descriptions of play types and the role of the technological infrastructure in shaping play (for example where children expanded on what they did in recordings during interviews or where they described other instances of Minecraft play not captured in the recordings) and in the case study presented in chapter 9. Where information has come from child or parent interviews in analysis chapters it is clearly noted (see also section 7.5).

7.4 Procedure

Following recruitment this study consisted of three visits to participating families’ homes. The visits occurred over a 1-2-week period. Most visits were during weekdays, after school. This meant that often I was there over dinner preparation time or bedtime routine time. It was difficult to find suitable times that did not encroach on household routines. Visit 1 involved play tours, parent interviews and giving instructions about recording Minecraft play. Recording equipment was left with families. Visit 2 was brief and involved collecting

recordings and equipment. On Visit 3 I interviewed children, with reference to recordings where required to help my understanding.

7.4.1 Ethical considerations

This study was given approval by both the University of Melbourne's faculty of Engineering Human Ethics Advisory Group (EHEAG) and the Psychology, Health and Applied Sciences Human Ethics Sub Committee (HESC). I provided children with separate Plain Language Statements (PLS) and consent forms in language designed to be appropriate. In some cases, children read this themselves and I confirmed with parents that this was appropriate. In other cases, I read the documents to children. In all cases I verbally explained the purpose of my visits and that children did not have to answer any questions they did not want to, that they could check the recordings before I took them away (or at any point) and that they could say they did not want to do the study anymore, at any point. The process was followed for adult participants, though they had a more formally written PLS and a more extensive checklist on the consent forms. Children were not required to sign their consent forms (because technically they were not of the age to consent), but they were given the option of signing (or writing their name or initials) if desired. Consent forms were also provided and signed by parents on behalf of siblings who would be present during recording sessions and play tours. In one case, family three, it was known that a cousin would be visiting during the week, so a consent form was left for his parent to sign before the children's joint Minecraft play session was recorded.

At all times I was aware of power relations between myself as a researcher and the children as participants. Research with children poses unique ethical considerations in this regard as there is a tension between seeing children as experts in their own worlds, in this case their playworlds, and also as members of society with relatively less decision making and other power than adults (Danby et al., 2011; Lange & Mierendorff, 2009). In the current study I was careful to present myself as a researcher but also as a parent. I chose to do this in the interests of transparency and rapport building. I made known, at varying points throughout the home visits, to both the children and their parents that I was also a parent with children who play digital games. I felt this was appropriate, within the epistemological framework of

the study. I made concerted effort to be clear that my purpose was to understand Minecraft play and *not* to work out whether what children did in Minecraft was good or bad.

There was one incident in recording of play that I want to mention here in relation to research ethics. Despite what I had thought was sufficient reassurance that my request for recordings was done with a spirit of total flexibility and reassurance that I was grateful for *any* insights into Minecraft play, one child became very upset that the build he was working on did not seem to have been screen recorded. There were tears and frustration, defused after several minutes by the participant's mother. In this case the presence of researcher gaze and desire on the part of the child to show their Minecraft skill resulted in a temporary state of distress. However, this was short lived and according to the child's mother not an unusual response to frustration both in Minecraft and other situations for this particular child.

7.4.2 Validity considerations

The set up I used to gather play recordings has advantages and disadvantages, many of which are common to direct vs remote observation in ethnographic research in general, but some specific to this study. On one hand, leaving cameras and the process of recording to families meant that it is likely that more 'natural' forms of play occurred than if I had been there. As Stephen et al. (2013) note from their similar method, "the video recordings gave insights into the kinds of behaviours that were less likely to happen when there was a 'visitor' in the home, for example, children expressing displeasure and frustration and sibling disagreements. These incidents give us confidence that our methods resulted in authentic glimpses into everyday life" (p. 161).

However, on the other hand, this method meant that families were burdened with managing recording devices and making decisions about when to start and stop recording as well as trying to get the best possible view of screen and player(s). I was very aware of the demands I was placing on families and aimed to minimise this by providing clear instructions and reinforcing flexibility. I did not get the sense that any families were overburdened with the task of recording. In this way, the recordings as data were generated in a collaborative process between researcher and participants (Nansen et al., 2015; Pink, 2007).

Additionally, Tudge (2008) argues that using recorded observation, rather than in-person observation, means that the field of vision is narrower. Contextually important household goings-on may be happening off-camera. However, in my recordings, to varying degrees, relevant background activity was captured (see section 8.1, p. 183).

In any observational studies the potential impact of researcher gaze (whether directly present or not) must be considered. It is very likely that the play recorded in this study was not the same as would usually happen, simply because the players had full knowledge that they were being recorded. As Plowman et al. (2012) note of their own research “it would be naive to think that our presence in family homes did not have an impact on behaviour” (p. 32). Indeed, it was clear in my recordings that there was a level of awareness of the cameras. For example, in family 1, the father said at the start of recording “ready to play Minecraft for research guys?!” - met with fist pumps from both children. In another example, the mother in family 10 said “can you just make sure that you keep that [iPad on lap] still like that? Is that OK?” This demonstrates how recording of play can have very practical implications for how play happens. However, I do not see this as necessarily a limitation, but something to be acknowledged.

In fact, children’s awareness of the camera resulted in some interactions that aid in understanding the cultural milieu that their play occurred in. As Pink (2007) argues, it is necessary to not only consider participants’ awareness of being recorded but also the place that ‘being recorded’ has in participants’ cultural worlds. Bailey (2017) notes how children in his study made a song up about the GoPro used to record them, and one child commented that “I feel like a YouTuber” (p. 118). The children in my study also had interactions with the recording process that indicated possible connections with contemporary children’s media culture. For example, in one of the recordings from family 2, Archie provides a to-camera commentary about what he is doing, in the style of a YouTube ‘how to’ video. He starts “hey guys, my name’s Archie...and now, what you want to do is...” This could be on the one hand seen as a failure to capture ‘everyday’ play, because it clearly involves a direct relationship with the recording process. However, this sort of interaction, which also happened in other children’s recordings, is best interpreted as an indication of the enmeshing of ‘YouTuber’ practices and Minecraft play practices in a way that represents the current

cultural value of both for children. Therefore, I present this observation as a source of enrichment to the study's validity.

My findings are not an exhaustive cataloguing of all play possibilities in Minecraft but rather a snapshot of what is possibly just a small fraction of what millions of Minecraft players might do in game. I make no claims of generalisability, or of exhaustive description. Furthermore, for the sake of presenting these findings in thesis format alongside two other studies, I have had to be very limited in the number of examples of play given. In this way, not only are the findings that follow not necessarily representative of Minecraft play of children beyond the sample, they are also not necessarily exhaustive descriptions of what was present in the recordings.

7.5 Analysis

Throughout the description of methods given above I have indicated that the video recordings form the primary data source for this analysis. The play tour, parent interview and child interview data have not been analysed for the purpose of this thesis in a formal sense, in their own right. Instead they have been used to support findings which are centred around the recorded play sessions. This is because of time and word limit constraints and leaves open the possibility for further analysis of those sources at a later date which will expand knowledge generation, particularly from children's own voices. In the presentation of findings in the following chapters I indicate where information has come from a source other than the recordings (parent or child interviews, play tours or from children explaining practices by way of demonstration on their iPad).

7.5.1 Play type categorisation

While Giddings sees “the whole taxonomic exercise as unhelpful” (2014; p. 41) to studying the nature of play in general because of the overlap of different play types in so many moments of play, I argue that there is practical merit, for the current study, in describing play within taxonomic categorisation. Given the vast variety of actions performed in the play recordings, all within the same underlying Minecraft setting, I needed a robust way of organising and categorising what was observed while meeting the overall objective of describing Minecraft play. Therefore, I used a taxonomy of play types more as a means of

structuring a hugely varied range of actions for the purpose of description and less as a survey or checklist type tool. This did mean that many instances of play were coded as more than one play type, as discussed below.

I followed Marsh et al.'s (2016) adaptation of Hughes' (2002, 2006) taxonomy of play types. Marsh et al. (2016) after reviewing several other taxonomies of play, including Bird and Edwards (2015), Caillouis (1961), and Hutt (1979), argue convincingly that Hughes' taxonomy worked best for their purposes (working out play opportunities provided by apps used by 3-5-year-old-children). Hughes' taxonomy provides a suitably fine-grained structure for labelling and describing play sequences and represents an amalgamation of many strands of play literature including developmental psychology, biological and anthropological perspectives on play. Hughes, particularly in his later work (Hughes, 2012) takes a strong interest in biological and evolutionary aspects of play. These are not a direct concern of this thesis. Nevertheless, Hughes' contribution of an orderly set of play types is very useful for my goal of describing Minecraft play.

Hughes' taxonomy consists of 16 play types which were collated based on an extensive review of literature as well as Hughes' many years of experience as a playworker in the United Kingdom. While Hughes' taxonomy was initially formed with non-digital play in mind, Marsh et al. (2016) observed all but 2 of the 16 play types in their recorded tablet play sessions of 3-5-year-old children using a variety of apps. In Minecraft specifically they documented five play types: *social*, *creative*, *exploratory*, *mastery* and *object* play. The play types not conclusively found in their recordings (across all game titles) were *rough and tumble* and *recapitulative play*. Because Marsh et al. (2016) demonstrate the utility and appropriateness of this particular taxonomy in coding digital play, and the justifications they give for using it, I have chosen to also use this taxonomy as a way of organising and describing Minecraft play.

Coding of videos for play types in the current study was done in a top-down fashion with instances of each play type coded in Elan software (ELAN, 2018) which allows for large video files to be annotated. This process involved watching and re-watching videos while annotating each discrete observed occurrence of play that could be described by one of the play type categories (**Figure 2**, below). I did all initial coding and a selection of 12 minutes of

recordings across 3 participants was watched and discussed with Martin Gibbs and Bjorn Nansen (supervisors). There were slight disagreements in what labels to apply to some instances of play, but consensus was reached through discussion. As the play types were being used as a means of scaffolding description of play, rather than as the basis for a quantitative content analysis or generation of theory, slight differences in opinion on which label to apply to some instances of play are not seen as a limitation, but more as representative of the complexity involved in describing play.

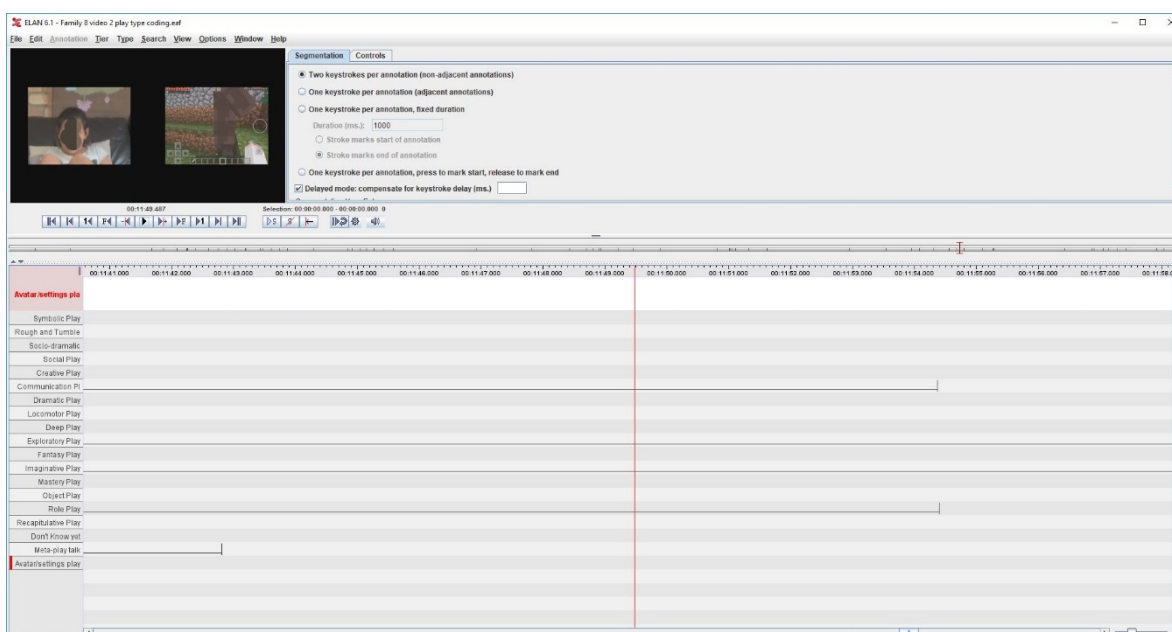


Figure 2 Screenshot of Play Type Coding in Elan Software

Many instances of play were coded as two or more play types, as play moved freely and often quite rapidly between categorisations. It is crucial to note that while Hughes' taxonomy offers an orderly categorisation system, this does not in any way mean that children's play is orderly or that describing play is simply a matter of adding a label on a video scene and saying "from 00:32 to 00:38 the child was doing 'creative' play", for example. The categorisation system merely offers an anchor for attaching hugely diverse and enmeshed types of play, often in sequences that flitter rapidly through specific play types. The risk of not using any structuring system is that some range and granularity of description could be lost.

Play that did not fit obviously into one of the play types was initially coded as “don’t know yet” (in hindsight, a better label would have been “other”) then refined as *satisfying* play upon further analysis. I also coded instances of participant talk as “meta-play talk” and included a further label, “Avatar/settings play” to note where children spent time trying on avatar skins or changing settings. This label, in conjunction with others, was useful in describing the ways that the technological infrastructure shaped play in Chapter 10. In the presentation of findings below, I describe 17 types of play that occurred in the recorded Minecraft play sessions. These are Hughes’ original 16 types, plus *satisfying* play. In addition to the video coding, detailed notes were recorded on paper and computer as I watched and re-watched the videos. The findings presented in the following chapters come from a thorough reading and organising of both the computer and handwritten notes and frequent return to the recordings.

7.5.2 Case study presentation

In addition to presenting findings on types of play present in the Minecraft recordings, I also provide a detailed thick description of one child’s Minecraft play within their family context and within their broader playworld. This is included to avoid the descriptions of play types existing in a disconnected manner, as artificially separate from the contexts and players that form them. Further, the case study acknowledges the non-straightforward relationship between parent attitudes towards gaming, mediation strategies and actual gaming experiences that was noted in section 2.4.4.

Geertz (1973b, 1973a) popularised the term ‘thick description’ and it is now core to ethnographic methods. Dadze-Arthur (2017) writes that “Geertz conceived of thick description as a way of explaining the cultural context of actions, words, and objects and the meaning people place on them. Thick description offers enough context that a person outside the culture can make sense of the behaviour. Thin description, by contrast, states facts without such meaning or significance” (p. 37). The work presented in this study is different to the kind of ethnography that Geertz (1973a) talks about. It shares a focus on the ‘everyday’ as being worthy of study (Tudge, 2008) and a commitment to seeing everyday practices as part of broader sociocultural webs of meaning. However, I have not spent extended periods of time with participants and therefore my study is more in line with the approach of more recent

ethnographic media studies (e.g. Balmford, 2018; Huh, 2015; Nansen et al., 2015; see also Hjorth, Horst, Galloway, & Bell, 2017).

The case study presentation synthesises data generated from family 3's play tour, parent interview, Minecraft recordings and child interview. It serves to present a detailed account of James's Minecraft play as it exists within family histories, attitudes (informed by broader discourses described in studies 1 and 2), technological resources, and James's personal interests and use of physical, social, and digital resources in creating meaningful moments of pretend play. Family 3 was chosen as a focus for this presentation primarily due to the range of play types James engaged in and the clear example of play themes traversing multiple sites.

7.5.3 The intersection of player agency and technological infrastructure in shaping play

Chapter 10 looks at the web of agency between player(s) and the technological setting of play. The presentation of these findings comes from my notes on play recordings. Throughout my viewing of recordings, it became clear that a key point of difference between Minecraft play and non-digital play was the ways in which children made use of the coded properties of their digital play space. I formed groups of observations based on initial notetaking, such as those related to play with non-player characters (NPCs); play with settings; play with in-game time and weather; glitches; technical difficulties and so on. I then collated examples of each group of observations, returned to recordings with a focus on how play was shaped by the technological environment and structured these insights as presented in chapter 10.

Chapter 8 Play types in Minecraft

8.1 Introduction

Analysis of Minecraft recordings found all but one of Hughes' (2002) 16 play types present. The play type not observed in-game was *rough and tumble*. Marsh et al. (2016) did not find instances of this in their data either. I also found several examples of play that did not easily fit with any of Hughes' existing play types. I combined these into a new category that I labelled *satisfying play* which captures play with spectacle and destruction and frames it in line with other play and media practices such as 'oddly satisfying' YouTube videos. I detail this following my descriptions of Hughes' play types, as they occurred in participants' Minecraft play.

While the findings presented below have been structured around Hughes' play types, I also want to note that at a higher order, the play observed in the recordings meets the criteria for free play as collated by (Cowan, 2020). Cowan notes the tentative nature of her collation of characteristics based on a literature review and children's perspectives, but with this in mind it is useful to see the ways in which Minecraft operates as a space for free play. The criteria Cowan (2020) lists as describing free play are that it is: intrinsically motivated; voluntary; open-ended in structure; imaginative; stimulating; social; involves emotional resonance; and takes a diversity of forms across childhoods (p. 32). I have not analysed, in a formal sense, the degree to which the play recorded for this study meets each of these criteria. However, through the following descriptions of play it is evident that many of these criteria are indeed met by the Minecraft play of children in this study. This is important given that free play is highly associated with ideals of 'good play' (Cowan, 2020). I will return to this point in section 12.4, when considering viewing digital play within a children's rights framework.

I present findings below regarding the ways in which children played in the Minecraft recordings, and play that was described by children in interviews where relevant, structured around Hughes' (2002) play types. For the sake of thesis word limits, seven of the play types are described in table form (**Table 4**, p. 185) and the remainder are described in more detail following the table (section 8.2.2).

Recordings were either done after school, in the evening or on weekends with parents nearby but generally not actively spectating. These recordings captured a range of background activity, some related to play and some not. Audio captured sounds of siblings laughing, talking, or crying, washing machines spinning, kitchen clatter, dogs snoring, birds chirping, and parent conversation. The end of play and/or recording was initiated by parents in all but one case.

Play sessions often began with children deciding which world to play in, or setting up a new world, followed by a period of them getting bearings by flying up, looking around, surveying new terrain or re-acquainting with previously experienced spaces. After this, some children settled into activities including working on building, or exploring the landscape, while others flitted from one activity to another. As Willet (2016) found, the range of play styles exhibited by my participants showed “different orientations toward Minecraft” (p. 473) with some more experienced and knowledgeable, such as Beth, Zane and Caleb, and others more casually involved or new to the game such as Deepti and Archie.

The majority of play sessions recorded were in *Creative* mode, although Brodie played only in *Survival* mode, and Linh and Caleb both spent some time in each. Recordings included moments of humour, frustration, disagreement, excitement, antagonism and were, broadly, a mix of quiet, slow play and boisterous frivolity. In all recordings, children attended to both the physical and social spaces around them in their home as well as what was happening on screen – they were *present* in both. The examples of play given below have been included because they well articulate the play type being described. However, it must be noted that for every example included here there were often numerous other possible instances of play that could have served just as well.

8.2 Findings

8.2.1 Hughes’ play types table

In **Table 4** on the following pages, descriptions of play types and examples are given from Hughes’ work with reference to Marsh et al.’s (2016) adaptation to digital environments and other literature where relevant. Examples from my own data are also provided.

Table 4 Hughes' (2002) Play Type Categories with Descriptions, Examples from literature and Examples from Study 3 Data

Play Type	Description	Examples from literature	Examples from my data
Dramatic	Enactment or re-enactment of scenes, narrative structures and performance from TV and other popular culture domains, or dramatisation of experience (Hughes, 2002; p. 14). Involves an imagined or real audience and sometimes rehearsal; performance and display are key (Hughes, 2006; p. 43).	Performing items in the style of a 'girl band'; enacting narratives and character portrayals from the Harry Potter series (Hughes, 2006).	Reflecting the media milieu inhabited by many participants, <i>dramatic</i> play was clearest where players took on the role of YouTubers. This was evident by the mimicry of intense commentary and utterances directed to a real (co-players; me as researcher) or imagined audience. For example, while playing Deepti exclaims "this is the funnest day ever guys!" Beth says in a loud and highly dramatic tone "OK KIDS!" then comments herself on the stylised phrase and tone: "pfft what is this? Ryan toys review? That's like Ben's favourite YouTuber!"
Fantasy	Playful engagement with situations that are "pure products of their imagination and unrelated to reality i.e., when they are playfully imagining scenarios which are all the mind and are not composed of 'real' experiences, individuals or species" (Hughes, 2002; p. 18).	'Being' a dragon; dressing up as a super-hero; casting spells and doing magic (Hughes, 2002; p. 18).	Play with fantastical NPCs such as Creepers, Endermen, Zombies, Skeletons. For example, Archie spends time spawning creatures called Blazes, watching them, listening to them, then experimenting with different weapons for killing them. Play with portals to other dimensions, e.g. Zane constructs a monumental portal to 'The Nether'. Attempts at flying using Elytra (in-game wings) and teleporting.
Imaginative	Similar to <i>fantasy</i> play but involves imagined scenarios that are based on "real things in unreal situations" (Hughes, 2002; p. 20). "Play in which children pretend that things are otherwise" (Marsh et al., 2016; p. 247).	Pretending to be a car or a tree. Pretending to eat food that is not there or pat an imaginary dog. Pretending to be invisible. Talking to on-screen animals "as if they were real" (Marsh et al., 2016; p.249). Animation of on-screen avatars "as if they were talking on their behalf" (Aarsand & Aronsson, 2009; p. 1570; see also Björk-Willén & Aronsson, 2014).	Talking to NPCs as if they were sentient beings, e.g. Linh saying to a Villager "excuse me sir, where is the library?"; Archie telling a Polar Bear "that's what you get for killing me a long time ago!"; Beth talking to bees she was having trouble containing: "Bees, you're in a fancy hotel, kay? Just imagine that you're in a fancy hotel. No escaping!" Deepti and Aashish exclaiming "Yum! Let's have some cake" when entering an in-game bakery.

Mastery	Using hands or tools to “make changes to the environment” (Hughes, 2002; p. 23). Allows children to experience and display control. Demolition and construction.	Fire play, building dens, digging holes, changing the course of streams, constructing shelters, growing things.	Play with Redstone which functions like electricity in-game. Using commands to change time of day or weather (see also 10.2, p.234). Changing the course of water e.g. Archie changing a village’s crops into a swimming pool by digging them out and Olivia doing similar to “make a flood!” Using torches and glowing blocks to get light into spaces that are otherwise dark.
Recapitulative	“Play in which children might explore history, rituals, and myths and play in ways that resonate with the activities of our human ancestors (lighting fires, building shelters and so on)” (Marsh et al., 2016, p. 247). ⁸	Play with fire, rituals, use of historic attire, war and weapon play, gardening and cooking, and care and use of domesticated and farmed animals (Hughes, 2002; p. 27).	Most notable in <i>Survival</i> mode play where children gathered resources from the digital land without power tools or supermarkets, fought off hostile creatures of the night, made shelter, and used fire for light and cooking. ⁹ Play with war occurred when Olivia and Gabe raided a village: “we are warriors from another land!...We will attack in the morning!”
Rough and Tumble	Play fighting but less to do with fighting than with a “normally hilarious interaction of touching, tickling, gauging relative strength, discovering physical flexibility and the exhilaration of display” (Hughes, 2002; p. 31). In digital play this involves players using their avatars to “touch each other playfully, e.g. bumping each other” (Marsh et al., 2016; p.247). Not observed by Marsh et al., (2016).	Wrestling, pile-ons, playful fighting, chasing.	Not observed in-game. There were rough interactions with NPCs but these lacked the mutually playful element that delineates <i>rough and tumble</i> play from aggression. One instance of off-screen <i>rough and tumble</i> play was observed. This was initiated by Parker talking to on-screen characters in a ‘spooky’ voice, Archie joining in and a rapid escalation in humorous energy overflowing into a brief period of nudging (with force) and jostling.
Sociodramatic	“children re-enacting social experiences to understand or gain control...playing in scenarios which represent real, possible or desired domestic, social or cultural situations” (Hughes, 2002; p. 35).	“Being mums, dads, babies, playing house with experiences – normally domestic” (Hughes, 2002; p. 35).	Children playing ‘shops’, ‘schools’ and ‘families’. Olivia described making a supermarket: “we had the bakery where we sold cakes, and the deli where we cooked chickens alive in fire.” James building a school and playing families with his cousin (described in detail in Chapter 9).

⁸ *Recapitulative* play has attracted critique around validity of the category given how much overlap there is with other types of play (Marsh et al., 2016) and around the problematic origins of the concept (prior to Hughes’ application to play) which are associated with ‘primitive’ versus ‘civilised’ groupings of people (Hughes, 2006; p. 50; see also Leichter-Saxby, 2016).

⁹ López López, de Wildt and Moodie (2019) present a critical perspective on this form of play in Minecraft where natural resources are exploited, and they detail how in the context of a high school history class about colonisation, where the teacher has students reconstruct processes of colonisation in Minecraft, questions about who inhabited the land before the students-as-colonisers are actively avoided.

8.2.2 Long form descriptions of play

I now describe instances of the remaining nine of Hughes' (2002) play types found in my data. After this, I present an initial conceptualisation of a cluster of play not adequately accounted for by Hughes' taxonomy, which I refer to as *satisfying* play.

8.2.2.1 Communication play

Communication play involves both verbal and non-verbal communication between children, between children and adults, or between children and non-human or inanimate objects. *Communication* play is also called word play or language play. Hughes (2002) sees the purpose of *communication* play as enabling "children to access vocabulary, nuances, fun/rude words, dual meanings and assess the impact of words, sounds, body-language and facial looks" (p. 8). Examples given by Hughes include: name calling, mime, mickey taking, jokes, play acting, facial expressions, imitation, gestures, singing, debate, poetry, talking on mobile phones, text messaging, street slang, waving, shaking hands and making non-verbal noises.

Several forms of *communication* play were present in Minecraft recordings, and these can be broken down into *non-written* and *written* forms. *Non-written* forms of *communication* play included utterances accompanying movement or action, such as cries of "whee!", "yeah!", and "ouch!" as players jumped off high places or rode in Minecarts. For example, when Caleb has his character jump off a platform he yells "*Geronimo!*" Then "aah, bonk, urgh, I'm dead" (through giggles). Aarsand and Aronsson (2009) and Conway (2013) describe such utterances using Goffman's (1981) concept of 'response cries' as important elements of gameplay that draw in other participants (co-players, spectators) and facilitate active movement between physical and digital space.

Singing, whistling, or humming featured in some way in almost all of the recorded play sessions. These took the form of 'background noise', as in the case of Sean whistling while he built an ice-cream truck in-game or as a kind of soundtrack for the play occurring. Singing drew upon popular culture references, including existing Minecraft parody songs (where the words of popular songs are changed to Minecraft related themes). For example, Caleb recited part of a Minecraft parody of a Taylor Swift song (TheDiamondMinecart, 2012) in which the

lyrics “we are never getting back together” are replaced with “we are never ever going to the Nether”. During a period of Villager spawning, Archie composed his own ode to Villagers, to the tune of traditional children’s song Farmer in the Dell: “There’s a Zombie Villager...there’s a Zombie Villager...there’s a baby Villager and a normal Villager...”

Other forms of *communication* play observed include dancing. For example, Beth, with her character standing on her dad’s cat TNT sculpture (see *satisfying* play section 8.2.2.10), moves her avatar in a rhythmic fashion as she sings “I’m a gangster, g g g g g gangster”. There were also: fist pumps and high fives; plays on words in the form of spur of the moment repetition or morphing of spoken words during the course of play, often in a ‘funny’ voice. For example Beth’s dad mimicking in appropriately monotonous, artificial style, the text-to-speech announcement on Beth’s iPad which reads aloud the on-screen notification “dad joined the game”. Voicing of in-game characters as part of role-play was also an example of *communication* play. For example, James saying “goo goo ga ga” while talking as a baby that is part of a longer *sociodramatic* play sequence.

Written communication/literacy play included practices such as using the in-game item search function to spell out names of items (as an alternative to scrolling through hundreds of graphical representations of items). This involved frequent misspelling and persistence in trying varying combinations of letters or calling out to a parent for the correct spelling. For example, Archie tried several spellings of ‘wheat’ with no success (the game gives feedback of the incorrect spelling by returning no results) before calling out “mum.... how do you spell wheat?” Though not the focus of this thesis, these practices can be seen in light of pedagogical research on opportunities for in-game literacy practices, such as the work of Black (2010) and Black et al. (2014) who assess virtual worlds in terms of the degree to which they might facilitate varying literacies.

The use of signs and symbols was another form of written *communication* play. The in-game item ‘sign’ was used to *label groups of items*. For example, James had placed signs labelled “dimond staff” (diamond stuff), “ieon staf” (iron stuff), and “golden staf” (golden stuff) above chests with the corresponding items inside. Signs were also used to denote *purpose of space* (e.g. ‘Guest room’); or to denote *ownership of space*. For example, James had a room in-game full of beds for each member of his family, including the family dog, each with a

sign with a name on it above. Signs were also used to provide *instructions*. For example, Sean made symbolic use of the letters i, i, v – placed in vertical formation forming a downwards pointing arrow (**Figure 3**). The arrow indicated the position of a pressure plate which had to be activated in order to access an underground space. Apart from using signs for communication in play, Sean had also used chests placed on the ground in formation that, when viewed from above, formed the letters P and O. When asked about this in his interview, he explained that he had been trying to write “poo” but ran out of space for the second ‘O’.

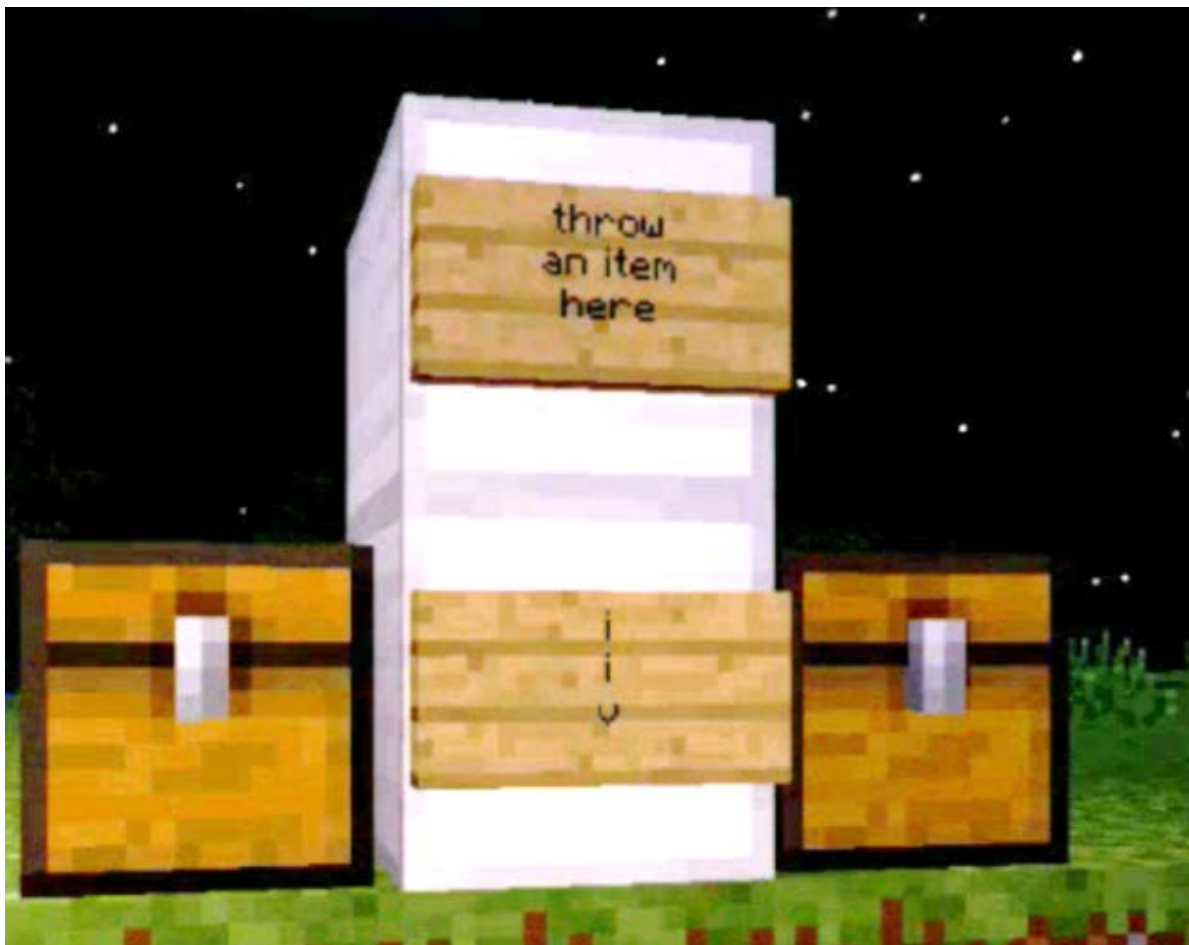


Figure 3 Screenshot from Sean's Minecraft Recording Showing his use of Letters to Produce a Downward Pointing Arrow in Order to Communicate the Location of a Pressure Plate

Abbreviated ‘text message’ language used in in-game chat between players represented another kind of *communication* play. For example, ‘wb’ for ‘welcome back’ used in server chat; ‘ty’ for ‘thank you’ and ‘omg’ for ‘oh my god’. The text chat feature was also used playfully by Caleb, apparently as a way of annoying his older brother, by ‘spamming’ the screen with strings of letters.

The process of inputting text for communicating with other players or searching for items, while a part of the *process* of play, often meant a break in the rhythm of play as the ‘work’ of written communication interrupted the flow of on-screen action. Note that for most of the children in this study, familiarity with both spelling conventions and use of keyboard was emerging and not yet a process of fluid automaticity (cf. Keogh’s 2018 recollection of his own “habitualized...motor knowledge of typing on a QWERTY Keyboard”; p. 25).

8.2.2.2 Creative play

Creative play, according to Hughes (2006) results from the drive to “generate flexible combinations and permutations of shapes, textures, colours, sounds tastes and/or smells” (p. 38). *Creative* play often manifests in arts and crafts activities, block play and is marked often by messiness, sounds of frustration, concentration, enthusiasm, and children asking for creative advice, “what do you think of....?” *Creative* play enables children to invent, combine, and “gain real insights into the meanings of colour, form, texture, beauty and their own abilities to create and combine” (Hughes, 2002; p. 10). Hughes (2006) notes that this is one of the types of play most expected and facilitated by adults. *Creative* play also receives much research attention, is core to Vygotsky’s (2004) theorising of play and is highly valued by parents and educators (Marsh et al., 2015). Minecraft, in parental constructions of the game is highly associated with opportunities for *creative* play as discussed in Chapter 6. However, existing work and popular understanding of Minecraft’s creativity possibilities tends to go no further than a surface level account of the game’s building mechanics, and observations that children ‘build things’. Below I describe in more detail how *creative* play manifested in the recorded play sessions.

As expected, children built structures in Minecraft including houses, movie theatres, secret basements, rooftop jails, ‘bed compartments’, roller coasters, green houses, replica ice-cream trucks, and automatic opening doors. Some structures seemed to be built ‘on the fly’ with a

purpose fitting in the moment, transient demands such as when Beth entombed her dad in a wall of stone blocks then released him. Some were builds that had been started in previous play sessions, now returned to. Some builds were static and monument like, including replicas of real-world structures, like Sean's Eiffel Tower made of stone blocks. Other builds were functional, such as Minecart tracks, fireworks machines, and Caleb's 'magic stairs' which could be raised and lowered using pressure plates and Redstone circuitry. In some instances, the creative process involved suggestions on form or material choice offered by other players or spectators, sometimes welcome, sometimes not.

There were notable differences in the form that *creative* play took between children, and between the gameplay modes of 'Creative' and 'Survival'. In terms of differences between children, some individuals appeared keenly aware of design and aesthetic, with much time taken deciding on which items to use to achieve the desired 'look' of a build. When asked in her interview about how she decides which materials to use, Olivia spoke of having a "particular style" of build and preference for materials based on appearance. When explaining one of her builds during her interview she stated that she liked to use Oakwood Planks "just because it technically goes with everything. It's just really fun to use. It's a really pretty block, I guess." She describes her style as follows:

"So my particular style that I like doing it [building a house] in is, I start off with the doors, so I put three blocks up, and then another three blocks up...So if you put glass pane, which is that [points at screen], on top of the door, there'll be holes. I once tried that and it's not that pretty. Then after I do the doors and stuff, I do the base of the building, and then the windows, and then so on and so on. And then after I'm done all the base of the whole house, I start doing the rugs, which is wool, and I put in the decoration."

For Olivia, *creative* play in Minecraft involves a well-practiced method of construction and an awareness of aesthetics that seems to be core to her creative output. But in the play of other children getting things to 'work' seemed to dominate *creative* play while aesthetics took a back seat. This is covered more in describing *exploratory* play below.

Common to all builds observed in the recordings was attention to symmetry and proportion. Varying techniques were used to ensure that walls lined up, such as counting out loud and

matching the number of blocks placed, or in Caleb’s case, using on-screen displayed location coordinates to do the same job. In *Creative* mode such techniques could be accompanied by visual checks from above with the ability to fly. Differences in game mode had a notable impact on the form and flow of *creative* play in other ways too. In *Creative* mode, with resources freely available, and the ability to fly, the placement of blocks was often rapid, methodical, and almost meditative. Time was spent browsing materials, making decisions about what to use, placing, re-assessing, and sometimes scrapping an entire build and starting again. It is not surprising then that the kinds of play observed in *Creative* mode most closely resembled the descriptions Hughes (2002) gives of carefree, messy, and experimental ‘making stuff’ that is core to his description of *creative* play.

In *Survival* mode, where players must gather all resources from the digital environment before building, and where much more life-like rules of physics apply, the placement of blocks and the whole creative process was much more tentative, careful, and at times tense. Artistic flare and design consideration gave way to frugal, economical use of resources. With the threat of injury from falling and lack of ability to fly, practical considerations to do with building at height became core elements of *creative* play. For example, children employed varying forms of make-shift scaffolding, using either blocks, or ladders in order to access off-ground areas. Once no longer required this ‘scaffolding’ was broken and the materials repurposed elsewhere¹⁰. In this way, while building in *Survival* mode was still *creative* play, in the sense that elements were combined to produce new structures, there was an overlap with *exploratory* play as children incorporated problem solving strategies into the process. However, children worked with mode-based limits in fluid ways. In some cases, children in *Creative* mode would play *as if* they were in *Survival*, or *as if* they were at risk of character injury. For example, in *Creative* mode, Caleb built a house using ladders and other means of scaffolding not technically necessary, saying that “I’m doing it the human way”. This player-constructed difficulty level is an example of how players enact agency over their Minecraft playworlds in fluid ways (see also Chapter 10).

¹⁰ Scaffolding was added to the game in version 1.14, released in April 2019 after data collection for this study (Geere, 2020) and this means that players do not need to fashion their own scaffolding as players in this study did.

8.2.2.3 Deep play

Deep play is play which involves some element of risk. Hughes' (2002) description of *deep* play emphasises physical risk to the child during play. For example, jumping off high structures. However, in later writing Hughes (2006) elaborates this to include any play that involves "an interface with death and mortality" (p. 42). In the case of Minecraft play, the player's physical body is not at risk but that of their avatar (Marsh et al., 2016). Given some of the play practices I observed in the recorded play sessions, I have argued elsewhere (Mavoa et al., 2020), that Hughes' concept of *deep* play encompasses what other scholars refer to as *transgressive* play (Jørgensen & Karlsen, 2019). Marsh et al. (2016) add *transgressive* play as a separate category and provide examples of transgression of game rules (such as play in the form of dragging characters off-screen and watching them fall back down). However, I include *transgressive* play within the play type of *deep* play and the instances observed in my data include transgression of moral norms, rather than game rules. The examples of *deep* play given below all involve an element of tension associated with coming close to or crossing a line where on one side there is physical, moral or psychological 'safety' and on the other there is some kind of threat to that safety.

Deep play in the recorded Minecraft sessions can be broken down into that which involves risk of injury or death to a player's avatar and that which involves play with moral norms. In *Survival* mode characters can be injured and die from falling from high places, burning in lava or fire, drowning, poisoning, starvation, being attacked by NPCs or attacked by other players' characters (interesting in light of findings presented in chapter 6 where some parents explicitly contrasted the perceived lack of violence and aggression in Minecraft with other game titles). As described above in the section about *creative* play, the threat of character injury and death meant a cautious approach to building. Although, there was only one instance of character death observed in the recordings, and this was a kind of functional suicide carried out by Linh in order to relocate back to spawn point (she tried several methods of killing her character including eating poisonous potatoes and the eventual successful combination of poisoning and drowning). Linh explained in her interview that this was not experienced as an emotionally negative experience but purely functional and exploratory, in the sense that she had to try several methods.

While not observed in-game, one participant, Sean, described during his interview getting lost in a cave in *Survival* mode and eventually falling to his death as his “worst ever” play experience. Similarly, in his interview, Archie recalled a time when his brother had caused his character to die in a *Survival* mode game. Although, Archie explained that this was not scary but that “it’s sort of annoying when you die. Because you lose all your stuff and you have to start all over again.” These examples, and the lack of character death in the recordings, indicate that for the participants in this study Minecraft did not involve the kind of game-prescribed *deep* play that is core to some other videogame genres.

However, there was play with death, and even in *Creative* mode several instances of play fit well with the category of *deep* play. These involved players causing harm to NPCs without any game-prescribed need and are therefore best described as *transgressive deep* play. For example, in their recording, Gabe and Olivia come across a cow and proceed to kill it, with the commentary: “kill the cow! Die cow!” and “I wanna set it on lava!” When asked during her interview how she felt about killing the cow, Olivia replied “actually feels good and entertaining... I know it sounds cruel, but it actually is fun” indicating an awareness of transgression but explaining how this is part of the fun.

In a longer sequence of *deep* play Archie spawned and then killed approximately 20 Villagers as they are trapped in a house. During this process he and his brother Parker, who was sitting next to him on the couch, grinned, giggled and mimicked the sound that the Villagers make when they die: “they’re going ‘poohaw poohaw’!” Later, Archie set fire to one of the village houses. At times he did this while spinning around and ‘placing’ fire, appearing mesmerised by the sound and movement of flames, all while Villagers could be heard succumbing to flames in the background. This continued, with commentary and laughter from both Archie and Parker, until the house was entirely destroyed. This involved a visceral sense of pleasure, at not only the transgression itself, but the sights and sounds on screen that accompanied it. This sequence of play contrasts with another of Archie’s recordings in which he explained to his mother that he sees himself as a *protector* of Minecraft Villagers. This example of play, and others like it where there is no game-prescribed need for violence but children generate their own play with moral norms involving violence to NPCs, highlights how existing research on ‘violent videogames’ presents a potentially simplified version of what that term

means in practice. A review of this literature is not appropriate here as my focus is on describing play. However, it is important to note that some *deep* play observed in the Minecraft recordings is of a form that is often the focus of popular and academic discourses around ‘violent videogames’.

8.2.2.4 Exploratory play

Hughes (2002) defines *exploratory* play as that which involves “engaging with an object or area and, either by manipulation or movement, assessing its properties, possibilities and content” (p. 16). It is marked by children “trying new (to them) things out in modes that are tentative, cautious, excited, even anxious” (p. 16). Play which fit this description was observed frequently in the Minecraft recordings. Like *creative* play, *exploratory* play is something which parents tend to associate with Minecraft (see Chapter 6). As Hughes (2006) notes, to an extent all play can be said to be exploratory. Below, I break down descriptions of *exploratory* play into those involving *objects* and those involving *spaces*.

Object related *exploratory* play overlaps with the separate category of *object* play. Here, I aim to describe exploration of objects in terms of the process of discovery, and in the *object* play section, I focus on the process of manipulation of in-game objects. *Exploratory* play involving objects, including for the sake of description, NPCs, and inventory items, often involved an experimental aspect. Objects were interacted with, by ‘hitting’ them, pushing buttons, pulling levers, and placing items in formations in order to produce an aesthetic or functional effect, either with some prior knowledge of what *should* happen or not.

For example, Beth, based on prior knowledge used a combination of dispensers, Redstone, pressure plates, levers, and fireworks to make a “fireworks machine”. She had changed the time to night-time so that the fireworks were visible. However, she found that while her machine worked, it was impossible for her to pull the lever and view the fireworks at the same time. Her character had to look down at the lever to make fireworks shoot up into the sky and by the time she had manipulated her avatar’s view so that it was looking up, the bulk of the display was over. She tried at least three means of solving this problem. First, she had her avatar step as far back from the lever as possible while still being able to operate it. This gave a slightly wider view but was not satisfactory. Then she tried using a pressure plate, so that the machine could be operated simply by standing in the right spot. This seemed to work

but, still not completely happy with the result, Beth asked “Dad, can you just constantly push the lever?” Dad replied “yeah, so you can watch it go up?” Then, quite suddenly, Beth appeared to be struck by inspiration: “wait a minute...this might work...this actually...wait don’t press anything...I have an idea...don’t press it...” Unfortunately, I did not get to see what exactly this great idea was or whether it worked because recording stopped at this point. Nevertheless, this example demonstrates exploration with combinatorial properties of in-game objects that is perhaps what is associated with Minecraft as ‘problem solving’.

Space related *exploratory* play occurred when children spent time travelling across the game landscape. In *Survival* mode this was done in search of resources and involved walking across the ground and wayfinding procedures such as the use of landmarks, the in-game compass or bringing up the text overlay which displays map coordinates. This kind of *exploratory* play is best described as *expedition*, due to the purposeful nature of movement through virtual space. In *Creative* mode, the process of travel through space can be described as *virtual roaming*. The word ‘roaming’ captures the unstructured and ‘free’ nature of movement that accompanied exploration in this mode.

Virtual roaming in *Creative* mode involved flying over vast areas of the randomly generated map in a manner that seemed to be about discovery of space and sight-seeing. Such sequences of play were no doubt facilitated by the freedom of movement, the spectacle of natural scenery viewed from above, and the speed of travel, that is offered by flying in *Creative* mode. For example, Archie spent large chunks of his solo playtime in this Exploratory form of play. He would fly, steadfastly in one direction, over fields, mountains, and lakes, periodically diving down and swimming under water for a few seconds before ascending again, sometimes in quite rapid succession. Every so often a structure or creature below would catch his eye, and he would investigate. Sometimes momentarily, other times for extended periods lasting several seconds or minutes, depending on what possibilities for interaction the creature or structure entailed or, perhaps, depending on his own desire to get moving again.

Exploratory play also occurred in downloaded pre-set maps where tasks were prescribed via signs with written instructions. For Deepti and Aashish playing in a downloaded map, discovery took the form of a combination of reading signs and following instructions which

entailed going to different places in the map and doing certain tasks, such as locating and then playing ‘music discs’. There was a tension between Deepti’s desire to explore the map and her brother’s desire to complete tasks; both a process of discovery but with different in-the-moment objectives. This tension was evident through verbal instructions from Aashish to stay on task: “we should stay in the proper area” and exclamations of the joy of discovery, often from another part of the map, from Deepti: “what’s that, is that a roller coaster?...[sharp inhale] What’s this?”

Exploratory play of all forms was accompanied by verbal commentary which further illustrates the pleasures and processes involved in exploration, discovery and problem solving. For example, phrases such as the following were common throughout the videos: “how do I get this thing to *work*?” (Caleb); “let’s see how long I can stay in here for” (Archie); “how did he just float down there? How do they float?” (Parker); “I wanna test it” (James); “it’s not working...how do I do this...how do you make these? How, tell me...how am I supposed to know these things?” (Beth). There was an emotional element to some of these expressions, sometimes visible in the smiles and posture of players (for example, sitting up straight, leaning in, mouth agape) and sometimes verbally expressed (“wow you can actually drive this...I need to try this...very cool...this is epic” [Zane]). Hughes (2006) writes “we often forget, because as adults we have lost interest to some extent, that children’s experience of discovery is hugely affective. It is highly anticipatory, exciting, and fulfilling to tease out new experience from the environment” (p. 44; see also Hedegaard, 2016).

8.2.2.5 Locomotor play

Hughes (2002) defines *locomotor* play as involving “the performance of locomotor patterns in a context which suggests that the only goal is the actual performance of the pattern itself” (p. 22). He gives examples such as “chase, tag, hide and seek, off-ground touch, tree climbing” (p. 22). This play type, in a non-digital setting involves the movement of bodies through three-dimensional space and the use of muscular and vestibular systems. However, in a digital space the movement is experienced via the player’s avatar (Marsh et al., 2016). However, the essence of *locomotor* play is the same in each. That is, the play is in the experience of movement.

Caillois' (1961) concept of *Ilinx* is relevant to the forms of *locomotor* play observed in Minecraft recordings. *Ilinx* play involves producing "in oneself, by a rapid whirling or falling movement, a state of dizziness or disorder" (p. 12). Indeed, in many of the examples of *locomotor* play observed, the aim appeared to be the achievement of this state of "dizziness or disorder". Sometimes this was done as a standalone activity, for the pleasure of vertigo-like experience and in other play sequences the joy of movement was part of a broader play sequence where the movement served some other purpose in addition to the sensation it produced.

The ability to fly lent itself to *locomotor* play experiences. Caleb, for example, in one recording flew to the top of a very high structure with a platform at the top. He then jumped off the platform saying "whee!" as he fell then "DONK!" as he landed in a small pool of water. The joy of 'falling' without real risk, is clear. Archie engaged in a similar sequence of play, urged on by his brother to fly up "almost out of space" and to "do a big cannonball, a big SPLOSH!" when free-falling back down. *locomotor* play was not confined to actions involving flying, however. Deepti engaged in *locomotor* play as she spent time riding horses (commenting on the speed of travel and view from higher up) and climbing trees. She also climbed a large statue of a bird in a downloaded map on *Survival* mode. During this sequence Deepti (in physical space) was on the couch with her knees up to her chest, a frown indicating great concentration. Her left leg moved side to side, her toes wriggled, and her head and shoulders jerked in the direction that her character was moving in. She progressed, one block at a time, in an ascent that felt tense and embodied, with frequent falls and restarts. In game, she used dirt blocks as scaffolding which gave her more space to jump and allowed her to eventually reach the head of the sculpture. Upon reaching the highest point on the sculpture her body seemed to relax, she smiled and exclaimed: "Aashish! I climbed to the top of the parrot sculpture!" After briefly taking in the 360-degree view from this spot, Deepti carefully descended, removing the dirt blocks as she went.

Rollercoaster rides and parkour courses fashioned by players provided further *locomotor* play experiences. In one of Caleb's recordings, he had built a range of structures which functioned as rollercoasters and parkour courses, giving the impression that this map was a sort of adventure park. The parkour course consisted of a series of stepping-stone like blocks

suspended in mid-air at varying heights and distances from each other. In the ground, Caleb had placed ‘traps’ in the form of dug out holes, raising the stakes of each jump, as he risked not only injury from hitting the ground, but also from potentially falling out of the world entirely. This world was in *Creative* mode, but like in the example given of Caleb building in *Creative* mode as if, in some ways, he were in *Survival* mode, attempts at mastering each jump were done with as much care and tentativeness as could be expected from similar moves in a map which *did* involve risk of character injury. It was the process of movement through a series of purposefully difficult to navigate structures that was core to this play, and at times this felt tense enough without being in *Survival* mode.

Caleb spent time initially trying out the parts of the parkour course already built, before then adding more elements to the course. Each block placement consisted of a trial and error process of placing, then test jumping, then removing, replacing, and testing again, until the block was *just* reachable. The onscreen action involved in each jump was accompanied in physical space by Caleb taking a sharp draw of breath, leaning back, bottom lip over top; right shoulder raised; arm up off keyboard with thumb and index finger on two separate keys, a glance down at the keyboard, and then, jump. On mastering a particularly tricky jump Caleb raised a fist in triumph, exclaimed “OMG [slowly], I’m actually doing my parkour...I did it, I did it, I did my parkour!” Failed attempts, resulting in falling out of the world appeared to be as enjoyable as mastering a jump, accompanied by cries of “whee!” through laughter.

8.2.2.6 Object play

Object play involves the manipulation and exploration of objects and their combinatorial properties. It can entail repetitive and focused use of objects in novel ways, that is, in ways not necessarily associated with the object (Hughes, 2002). In *object* play “the main criterion is that the object has to be an intrinsic part of the game or the focus of manipulation” (Hughes, 2006; p. 48) and examples include playing with a ball, manipulating a Rubik’s cube or working out the functions of an electronic device (Hughes, 2002). These examples and Hughes’ (2002) explanation focus on “hand-eye manipulations and movements” (p. 25) where the object being manipulated is in three-dimensional space and directly in contact with the child’s body and sense of touch. Marsh et al. (2016) expand this to a digital environment

by defining *object* play in digital spaces as “play in which children explore virtual objects through vision and touch through the screen or mouse” (p. 247).

Manipulation of devices used for play, Xbox controllers, keyboards, and mice, were at times core to play and I include these practices as examples of *object* play. This happened to a noticeably lesser degree with iPad play – perhaps because of the more direct mode of input involving fingers on glass, the immediacy of feedback and familiarity with using touch-screen devices (Balmford & Davies, 2019; Nansen, 2020b; Schneier & Taylor, 2018). In many cases the physical manipulation of gameplay devices was a conscious part of play but not necessarily an observably pleasurable one. Children had difficulty in coordinating movements of fingers on controllers or keyboards with what they wanted to happen on-screen. For example, blocks were often destroyed unintentionally due to mis-clicks on the Xbox controller or mouse. This resulted in some visible frustration, and in Deepti’s case, several handovers of the Xbox controller to her brother who would perform the desired move. As described in *locomotor* play, Caleb’s use of keyboard and mouse in navigating his parkour course involved frequent shift in gaze from hands to screen, and a need to coordinate both. The physical components involved in producing on-screen action were therefore both a part of play and a cause of interruption to the flow of it.

In one recording the device used for play became more central to the flow of play. This begins with Caleb pausing while resting his head in his hands with elbows on the keyboard. Upon noticing that this results in random characters being entered into the search bar on screen he began to move his elbows across the keyboard. This involved the movement of his whole upper body in a side-to-side manner, appearing almost as a kind of dance. This resulted in a very long string of characters being entered into the search bar. Perhaps as a kind of progression of this newfound playful use of the keyboard he moves his fingers across the keyboard, elbows raised, in a frenetic manner ending with the heavy thud of the enter key prompting his mother to yell from the kitchen “stop whacking the keyboard!”

Object play also occurred with the manipulation of in-game objects. For example, a range of ‘housekeeping’ practices were observed in the way that players organised and sorted items. In Minecraft the player has access to a number of on-hand items which are stored in a ‘hot bar’ at the bottom of the screen. In *Creative* mode, all other in-game items can be drawn from

the Items menu. In *Survival* mode, this menu shows items that can be crafted with materials collected by the player. In the recordings some players had very clear patterns of utilising the hot bar spaces. These practices ranged from on one end of the spectrum, Zane only ever having items he was currently using in the hot bar, which meant frequent entries into the menu to put items away, and on the other end of the spectrum Caleb who's hot bar was often at full-capacity and items were only cleared out, one at a time, when a slot was needed for something else. In another example of idiosyncratic organisation of objects, Brodie, playing on *Survival* mode, always took his crafting table with him when moving from one part of the map to another, meaning that it was always on-hand when needed. Linh, on the other hand had her crafting table in one set location meaning that while she was out gathering resources, she would need to return back to that location in order to craft items. Linh also used the hot bar as a means of lining up items next to each other for the purpose of aesthetic comparison. For example, after trying a couple of other combinations of items, she had Acacia wood, cobblestone and red concrete lined up in the hot bar, paused, then declared "hmm, that goes well together".

Storage chests were used to sort and organise objects in a variety of ways. For example, James had a series of chests in one of his underground dwellings, each labelled with a sign denoting the type of item in each chest: "ieon staf" (iron stuff) etc. Chests were used in *Survival* mode as a means of safe keeping such as when Linh transferred all items from her inventory to a chest before heading out on a resource gathering expedition. This forward planning in terms of organisation of items meant that if her character died, the items stored in the chest would be safe and that she had space in her inventory to carry all of the items collected on her travels.

8.2.2.7 Role play

Hughes (2002) defines *role* play as "when a child re-enacts something they have seen, heard, read about or experienced" (p. 29). This involves the alteration of identity; mimicking/imitating, and caricature and amplification of particular traits. There is some overlap with *sociodramatic* play in terms of taking on the roles of other people. Marsh et al. (2016) explain however that *role* play can also involve taking on roles "beyond the personal or domestic roles associated with socio-dramatic play" (p. 247). From my reading of Hughes

(2002; 2006) and Marsh et al. (2016) a key difference also seems to be that the core element of *role* play is the inhabiting, the trying on, of different identities whereas with *sociodramatic* play the core element is recreating or elaborating on domestic scenarios. Examples of *role* play given by Hughes (2002; 2006) include, dressing up; pretending to do things only adults can do like driving a car and going to work; and ‘putting on’ different voices and mannerisms.

In the Minecraft recordings, *role* play occurred when, for example, Olivia and Gabe took on the roles of “warriors from another land!” while attacking a neighbouring village and when Archie explained to his mother that he was the “protector” of Villagers and his role was to fend off Zombies and other hostile creatures. However, the most notable instances of *role* play involved players changing the appearance of their characters using ‘skins’ obtained from within the game or from internet sites.

Play with Avatar appearance was observed in the recordings as a form of dress-up and identity play and this occurred most frequently during the set-up phase of play (see also Chapter 10). Linh, for example, spent quite some time browsing skins in the Minecraft menu and also importing skins from her camera roll that she had previously downloaded from a website (this allows the use of skins for free that are not officially part of the game). In her interview Linh explained this process and how she likes to have different skins for different worlds, which she described as a “rule” indicating that for her the appearance of her character was important for the kind of play associated with particular maps. She described one world she had created at a time when she was interested in the Sailor Moon cartoon series. This world had allocated rooms for each of the Sailor Moon characters and she had two different Sailor Moon skins that she would alternate between when playing on this world. Transmedia referents were observed in the character appearance choice of other players too. For example, Sean’s avatar during his recorded sessions was a Lego character and Brodie’s was Deadpool (he has obtained this from a friend who ‘Air-dropped’ it to Brodie’s iPad). Skin choice also had a social element, for example, when Linh’s sister suggested that they both have their characters wear ‘onesies’ during a play session.

Olivia in her interview explained that while players could wear different skins, “It’s just you’re changing the look of your character, and it does nothing but just change your look.” However, she also recounted an occasion where she had her character in the “Prisoner Steve”

skin and this lead on to a prison *role* play scenario: “Like if we're prison Steve, we build a prison made out of cobblestone, steel doors, and iron bars.” This indicates a strong role of player agency in Minecraft. Players might wear a skin just because they want to, perhaps for a particular ‘look’ but whether they then play in a way that incorporates that appearance is dependent on player choice. *Role* play with avatar skins is therefore a fluid and variable practice.

A noteworthy example of this ‘trying on’ of identities via character appearance involved Archie temporarily having his Avatar dressed as a Queen character. Worth noting here, for relevance to family context for play, when Archie’s mother was drawn into conversation about changing skins, she said that “they’re all locked” and urged Archie to “just go back to the game”, indicating that the browsing of character dress-up options is perhaps not within her framing of what Minecraft play *is*. However, after his mother had left the room Archie selected a character dressed in pink, with blonde hair and a crown, labelled “Queen”. His brother turned to Archie and said, “that’s a Queen, that’s a girl!” Archie then made some high-pitched vocalisations in caricature of a female voice. He then exclaimed, “oh! There actually can be girls in Minecraft. I didn’t know”. After ‘trying on’ some more locked skins, he selected the default character named Alex (**Figure 4**). This character is widely understood to be a female character (Dredge, 2015). Parker commented “that’s a girl”, as the game map was entered again. However, Archie explained, while looking at the camera, that “umm, my character now is just a boy with long hair”. This sequence demonstrates that Minecraft play can involve *role* play with gender identity and also that this play is shaped by children’s own emerging ideas about gender within social context (see also Huh, 2015).



Figure 4 Screenshot from Archie's Minecraft Recording Showing the "Skins" Menu with "Alex" Character Enlarged on Right Side of Image

8.2.2.8 Social play

Social play is a broad category that includes any play where there are explicit or implicit rules. These rules can be game-specific, for example the rules of turn-taking and allowed moves in boardgames. Or they can be more general social rules which guide interaction between players and also may be present in non-play situations. Hughes (2002) writes that *social* play can also be called 'social testing' and allows children to "access information about how children/adults/groups react to various social situations, verbal cues, looks, food, customs etc. and for devising strategies for repetition of those experiences and interactions with are fun, interesting and pleasurable" (p. 33). Marsh et al. (2016) adapt this to play in digital spaces by defining *social* play in these contexts as "Play in a digital context during which rules for social interaction are constructed and employed" (p. 247). Examples of *social* play given by Hughes (2002) include co-operative endeavours such as painting or building something together, team games and conversations that occur during play.

Many instances of *social* play were observed in the Minecraft recordings involving two players. In the following description, I break down *social* play into that which involves

explicit social or game rules and play that is impacted by implicit social power structures between players. There was often crossover of these however, as the negotiating of game rules was at times clearly related to pre-existing social power relations.

Some Minecraft play involved explicit social rules formed by adults in order to facilitate a conflict-free play environment and to offer guidance on appropriate online interaction etiquette. For example, Davina, Zane's mother, explained that an online Minecraft server that Zane plays on has "really clear rules around if there's conflict or inappropriate language". Davina also described some of the non-rule related *social* play she had observed on the server: "they talk about what they've got in their plot. 'Would you like to help me build something?' Or, 'Can somebody come and help me do this?'"

In Zane's recorded server play session, this kind of *social* play occurred when he used text chat to ask whether he could visit another player's plot. In this instance however the request was met with a straightforward "no" (**Figure 5**). Later he bypassed this 'asking permission' step and tried to work out the command for teleporting to another player's plot. He asked his mother for help and she directed him to the notebook next to the computer where they had compiled a handwritten list of useful commands for the server. However, the notebook did not contain the information currently required. Zane then, with the assistance of his mother, used the text chat function to ask other players what the command is. Another player provided him with the command, his mother wrote it in the notebook then Zane entered the command and teleported to the plot. *Social* play in this context was scaffolded by adults and involved learning conventions associated with communication via digital channels.



Figure 5 Screenshot from Zane's Minecraft Recording Showing Text Chat Communication with Another Server Player

In other recordings, pairs of players navigated game rules in downloaded maps that prescribed tasks to players. In these more rule-bound play sessions, older siblings guided the course of play. In Deepti and Aashish's case, as described in *exploratory* play above, Aashish was much more focused on completing prescribed tasks than Deepti who seemed generally happy following her nose and discovering what was 'around the corner'. Similarly, when Zane attempted competitive play with his younger sister, she had her own motivations for play, which involved jumping up and down on a "cakey" much to his frustration. Rosie also struggled with the technical aspects of the game, resulting in inadvertent actions being labelled by Zane as "cheating", and a brief period of tears and a change in course of play, away from the competitive game.

In his interview, Brodie described frequent conflict when playing Minecraft with his older brother. This is another example of pre-existing sibling relationships impacting *social* play. After explaining that play with his brother has its advantages, in the sense that mining is faster and Player versus Player (PvP) play is possible, he then described some of the ways that *social* play with his brother is not enjoyable: "He constantly breaks everything I build. He constantly just tries to kill me. Constantly pushes me into lava. He constantly doesn't help. Then leaves the world. Then constantly just trying to lead guys to kill me". Beth explained another kind of *social* rule play with her little brother. Specifically, the need to "pretend to lose" when playing mini games with him because he "has tantrums and starts breaking stuff" if he does not win. In this case, Beth's play is impacted by her brother's intolerance for losing in competitive games.

While many of the above examples involve some form of conflict or tension in negotiating rules (social or game related), in other cases play was more amicably social. For example, Linh's sister, who was unsuccessful in joining Linh in-game (see also Chapter 10) sat next to her on the couch, watching her screen. She regularly offered advice, on what to build, colour choice, and gave warnings about "not getting lost". This was a kind of backseat-driving that was also observed when Parker offered frequent advice and direction while observing Archie's play. Gaming capital also shaped *social* play in terms of the divvying up of tasks based on relative skill of players. For example, James and Brad agree that Brad should build the Minecart tracks because "I'm more Redstone, aren't I?" This indicates that

play is shaped by individual players' sense of skill and in this study, skill intersected with age such that older players tended to have a broader range of in-game skill and knowledge.

8.2.2.9 Symbolic play

Symbolic play is that which involves objects being given symbolic meaning that may be very different to the usual/actual purpose or characteristics of the object. This can take the form of using material objects to represent something abstract or something functionally or aesthetically different to the object being used, for example a stick becomes a horse (or a sword). Hughes (2006) mentions *symbolic* play as “expressing what is not there” (p. 59), for example a child drawing a circle to represent the sun or using a rope to mark out shark-infested waters. Marsh et al. (2016) describe the use of objects to represent other objects in virtual space, for example “an avatar’s shoe becomes a wand” (p. 247). *Symbolic* play, along with other forms of imagining is highly valued by adults and Vygotsky (2004) declared it one example of “the most authentic, truest creativity” (p. 11).

The symbolic repurposing of in-game items in the Minecraft recordings was for either *functional* or *aesthetic* ends. In terms of repurposing for function, James and Brad’s *sociodramatic* play sequence involved pretending that the Minecarts were cars (“we all need a Minecart. A Minecart is a car”) and that keys required to drive the cars “are actually iron nuggets”. They also devised a system of using Emeralds as pretend phones, and this is described in more detail in Chapter 9.

Where in-game objects were repurposed for *aesthetic* ends items were chosen to stand-in for other materials because they *looked like* the desired object. This resulted in items with prescribed in-game functions being used in ways completely unrelated to those functions. For example, in Sean’s ice-cream truck replica (**Figure 6**) he used: blocks of coal for the tyres (they are black); ‘stone buttons’ as the centre of the wheels; blocks of iron for the body of the truck (they are the right colour for a white truck); ‘oak trap-doors’ for openable serving areas on the either side of the truck; ‘quartz stairs’ for seats; ‘furnaces’ for the front grill of the truck; half ‘glass panes’ as wing mirrors; ‘smooth sandstone’ for the cone and ‘red concrete’ for the strawberry ice-cream in a large ice-cream model on top of the truck.

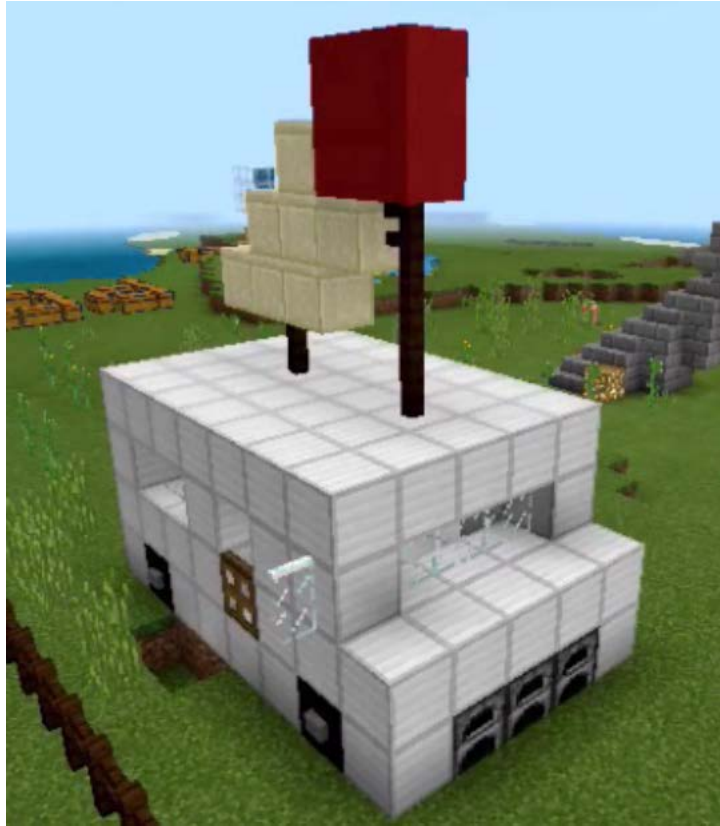


Figure 6 *Screenshot from Sean's Minecraft Recording Showing a Range of In-Game Materials Used Symbolically to Make an Ice-Cream Truck*

In a similar example, Linh constructed a computer desk using (among other things) a door as the seatback, a painting as the computer monitor and a stone button as a ‘clickable’ mouse next to the ‘iron slab’ keyboard. And Olivia, in her interview, explains that she has used Iron blocks as flooring because “it was meant to be marble...it’s the closest thing”.

8.2.2.10 Satisfying play

Some instances of play did not easily fit within any of Hughes’ existing categories, but on completion of coding seemed to share enough properties with each other to warrant inclusion as an identifiable group. In this section I suggest a way of conceptualising a type of play that was present in the Minecraft recordings but not easily accounted for by Hughes’ original play type categories. I note connections to other instances of play that seem to have the same underlying essence in other settings and also try to bring together scholarly perspectives on this type of play. The core examples of this kind of play involve “blowing stuff up” (in the

words of participant Beth). Below I describe examples of this kind of play and work towards an initial identification of defining characteristics which I label *satisfying* play.

In Beth's recordings two play sequences involve explosions as a core part of play. In one recording Beth and her dad, Frank, were playing together when Frank said that he was going to "blow some stuff up!", to which Beth added "we should just blow up this whole world...because it's fun blowing stuff up". Frank exploded some TNT in a cave and said, "that was cool, I was like inside of it". Meanwhile, Beth proceeded to stack TNT blocks on top of each other in a very tall tower. She asked Frank to watch from his screen. She said "OK, finally above the clouds" to which Frank replied "OK, are you gonna set it off?" Beth replied, "no not yet, not yet, not yet". Frank reiterated that he was watching from his screen, and then urged Beth to "go on set it off, you can't see any higher than that anyway". Beth ignited the top of the tower, "ready, go" said Frank, "I want to see what it looks like on my screen". Beth moved her character down to the bottom of the tower and had it look up towards the cascading explosion as it reached closer and closer to the ground, clouds of pixelated smoke emanating as it went. When the last blocks exploded, they carved out a large hole in the ground, revealing various substrates below. "Yeah that was so worth watching" concluded Beth.

Beth then continued in a similar type of play, this time by building "the most amazing firework show!" This fireworks sequence was more technically challenging than stacking and igniting TNT. Beth spent several minutes trying out different combinations of items in order to achieve the desired visual effect. The connection between fireworks and TNT explosions is clear in this excerpt from Beth's interview where she described how she achieved a "firework effect" prior to fireworks being part of Minecraft officially¹¹:

"If you light it [TNT] from the bottom it sort of goes up and is a firework but it's exploding everywhere it goes up. Also, once I tried putting wool on top of it, neon coloured wool...I watched it blow up and it had this firework effect. You know when you break a block, little tiny pieces of it shatter everywhere? And then that happened with the wool, but it was supercool. It was like tiny fireworks."

¹¹ Fireworks were added to the game in version 1.4.6 in 2012 (Minecraft Wiki, n.d.)

In their second recording, Beth and Frank decided to have a competition to see who could make the “best TNT cat”. They both constructed structures, using TNT blocks, in the shape of cats (**Figure 7**). This idea seemed to come to Beth out of the blue, when she said, “I’m going to make a TNT cat, then blow it up”. The parameters of this competition are not stated specifically, although it appears that success would be determined by both the aesthetics of the sculptures and the degree of spectacle resulting from their eventual explosion. The building process went on for several minutes, during which talk turned to various things including the moral considerations of “blowing up cats” and also the way that certain items such as glass can be added in order to increase the spectacle of the explosion: “you can also use dark glass ‘cos it’ll make a really satisfying noise when it blows up”, said Beth, as she added “bohemian sunglasses” to Frank’s cat using coloured glass. Frank finished his cat first, so then proceeded to encase the work area in a wall of mauve coloured glass blocks “so it explodes and looks funny”. Unfortunately, the recording capturing the player’s voices cut out prior to the big explosion, but the screen recording captured the display.



Figure 7 Screenshot from Beth's Minecraft Recording Showing her and her dad, Frank's, TNT Cat Sculptures

In this TNT cat example, several of Hughes' play types are clearly identifiable. The discussion, decisions and assessments related to the visual appearance of the cats are an example of *creative* play. The song and dance that accompany onscreen action at various points are a form of *communication* play. *Imaginative* and *role* play occur when players took on the persona of their cats, including voicing their imagined sense of impending doom. When Frank asked Beth to change the game to daytime, so that they could see their creations better, and she did this by entering a command, that was an example of *mastery* play, that is, mastery of the digital environment.

However, the core of this sequence was the anticipation and execution of a large visually and auditorily dramatic explosion. Similarly, while perhaps not as core as in this example, a significant element of play with fireworks in Minecraft is the experience of witnessing a striking display. These play experiences are not accounted for by Hughes' categories. Indeed, play where destruction is core seems to be left out of most accounts of children's play. Kelly-Byrne and Sutton-Smith (1984) suggest that this is at least in part because such play does not fit easily within the rhetoric of play as progress. However, if we consider perspectives on play that allow for accounts of the felt experience of play, its in-the-moment emotional pull, avenues for describing and defining these play scenarios open. I now explain how I came to refer to such play as *satisfying* play as a way to include them in describing Minecraft play observed in this study.

Based on the examples from my data of players setting about "blowing stuff up" it could be deemed appropriate to simply call such play *destructive* play. Ito (2012) also talks about "disobedience, disasters and action entertainment" in describing the play of participants at an after school digital game club, where education was the primary objective, but not always the primary motivator of the participants' play. Ito describes boys in her study taking "delight in the spectacles of destruction" resulting from cities in SimCity2000 being subjected to invasion "by a space alien, then flooded, set on fire, and subjected to an earthquake and plane crashes" (p. 136).

However, from my recordings and interview data, and in noting connections with other popular media sources, I suggest that the destruction element that Ito (2012) describes, and

that I clearly observed in my data, does not quite fully capture the nature of this play. Destruction does not seem to be the appeal of play with fireworks, for example. Similarly, while Beth and Frank did talk of destroying their sculptures, the addition of glass for the sole purpose of adding auditory elements to the explosion indicates that there is more to this play than changing the state of something from being to not being.

Ito (2012) also talks about these forms of play as “engagement with spectacle” (p. 134) and indeed the examples described from my data could well be described as involving spectacle in the sense that they are sensorially striking and viewed for the sake of viewing. Ermi and Mäyrä (2003) found from their interviews with young digital game players that one of the forces of attraction toward such games is “the power of novelty and spectacle” and immersion in and engagement with “something out of the ordinary” (p. 5).

The concept of spectacle resonates with Sutton-Smith’s (1990) characterisation of playground play as “festival play”. This play is characterised by disorder, noise, ritual, relative freedom, and “multiple visual sights and the ebullience of sounds that impact on all present” (p. 6). There are also connections here with Cohen’s (2011) account of young children’s pretend play as Bakhtinian carnivalesque in nature. Cohen (2011) specifically points to the inversion of social roles, chaos, rambunctiousness, and absurdity that characterise Bakhtin’s carnival (Bakhtin, 1984) and also feature in some pretend play scenarios. Certainly there is a topsy turvy carnivalesque atmosphere surrounding Beth and Frank’s cat sculptures: Beth’s cat with its “bohemian glasses”; a “ginormous mother” who is fearful of the fate of her identical TNT kittens who possess “identicalness weakness”; speculation from Beth that the reason the mother cat’s head is so big is because of cancer: “farewell cancer cat!”; and conscious distancing of their play from blowing up real cats.

However, while these concepts help understand the atmosphere present in some (not all) instances of play, Beth’s description of certain play acts as “satisfying” suggests there is still more going on here. This excerpt from Beth’s interview demonstrates the centrality of the notion of “satisfying” to the kinds of play described above:

Jane: *Tell me about blowing stuff up in Minecraft?*

Beth: *It's satisfying to watch it blow up...When I see a really big mansion, the two first things I think about it is, oh let's build a house on it, or; let's blow it up and see the satisfying stuff that happens.*

To help tease apart what is meant by *satisfying*, in this context I turn to a comparison with a popular genre of YouTube videos. These videos with titles such as “Oddly satisfying video that triggers pleasant sensations” consist of montages of short clips of kinetic sand being neatly cut, factory production lines pumping out uniform products or cars driving over items of varying crunchiness. Videos of satisfying Minecraft moments are also popular, such as the video called “This Minecraft video will actually satisfy you”, which had gained 4.3 million views in the first three weeks it was uploaded and features in-game machines that produce infinite, uniform or otherwise striking items or displays and an explosion of a large cube made of TNT (Dayum, 2020). Other anecdotal accounts of experiences that may be described as satisfying include the practice of diverting one’s walking path towards piles of dry autumn leaves for the pleasure of feeling and hearing the crunch underfoot; building a tower of wooden blocks then purposefully breaking it; playing with slime or slime-like substances; spending hours building a sandcastle then watching it succumb to the encroaching tide (or speeding up the process by jumping on it).

However, it is difficult to capture in words any unifying factor that makes these things satisfying, and indeed to describe what satisfying means. But in his book “Man, play and games”, Caillois (1961) describes similar playful experiences as a variant of his *Ilinx* category of play. *Ilinx* play, touched on earlier when describing Hughes’ *locomotor* play, involves the deliberate disturbance of senses, resulting in a state of vertigo. Caillois (1961) expands on this physical, vestibular vertigo to include what he calls “vertigo of moral order...a transport that suddenly seizes the individual” (p. 24). Regarding this “psychological transport” (p. 24), he writes: “nothing is more revealing of vertigo than the strange excitement that is felt in cutting down the tall prairie flowers with a switch, or in creating an avalanche of the snow on a rooftop, or, better, the intoxication that is experienced in military barracks – for example, in noisily banging garbage cans” (p. 24).

Caillois talks about these examples as fulfilling some desire or drive and it is this point which connects his examples with Beth's insistence that particular types of Minecraft play are "just satisfying". They satisfy a desire or drive, often, as Caillois writes, desires or drives "normally repressed" (p. 24). It is not usually possible or permissible to observe the spectacle of masses of TNT being ignited in dramatic fashion. Caillois' description of "strange excitement" can also be applied to the genre of YouTube videos described above and to other examples mentioned. This captures the essence connecting these forms of play together more fully than pure destruction or spectacle only.

I have chosen to label this play type *satisfying* play rather than adopt Caillois' (1961) term "vertigo of moral order" because it states the experience more plainly and in a manner that is true to how children describe it. Given the dominance of this type of play for Beth, anecdotal accounts of other children engaging in it, and the popularity of the aligned YouTube genre, I suggest that further research on *satisfying* play is warranted.

8.3 Conclusion

Using Hughes' (2002; 2006) play types as an anchoring point, these detailed descriptions of play have shown that everyday leisure time Minecraft free play involves much more than "breaking and placing blocks" (Hollett & Ehret, 2015; p. 1854). It involves, among other things: playing with words; creative agency; play with moral risk; exploration for the sake of exploration; and the use of the digital stage as a setting for a range of different pretend play scenarios. In addition to providing evidence of the breadth of play that can happen in Minecraft, the use of Hughes' taxonomy provides further evidence that digital play can have much more in common with play that happens in non-digital spaces than 'on the packet' descriptions allude to.

Chapter 9 Case study

9.1 Introduction

In the previous chapter I described the range of types of play present in the Minecraft recordings of my 10 primary participants. That information gives a sense of the breadth of possibilities for play in Minecraft, as experienced by these 6-8-year old children. However, in order to do justice to my goal of providing thick descriptions (Geertz, 1973b) of children's digital play in Minecraft, I now present a deeper view of play by way of a case study of one participant, James, and his family. The following case study allows for a demonstration of the fluidity of play across digital and physical spaces (Kervin et al., 2015). Using Apperley's (2009) notion of "situation", providing this case study serves to articulate "the overlapping connection between digital gaming and offline activities, and how game-play experiences are shaped by everyday life" (p. 120). By drawing on parent interviews, play tour data and James's interview as well as recorded play, this section serves to present James's Minecraft play as interwoven with other sites of play and with his particular family context.

As Stephen et al. (2013) argue "understanding children's experiences with technologies at home necessitates finding out about the distinct family contexts in which they engage with the [technological] resources" (p. 149). Stephen et al.'s (2013) focus is on how household practices influence contexts for learning. In this thesis, and this case study, my interest is in how household contexts shape opportunities for play, particularly Minecraft play. I share Stephen et al.'s (2013) reasoning that in order for a satisfactory understanding of how context influences practices, research must attend to "characteristics of people involved [children, siblings, parents] and the local, cultural and temporal context" as well as "differences associated with social class and child-rearing practices, values and beliefs" (p. 151). In sum, this case study is presented with the rationale that "people's experiences can only be understood by situating them in their context, examining them in the course of their very experiencing" (Tudge, 2008; p. 62).

James is a 6-year-old boy who lives in a Melbourne suburb with his mother Jasmine, father, Dave and 12-month-old brother. Both Jasmine and Dave are university educated and work full-time in professional jobs. James is in grade 1 at the local public primary school and has

close relationships with extended family, particularly his 8-year-old cousin, Brad, who often visits and plays digital games with James. Below I describe the context for James's Minecraft play, his current interest in playing 'schools' across physical and digital space, and then detail a sequence of Minecraft play that highlights a range of Hughes' (2002) play types as they flow across play time.

9.2 Technological context

James's home contains a larger number of devices used for digital play than other participants in this study. This is primarily due to Dave's digital gaming hobby and perhaps also the fact that he works in IT for a local university. Dave has 3 computers: a personal laptop, a work laptop and a gaming computer kept in the parents' bedroom. Jasmine has a work laptop. Both parents have Kindles for reading and smartphones, and the baby has access to an older phone which he uses for taking photos and looking at images of himself. Dave mentions that the baby enjoys having 'his' phone handy while James and Brad play on their iPads. There is a large smart TV in the living room, surrounded by a PS4 console, controllers, and accessories. This area is contained within a baby fence. James uses an older model iPad that was purchased second hand a few years ago. He does not technically have ownership of this device but is the primary user of it. James uses the iPad for watching Netflix and YouTube, for listening to music via a family Spotify account, for 'Face Timing' his cousin and messaging his dad, and for playing various games such as Droid Inventor, Survival Raft, Pixel Gun 3D, Clash Royale and Fortnite (although, he has not actually played Fortnite yet).

The iPad is also the primary device James uses for Minecraft play. However, in recent weeks he has been given an old second-hand laptop that Dave got from work. This has Minecraft, and James has been learning how to use the different mode of operation of Minecraft on the laptop. There is slight disagreement between James and Dave over James's current level of proficiency with the laptop, as Dave states he "hasn't quite got the hang of it yet" but James says "I have got the hang of using it because if you get the mouse, this is how you go down with the mouse and that's how you go down with this little tap thing. I always use the mouse because it's easier" (the little tap thing is the keyboard trackpad). Nevertheless, adjusting to using the laptop for gameplay is a process of learning.

9.3 Family context

9.3.1 Parents' digital gaming histories

Jasmine says that she is not really into digital games. She “may have played Donkey Kong” as a child, and Solitaire and Mahjong occasionally on the phone while waiting for an appointment or similar, but not as a regular hobby. Jasmine says that digital games have not really interested her, and she feels “too uncoordinated” to really get into them. Though she recalls once playing Street Fighter with Dave and James, this was a transient engagement and not something she wishes to return to. Dave on the other hand has played digital games consistently since the age of 5. Currently, he most often plays on PC, in the evenings after both kids have gone to bed, stating that at other times “I don't have a chance. Not really at all.” Dave describes his current gaming repertoire as follows:

“...I just play a multitude of things like I play World of Warcraft, League of Legends...I watch Esports ... I don't watch it that often, but I watch like League of Legends stuff, which is quite cool. What else do I play? Just random stuff, like I just buy games when I get bored and just play those for a bit. Yeah, sort of prioritise my entertainment diet pretty solidly, I'd say.”

At the time of my interview Dave had been playing a PS4 game called Star Wars: Battlefront most evenings with James, after the baby had gone to bed. Between my first visit and third, Dave had purchased a VR headset to use with the PS4, and he and James had both tried it out, but it had not been integrated into daily gaming habits. Part of the family context for James's Minecraft play therefore is the presence of gaming technologies (hardware, software), family routines (Dave setting aside time to nurture his own “entertainment diet”), and a family culture that values digital gameplay as a legitimate pastime for those who have a desire to play. Dave's own gaming practices, and his willingness to spend money on a range of products that support this hobby, make for a household setting, in both a physical object sense and a family ethos sense, that displays digital gaming and its paraphernalia as a feature of James's family's lifestyle. This does not mean that there are no tensions in the household around gaming, however.

When it comes to James's digital game play, a different set of variables are at play besides the scheduling, personal tastes, and financial decisions Dave makes in relation to his own gaming. For instance, when it comes to co-play with James, Dave says he will sometimes play Minecraft with James but only when "browbeaten into it". It is not something that Dave finds inherently enjoyable: "...he likes someone to play with him. But you know, I'd get a bit bored with Minecraft 'cause there's not much to do. So, he's like, 'Okay, let's build something.' Then we'll build that, and then I'm like, 'Okay, I'm done.'" Jasmine does not ever play Minecraft with James and her disinterest in digital games resonates with findings from other research that indicates mothers are less likely to have personal experience with gaming (Eklund & Helmersson Bergmark, 2013). Dave's role as the parent who plays games with James, even if reluctantly, and shares a general interest in digital games with him, aligns with research that shows it tends to be fathers who share the hobby with children (e.g. Willett, 2017), though they are not necessarily responsible for overall mediation (Eklund & Helmersson Bergmark, 2013; Nikken & Jansz, 2006; Nikken & Schols, 2015).

9.3.2 Mediation

While Dave's shared interest in games echoes findings regarding the gendered nature of co-play with children, he and Jasmine describe during their interview an overall mediation approach that involves a shared responsibility between the two of them. The mediation style used by James's parents is responsive to daily goings on in the house, family schedules and particular media related issues as they arise. There are no firm rules about device use, such as time limits or restrictions on place of use, other than that the iPad must be put away at bedtime. In terms of overall time spent using 'screens' both Dave and Jasmine emphasise that the key to managing this for James is to consider screen use as part of a balance of daily activities. They describe that, particularly on weekends, if they feel that James has been on the iPad too long, they will direct him towards other activities. As Jasmine explains: "So it's not a hard-fast rule of yeah, 'you do this, and you get the screen time.' It's more 'okay, you've had enough, let's go out'." Dave contrasts their approach with the time-based limits of other parents "I just find that to be a little bit restrictive for the sake of being restrictive."

Dave also notes that they are more likely to steer James away from the iPad when other children are visiting because when James is on his own, Dave says that he feels it would be

“not very fair” if “it’s just him sitting here by himself...if we were to say ‘you’ve done your hour of iPad today. No more of that’...he’d just sit in the corner with nothing to do. It’s not very fair.” Though Jasmine adds that he does in fact “do other stuff” besides iPad when he’s on his own too.

Two other important contextual factors are worth noting here. First, during weekdays James attends after school care until 6pm and when the family arrive home from work, school and childcare after this point, the focus is on cooking dinner, hygiene, getting ready for bed and winding down from the day. Jasmine explains that while the overall plan is that James must do homework (he receives minimal homework, being in grade 1) before using his iPad, this often does not happen because of all the other demands on her and Dave’s limited after-work time. Secondly, the arrival of James’s baby brother has had a significant impact on the way that Dave and Jasmine manage James’s ‘screen time’. Jasmine recalls that “the screen time kind of increased with the baby probably 'cause it was a bit hard to keep him [James] entertained.” The presence of an inquisitive infant also impacts the location of James’s iPad use (and play with other toys) – as Dave explains, there is a constant shuffling of toys and bodies in and out of James’s bedroom, which can be shut off to the baby. For James then, at least on weekdays, his iPad use and digital game play can generally be seen as what Willet (2016) calls “independent entertainment time” (p. 471) in the relatively short amount of unstructured time he has available and while his parents are occupied with all of the other demands on their time at this point in the day.

As further evidence of the idiosyncrasies of mediation practices, and the value of generating in-depth qualitative data as opposed to quantitative Likert-scale responses, Dave and Jasmine explain that their approach to parenting around screen use is in part shaped by James’s personality. Dave explains that if James was more like Brad, his cousin:

“we’d probably be a bit more strict with him because he [Brad] becomes quite obsessed with the game and won’t respond to external stimulus. He’s like right into it, and he’ll get annoyed if you talk to him whereas he’s [James] quite fine to just interact with it and then interact with you. It doesn’t seem to be as much a problem for him, so that’s why we’re quite relaxed about it.”

Additionally, Jasmine points out that their own childhoods have influenced their approach to parenting around 'screen time'. She recalls being told to "go and socialise and all that" when she would rather be reading books as a child, and that Dave wanted to game but that he was also told to "do something else". Jasmine describes this as putting "seemingly arbitrary rules" around "hobbies that growing up our parents made us not do". She explains that for James "as long as it's not a problem, we wouldn't want to put that [arbitrary rules]".

In terms of mediation of content, Dave and Jasmine explain that again they do not have hard and fast rules but assess content on a case by case basis. They note that James has not yet asked for games that they would be uncomfortable with, but that they anticipate this will happen in the future. However, James has encountered scary content on YouTube, particularly the character Pennywise from Stephen King's "It" horror book and movies who had "popped up" in videos. This had caused some anxiety at bedtime but had been resolved. There had also been an issue with another cousin, aged 16, who had told scary stories to James and Brad about a character in Minecraft. Again, this was a transient experience and now resolved. In terms of violent content, Dave and Jasmine explain that they would be concerned more about "sadistic" violence done for morally more questionable reasons than, say, a battle in the context of a Star Wars universe. The nature of violence depicted would also be a factor, as Dave explains that perhaps shooting would be acceptable but "like graphically breaking arms, that would be completely off." In terms of online play, and the potential safety issues this raises, again, James has not yet asked for this and is content playing with his cousin, though Dave says they expect this to be an issue in the future, and that he is not sure how it will be handled, noting he "probably wouldn't be that comfortable with it" due to the potential for bullying from older children.

Jasmine and Dave's personal tastes also contribute to decision making around James's media use. They both have strong views on the YouTubers that James watches. This is not necessarily a concern about the appropriateness of content, but a matter of taste. James's favourite Minecraft YouTubers are described by Dave as "weird" and "annoying" and that "it's more that [the content] just annoys us than it's like we really don't want him watching it. It's just stupid." Jasmine added that "it doesn't make much sense, a lot of it. And it's ... some

of the storylines are a bit soap opera-y, and a bit...I don't think they're necessarily inappropriate, but...there's no benefit”.

There are no Minecraft specific rules imposed on James's Minecraft play (for example, rules about not playing in *Survival* mode which parents in my earlier survey mentioned). Dave says “he can do whatever he wants” in Minecraft, and that he has assessed that there is nothing that they would deem particularly problematic in Minecraft. As evidence of the role of personal parental experience and knowledge around gaming, this game-specific decision seems to have been made by Dave only, as Jasmine explains that she does not “even know what it's [Survival mode] about”.

9.4 James's playworlds

From James's play tour I now present a picture of his playworlds at the time of data collection. Most of the play tour was spent with James explaining items in his bedroom and things he likes to play. In his interview he also described the sorts of things he likes to play at school. James's bedroom is attached to the Main living area of the house and is a repository for numerous pop culture and transmedia artefacts that extend the media rich family culture of the house beyond Dave's gaming objects. James has a red car shaped bed adorned with several soft toys, a Star Wars poster on the wall above and a bedside table with piles of Roald Dahl and Doctor Who books. In one corner of the room there is a tent replica of the Tardis from Doctor Who, and inside is a small wooded desk with neatly arranged piles of stationary, a small chair and the laptop that Dave has recently obtained for James. The room also contains numerous plastic tubs filled with toys, craft supplies and ‘dress-ups’. A large Lego filled container sits next to the bed, and there are Lego builds dotted around the room in various states of construction, including a scene with Lego Batman and Lord of the Rings figurines. James's room also houses his scooter, bike and a keyboard that is used for “pretend dance parties” when his cousin visits. From the dress-up box, James showed me a cape from the anime series “Avatar: The Last Airbender” and Dave explained that they both enjoy the series. There is a Minecraft Redstone lamp on the dresser, next to a family photo and varying other knickknacks.

Of particular relevance to James's Minecraft playworlds, there is a whiteboard and a blackboard in his room (**Figure 8**). Dave explains that James's current favourite play activity is pretending that he is a teacher. Later, I explain how this relates to James's Minecraft play. The whiteboard lists his name at the top, "Mr Smith", the names of two "naughty" students and the schedule for the school day including math, music, playtime, and dismissal. In one corner, there is the beginning of a lesson plan about the benefits of stretching (James explains that a recent lesson involved teaching his family about Yoga and stretching, inspired by Dave recently taking up Yoga to help with his running). In the centre of the whiteboard is a drawing titled "Me playing Minecraft", though it is not clear whether this is part of a lesson. James and Dave explain how sometimes James plays 'schools' on his own with students from his imagination, and other times with family members, including the family dog, his grandparents, and their dog. In this play, James acts as the teacher and delivers lessons, such as the one about stretching, where his 'students' follow instructions (with varying degrees of success) and answer questions posed by James as the teacher.

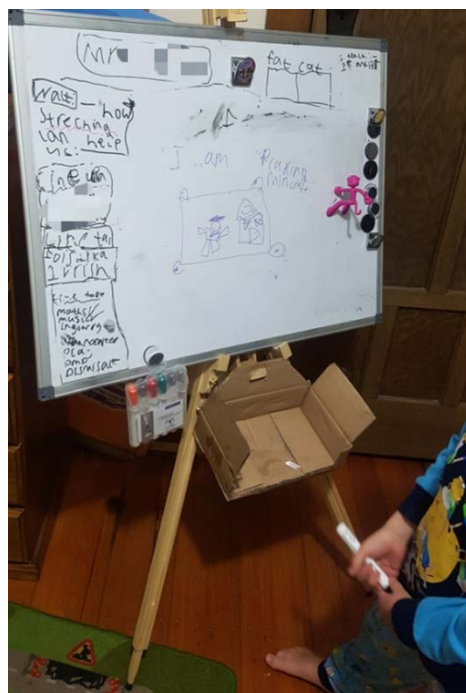


Figure 8 Photograph from James's Play Tour Showing the Whiteboard in his Bedroom

As mentioned, James moves between his bedroom and the living room for playing, depending on the presence and mood of his younger brother. The house has a garden, but this is more

of the dog's domain, with outside play for James usually involving trips to the local playground. Dave describes James as not particularly fond of team sports, although he has given Aussie Rules football a go. James does swimming and drama lessons and would also like to take up karate.

At 'real' school, James usually plays with two boys, Gabe, and Louie (both pseudonyms), and explains that "with Gabe I play powers, with Louie we normally play monkey bars because that's why I have all the blisters on my hands." The "Powers" game is "where you have to choose a type of power... and I can do spirit and ghost because Gabe gave me those powers, because you can give people powers in the game." When asked what players do with the powers, James goes on to explain how "Louie's the bad guy and we go around chasing him, fighting him and Dark Elevator is the strongest person in the game and you cannot defeat him." I could not ascertain from further questioning of James who or what 'Dark Elevator' was, exactly. When prompted about other games like hide and seek and tiggy James says he does not play those much except on Tuesday's after school. James explains what appears to me, a complicated version of tiggy involving the added difficulty of touching different coloured objects in the playground in order to get back in the game when 'tagged'.

9.4.1 James's Minecraft play

James had started playing Minecraft about a year prior to our interview, at around age 5. He had seen older cousins playing it, and Dave purchased it to show James with the hope that he would enjoy it and benefit from it. Dave elaborated on the decision to purchase Minecraft as being a mix of popularity, visibility, and the assessment that it is "creative", "not stressful" and like Lego:

"Well 'cause everyone else was playing it. It seemed like a good ... it's like Lego right. Lego on the iPad, and then he can just do whatever he wants. It's pretty straightforward and easy. It's not stressful. It's not really something you can lose at. It's just be creative, so it's good for him."

This description of Minecraft echoes findings from my survey where creativity was most often mentioned as being a benefit of Minecraft, and creativity was constructed as inherently

‘good for’ children (see Chapter 6). It also speaks to the broader utilitarian valuing of digital play that I described in reviewing literature on children’s digital play in section 2.5. While I did not ask Dave about why he chose particular games for himself, his mention of purchasing games to alleviate boredom and as a form of entertainment, in the quote about his own digital gaming choices, in section 9.3.1, in contrast to his reasoning around Minecraft for James, suggest that when he chooses games for James there is more consideration of whether they are “good for him” than when he chooses games for himself. Dave’s reasoning around Minecraft also being desirable because it is “pretty straightforward and easy” likely reflects his own insider knowledge of digital games and was unique in this study, demonstrating the role of both popular constructions of the game and personal gaming knowledge in parenting decisions around digital games. Such decision-making variables can be framed within what Jiow et al. (2017) refer to as “investigative activities” (p. 319) but with knowledge coming from ‘insider’ gaming capital as opposed to active seeking of title-specific information from outside sources. In this way, parental gaming capital contributes to a kind of passive investigative mediation strategy.

9.4.1.1 “Cool Man” world – Playing schools across worlds

I now turn to describing James’s Minecraft play. In addition to the recordings of play (which unfortunately did not capture the screen in one case and audio in another) my descriptions of James’s Minecraft play also come from his interview on my third visit where James walked me through one of the worlds he had invested a lot of time in. James delivers this tour of his Minecraft world with great enthusiasm and pride as he eagerly points out varying structures on his iPad screen as I sit next to him on the couch, while Dave sits on the other side of James. James says:

“And I made this myself. I made that.... And look what I built, I built a little bridge across the water. I built that... And in this chest, I've got loads of stuff...I really like that one... And guess what? I made another secret passage in here.”

The world James shows me through is called “cool man” and has been built in *Creative* mode. The world is strikingly colourful, and contains numerous structures, of varying sizes, some suspended in mid-air, some underground, some made of light emitting blocks, some built with a patchwork of different kinds of blocks and one orange “pumpkin house” that James

explains he “built for [his] dad”. James explains that this is “his” world because it is on his iPad, but that his cousin Brad has helped with parts of it. There is a transit system made of mine tracks that snake around structures, underground and up to his house in the sky. James moves his avatar through a series of secret passageways, accessed by removing specific blocks that only he knows the location of. In this “cool man” world, there is also a palace (marked with a large letter “P” built with Sea Lantern block so that it emits a soft glow when the in-game sun has set); a water park with a waterfall for riding boats down (and up again, as James suspects is possible, but not quite yet); a firework machine; a library; a structure made of beacons of different coloured lights stretching up toward the sky and a floating house where James “lives the most” (*Figure 9*).



Figure 9 Screenshot from James's Minecraft Recording Showing his House in "Cool Man" World

James guides me through this house, spending most time explaining one of the bedrooms. In this room there are 10 beds around the perimeter, each with a sign above denoting ownership of the bed. The beds belong to James's family (including the dogs) and friends. At the end of the row of beds there is a small pool of water which James explains is the toilet. Dave noted that this might not be very pleasant for the owner of the bed adjacent, resulting in a brief side-track discussion of design considerations. The multi-story house also contains a kitchen, driveway of Minecart tracks, storage areas, and a "weapons room...where you can shoot bows" out the window.

James then shows me the school building. This reflects his current interest in 'playing schools'. There are dots on the ground for kids to line up ("all the classes line up here, when the play is finished"), and classrooms for different grade levels. Classrooms are complete with desks: "this is a class, that's the bedroom. This is the prep classroom, you sit down here and there's the desks, I only had room for one desk. And out here is the deck ..." Unlike the school room set up in his physical bedroom, or the school he attends himself, however, this Minecraft school also has secret passageways and pools of lava hidden behind the walls. Indicating the 'work in progress' status of this world James explains that he has plans for a school pool: "this is a little water thing that I made and it was like a little pool, I thought it could be a school pool and go over there ..."

The play of 'schools' across both the physical space of James's bedroom and living room and in his "cool man" Minecraft world is a clear demonstration of the fluidity of play across physical and digital spaces. James is the author of his play and makes use of different elements of both the physical (whiteboards, willing family members) and digital spaces (lava pools and secret passageways) in service of his imagination, mimicry, and reformulation of 'real-life' school.

9.5 Recorded play session

Imaginary play was also a strong feature of the recorded play session with his cousin Brad. I now describe a sequence of play captured in the recording of James and Brad's Minecraft play as a way of demonstrating how individual play types (as described in chapter 8) flow and merge with each other across a more extended period of play with shifting but loosely

tied together narratives created by socially negotiated motivations between the boys. In this recording, I only had the view of the boys each with their own iPad, sat on the floor in varying positions, and the audio of their voices. The screen recording did not work, perhaps due to James's iPad not having enough storage space. However, even without the view of the screen, I was able to get a clear picture of what was happening in this play based on the boys' conversation.

9.5.1 Creative play

The recording lasts 43 minutes and begins with the boys finding each other's avatars in the world, then deciding to build a house, then a town. Representative of Hughes' *creative* play, there are periods of quiet building, and of conversation about where and what to build. Brad takes the lead on most decisions, for example, determining what materials to use, and the nature and location of buildings. This is perhaps because he is older and more experienced with Minecraft, indicating the way that broader social relationships and game competencies influence the course of play. Once the initial house is well underway (including the driveway and "storage area") James announces that he is going to build "the road" out of coal, with Brad adding "and you also need white" for the lines in the middle of the road. Building and construction is present throughout the recording, beginning with the house then extending into a row of shops, swimming pool and movie theatre. Much of the conversation revolves around material choice, and disagreements about whether to change the time or not. At one point, Brad constructs a secret basement accessed through a hidden entrance – echoing James's own penchant for secret passageways in his "cool man" world.

9.5.2 Symbolic play

At a point in play where the boys' avatars are in different parts of the map, working on their respective building tasks, they determine that they need phones to communicate with each other. Despite sitting *physically* next to each other, in the game-world, continuity needs to be addressed, therefore it is not possible for the characters to talk to each other from very far away. The way that the boys construct a system of phone use is a strong example of *symbolic* play. The following excerpt demonstrates how the process of communication between player characters is achieved:

James: *“What’s our phones gonna be?”*

Brad: *“I dunno...you choose”*

James: *“Maybe...umm...one of these? A Redstone? Redstone?...Get that Redstone...that’s our phone...no actually...no no no not that, not that, actually I want our phones to be...”*

Brad: *“What? Diamonds? Emeralds? Gold?”*

James: *“Ahh...Emeralds! Emeralds are our phones. Emeralds our phones”*

This excerpt is an example of how children weave together their imaginary overlay and social relationships with the technological infrastructure offered by Minecraft, and how they achieve this through their own agency over the technological elements (see also chapter 10). The game code presents the object “Emeralds” which has a set of coded properties and the potential to be used in a prescribed way in the game. But, in this case, players incorporate the object, purposefully, with thought, into a novel role in play. The game code is not completely ignored in this example, as items in *Creative* mode come in stacks of 64, and this means that Brad has to show James how to manipulate in-game objects so that they each only have one phone/Emerald:

Brad: *“Okay. Gimme one”* [looks at James’s screen]

James: *“K”*

Brad: *“That’s all of them”*

James: *“Oh, I’ll have one”*

Brad: *“I’ll get you one”*

James: *“I’ve already got some”*

Brad: *“No, you can have one and I have one, look ...Look, I split...no you don’t have 64...that’s one, one, and I have one”* [looks at James’s screen]

After establishing that Emeralds will “be” phones, the boys draw on their existing knowledge of social and material conventions surrounding phone call etiquette in service of authentically incorporating their use during what progresses to be a period of *sociodramatic* play:

Brad: “*I’m gonna call you if I need something...dring dring* [phone call noise] *dring dring* [looks at James’s screen] *dring dring*”

James: “*What is it?*”

Brad: [in character] “*Umm I know what we’re gonna do today*”

James: [in character] “*What is it?*”

Brad: “*We’re gonna build a movie theatre!*”

James: [gasps] “*That sounds like a fantastic idea, thank you so much hun, bye*”

Brad: “*Bye*” ... “*shoop*” [phone hanging up noise]

James: “*Get a umm, Iron...*”

Brad: “*No, you can’t...* [waves hand between himself and James in physical space] *I can’t hear you because we can only talk on our cell phones*”

James: “*Umm hun?*” [trying to follow protocols set out by Brad by being ‘in character’ but forgetting to do the phone call noise]

Brad: “*No, no, you need to go ‘dring dring’*”

James: “*dring dring*”

Brad: “*One second*”

James: “*dring dring dring dring*”

Brad: “*coming, yep? What is it?*”

In this way the boys work to maintain the authenticity of phones during play by flickering (Fleer, 2014) in and out of character, in and out of pretence and the imaginary, to remind each other of the need to *act as if* they cannot hear each other and therefore need to communicate with the phones. The phone system is then incorporated into the *sociodramatic* play sequence that drives the remainder of the play session.

9.5.3 Sociodramatic play

This *sociodramatic* play scenario evolves around the construction play but comes to form a significant part of the structure of the scenario's narrative. This is first evident when James asks Brad for a purple bed "because I'm a girl, and you're a boy, in the game". James also announces that he is going to build some shops "so we can go and buy stuff". Later on, this becomes a scenario where James is the "mum" and Brad the "dad". This is instigated by James who reacts to Brad's plan to build a swimming pool at the house by saying "that's fine, if you want to build a pool at our house you can, cos you're the dad and I'm the mum". This is carried through to further plans for the world, when James upon 'waking' in the game says to Brad, or rather Brad's in-play character, "morning hun, anything planned today?" In the last 10 minutes of the recording, James, while visiting Brad at the movie theatre construction site, announces that he is "feeling really sick" and that he thinks he is "gonna have a baby". He returns to the house then pretends that he has given birth to twins:

James: *"Pretend I called, I called you when I had them" ... "dring dring dring dring"*

Brad: *"Pretend I didn't answer cos I was building this"*

James: *"Pretend I took them for a drive in my car"*

Brad: *"...and you went down to the movie theatre"*

James: *"Yeah" ... [In character as 'mum':] "OK, meet your daddy!" ... [As babies:] "ga ga galaga lag la la la" ... [Now as mum again:] "umm, look, hun"*

Brad: *"Yeah"*

James: “I’ve had babies! They can walk”

Brad: “When?”

James: [As baby:] “ga ga look who’s that ga ga” ... [As mum:] “OK, I’m gonna name one, umm, Isaac, and one Sophia. Come on guys, let’s go home” ... [as car:] “vroom vroom”

Soon after James returns home in the game, Brad calls to tell him to not show the secret basement to the children: “OK, I won’t” agrees James, “but when they’re older I tell them OK?”, “yeah when they’re 15” says Brad. Note that during the world tour given in his interview, James mentions building things in his house for his “baby” indicating that the family centred *sociodramatic* play he and Brad engage in in the recorded session is not isolated to that play session.

This *sociodramatic* play sequence involves what Goodwin (2006) calls “playing house” (p. 84) and Opie and Opie (1969) call “mothers and fathers” (p. 311). However, Goodwin’s (2006) research focused on the play of girls, and Opie and Opie (1969) recall that boys they observed in the 1950s and 60s would not typically initiate such play but would sometimes join in. In this current example, there is also not the active assignment of roles or a high level of orchestration as observed in Goodwin’s and the Opies’ examples. Instead, “playing house” is implied by James’s initial claim that he is “a girl” and then is incorporated, without discussion, throughout the rest of the play sequence. This form of play, at least when it occurs without a screen, is valued by adults as evidenced by the inclusion of ‘home corners’ in early learning and kindergarten centres in Australia¹².

In the example of James and Brad’s play given above, they engage in processes that parents in my survey, and that academic and popular accounts of Minecraft illuminate – planning, construction, problem solving. However, beyond this are further connections with broader playworlds and traditional play types. James and Brad have crafted a setting for, and a sequence of, play from a range of different sources in an adept utilisation of the Minecraft

¹² See Taylor and Richardson (2005) for a discussion (relevant to James and Brad’s *sociodramatic* play) of how play in the home corner may challenge rather than reproduce the heteronormative identities and relationships that are signalled by it.

environment. The play that happens is not cut-off from their non-digital worlds, their social and cultural worlds, or their imaginary worlds. Social and cultural elements, and digitally materialised objects are all intricately entwined, picked up and used, disregarded, or adapted as required during the course of free play. The Minecraft setting *serves* child-led construction of play.

9.6 Conclusion

In presenting this case study I have avoided simply describing instances of Minecraft play as artificially cut off from broader playworlds and broader social and technological contexts. This information provides clear evidence of the fluidity and persistence of play across physical and digital spaces (Dixon & Weber, 2007). There is a central theme in James's current play repertoire, playing 'schools', with perhaps a secondary theme of playing 'families'. This play exists in James's imagination and is 'lived out', enacted in different ways in the different physical and digital spaces that James's play occupies. The 'school' of his bedroom and living room is not an exact copy of the school in Minecraft or vice versa. But they are all actively tied together by James during free play.

James's play, while directed by his own imagination, skills, and desires, is shaped in a very practical sense by both his social world and the possibilities and restrictions presented by the technological and physical environment. In terms of social factors, with his family not arriving home on weekdays until past 6pm, time for Minecraft and other play is naturally limited by family schedules. Further, Dave and Jasmine have a relatively relaxed style of mediation of James's 'screen time' in part informed by their own childhood experiences with having hobbies discouraged by parents. Although care is taken to ensure James engages in a range of different activities during the day, his Minecraft play is free from explicit disapproval (other than Dave's reluctance to play the game himself due to lack of personal interest) or "arbitrary" rules. In the physical environment of his bedroom, he has whiteboards and willing participants to act as students. In the digital environment he has secret passageways and lava tunnels and the ability to visualise and construct his school buildings. In the following chapter I describe more about how the technological infrastructure of

Minecraft impacts the nature and flow of play. I expand on the role of child agency in producing play as it has emerged here in describing James's playworlds.

Chapter 10 Child agency meets technological infrastructure

10.1 Introduction

From the above descriptions of play in Minecraft, organised by traditional play type categories, it is clear that Minecraft play is indeed *play*. However, just as non-digital environments have a role in shaping particular sequences and forms of play so too do digital environments (Giddings, 2014). Scholars have drawn attention to the ways in which digital play is different to other forms of play. From my reading of this work however, the observations tend to be from a deficits and benefits perspective. That is, they assess what aspects of the play experience are missing from digital play or what are enhanced by digital play. For example, Given et al. (2016) note the deficit of tactile, sensory experience in playing an app about ‘making a cake’ and Marsh (2010) points out that the digital environment involves a different form of embodiment and materiality as well as a lack of social information about online playmates. In this section I build on work that has considered digital play as co-constructed by players and technology (Giddings, 2014a; Keogh, 2018; Taylor, 2009b) by describing how child players *work with* the infrastructure of Minecraft to produce moments of play. My focus however, in contrast to existing work, is less on the nature of assemblages and more on the play which is produced by and through them.

10.2 The technological infrastructure of Minecraft play

The technological infrastructure surrounding Minecraft play consists of a range of software and hardware artefacts that shape play in diverse ways via a tangled agency between players and these artefacts. In terms of the game software, before entering the playspace (Minecraft ‘worlds’) players must either create a new world or decide on a previously saved world to enter. Creating a world, which can be likened to a stage or space for play, involves several steps. First, the world needs to be given a name. The process of choosing a name for a world involves creativity and decision making, as well as literacy practices. In the Minecraft recordings for this study children had named worlds either according to some property or function of the world for example “ice spikes world”, “everyone in [class name] welcome!”,

“Linh’s world!”, “my best house creation”, left as the generic pre-set “my world” or somewhat unrelated names such as naming the world after a friend, or “BMX” or “cool man”. In one recording Archie creates a new world then said to his mother “I named it BMX and I’ve made 26 worlds”. Naming of worlds potentially contributes to play by denoting a purpose or at least some meaning to a world that separates it from others. It is an opportunity for creating a sense of ownership over space.

Once a world is given a name there are numerous options for how to configure the world. In recordings where this process was visible, not only were decisions made about whether the play would be in *Survival* or *Creative* mode, but also difficulty level, type of terrain, the hostility level of NPCs, whether the day/night cycle would be ‘locked’ or not, and what roles were assigned to players where there was more than one player (i.e. “operator” assignment means that player can change settings; “spectator” means that player cannot place or break anything etc.). These settings can be changed during play as well and provide the means for players to structure the bounds of what is possible in their gameworlds. For example, Linh opened a world in *Creative* mode, placed some items in her inventory then switched to *Survival* mode, therefore choosing to configure her own level of difficulty as she had bypassed the stage of *Survival* mode play where initial items need to be gathered from the environment.

Players can also choose to change their character appearance. In several Minecraft recordings, this took some time and involved browsing the in-game options, either free or “locked” and requiring payment of real currency. This browsing process represented the most palpable intrusion of commercial interests into play. Archie for example tried on many different skins but was verbally steered away from this by his mother who noted that the small padlock icon on the majority of skins meant that they had to be bought, and that this would not be happening. As mentioned earlier in describing instances of *role* play, sometimes skins were chosen for particular *role* play scenarios, but in others, the choosing of skins was a kind of play in itself, not necessarily related to any proceeding narrative, but more about a process of play with aesthetic in the same way that playing ‘dress ups’ with a box of assorted costumes/materials can be either in service of a broader narrative or a more in the moment endeavour.

Children also exhibited agency over the temporality and meteorological elements of their Minecraft playspaces. Players used commands or the settings menu to change weather conditions (turning rain off, for example). Or, they would *incorporate* game generated changes in weather into their play. For example, when it began to rain in James and Brad's *sociodramatic* play session, this was addressed by Brad saying "my phone is in my bag so it doesn't get wet" (his "phone" here is an Emerald block as described in Chapter 9; his character does not have a bag, per se, but perhaps he has 'unequipped' the Emerald and put it in his hot bar, rather than his character's hand). In this way, the beginning of rain triggered a "semiotic synthesis" (p. 121) much like that observed by Giddings (2014) where the onset of rain during a play scenario in physical space was integrated by players into the imaginary narrative (in that case, changing the imagined setting for play from a planet of snow to a planet of rain).

Participants demonstrated three main ways of *changing time* in their worlds. This was either by commands, settings, or by having their character go to 'sleep' which, if done at night-time triggers the rapid onset of the next day. Players most frequently changed game time to daytime in order to prevent disruption to building or other tasks caused by lack of visibility in darkness and to avoid the added task of having to deal with nocturnal hostile NPCs. In other cases, as above, and again most notable in the play of James and Brad, game-imposed changes to time were *accepted* and woven into the child-led imaginary. In their play session, impending nightfall serves as a trigger for a progression of the imaginary narrative as Brad says: "I'm going up to our house to sleep" and James adds "I'm going to finish the shop in the morning".

The game software allows for diverse engagement with travel across (digital) geographical space. Wayfinding can be facilitated by landmarks (either player built or randomly generated by the game), use of the in-game compass, maps, by using settings to see location coordinates and by flying to get a vast birds eye view of the landscape. The ability to teleport from one location to another was utilised by many of the children in this study during play. In some instances, teleportation was a significant and prescribed part of play – for example in the mini-game called Bed Wars, played by both Zane and Caleb – where players must use Ender Pearls to transport to different locations via teleportation.

More common though, teleportation was used as a practical tool for wayfinding. For Deepti and Aashish the vastness of the space meant that they were frequently separated and Aashish used his game knowledge to teleport his sister's character to him. Teleporting is a feature of the technical infrastructure that shapes *social* play by facilitating finding other players in a vast space – it not only reduces time needed for the boring job of finding each other and walking or flying to them but it reduces the anxiety associated with getting lost. Players can also travel through portals to other dimensions, echoing broader sci-fi influences, and facilitated but not necessarily prescribed by the technical environment.

These in-game technical infrastructure elements all demonstrate how Minecraft play is actively shaped by both the player and the game software. This happens in some structured ways, such as choosing game mode settings and in more spontaneous/reactive ways, such as changing the time to day in order that building is not interrupted by lack of vision. Other technological aspects were also seen to impact play during Minecraft recordings. Things like iPad's running out of battery power, lack of device storage space preventing play in downloaded worlds, the popping up of notifications on iPads that temporarily disrupt the flow of play, glitches, lag, outdated software and the need to adjust screen brightness in response to ambient sunlight were all seen to impact play. In one case the version of Minecraft owned by players impacted play. Olivia and Gabe's play was restricted to the capabilities of an older version of Minecraft played on an old Xbox console with no internet access. This meant that much of what they learnt was possible in more recent versions, from talking to friends or reading their Minecraft 'how to' books, was not available to them. So due to technical infrastructure their Minecraft play worlds were noticeably different to those of other participants.

Physical device properties were also observed to impact play. Most notably iPads and the one-on-one view they offer meant that play could also be shaped by the ability to move the device in physical space. For example, when Linh wanted to surprise her sister with a new 'skin', she physically moved the iPad screen out of view of her sister sitting next to her, "you can't see it yet". The portability of the device allows for play to include the obscuring of view from others. Conversely, in Beth and Frank's recordings when Beth directed Frank to look at what she had built, he leant over and looked at her screen (although he is soon told to look

at *his* screen and use the perspective of his avatar to view the structure). In Xbox play, where both player avatar perspectives are viewed simultaneously on the same screen, the possibility of play involving selectively obscuring the view of other players is reduced. On the other hand, when Deepti struggled with certain manoeuvres she could hand the controller to her brother and watch on screen as he took control of her avatar and performed the move for her. At times this dual view caused disruption to play because Deepti had spent some time wondering what was wrong with the game before realising that she had been watching her brother's half of the screen not hers.

The multifunctional nature of devices used for play impacts the shape of play too. Linh made use of the internet browsing and camera roll features of her iPad as she dressed her avatar. She had gone to a website which hosts a repository of thousands of different 'skins' that can be used for free, selected one, downloaded it and then accessed it via the "Choose skin" menu in Minecraft. This means that content from outside official Minecraft channels is relatively easily incorporated into play. Brodie also described a similar process, though in this case his friend had "air dropped" the image file used for dressing avatars to Brodie's iPad. I did not observe the practice of incorporating out of game content into play in the recordings where children used Xbox or PC for play. This is possible, but perhaps more technically challenging than on iPad, especially when iPads are used by children frequently for schoolwork – there is a familiarity, and possibly a sense of ownership of device that makes incorporating out-of-game content into play spaces more likely.

10.2.1 Preservation

Unlike Lego builds or pretend *role* play or *sociodramatic* play events in *physical space*, the worlds created by children in Minecraft can persist for long periods of time. While a Lego build might be displayed and left on the lounge room floor for some time, eventually it is likely to be packed away. Pillows, sheets, and dining chairs might exist as a hut or cubby or fort for a while but inevitably they are dismantled. This is not to say that the play event is erased entirely. The narratives surrounding the play tied to these objects may persist and adapt to new settings and in many cases the objects themselves are not strictly tied to one particular play event.

Minecraft worlds, however, because they are digital, can be preserved without taking up household resources and without taking up physical space. Olivia, in her interview, described how some worlds were abandoned, left “in the dust” because they were for particular projects that became too difficult or did not turn out as well as expected, such as the world dedicated to two real life pets that ended up “all wonky” or the replica of their street which was abandoned “just because it was a bit too hard”. In those cases, the worlds were voluntarily abandoned. Sean and Brodie both spoke of the sadness at losing worlds they had not wanted to lose. In Brodie’s case this was due to an error when transferring world save files from one device to another and in Sean’s the loss was a deliberate act of sabotage by his older brother who deleted a world that Sean was particularly proud of. When asked how this made him feel Sean stated that “ It felt like I wish he could go onto Minecraft and I could delete him” because “that [world] took ages 'cause I just put a giant wall and ladders all around it and also other cool stuff.” The loss of entire playworlds, worlds with *meaning* to players, was experienced intensely.

But if worlds are not deleted, when a player returns after some time, they find it still ‘living’, still existing just as it did when they created it months or years ago. NPCs go about their business, crops are still growing (although time has been paused), works in progress invite the critique of their now much more skilled and mature creator. This opens the possibility for nostalgia and reminiscence that can be experienced differently to reacquaintance with other kinds of past play spaces. In one of Linh’s recordings she returns to a world that she had built with her sister: “we haven’t been in this world for a long time”. Linh controls the on screen action as her sister watches on, and there is a shared recall of past play triggered by moving through space: “remember we were going to make this a townhouse?” and comments on unfinished buildings and areas for improvement: “did you ever finish that greenhouse?”, “there’s a block missing”.

Burnett and Bailey (2014) describe a similar process of rediscovery observed in their school Minecraft club participants:

“Whilst buildings were frequently abandoned, sometimes half-built, they remained in the textual world of Bradborough and often evoked memories; as children moved through, they passed these buildings and

often commented on them, as if looking through old photographs or touring a familiar city: ‘Do you remember when we . . . ’, ‘I made that with . . . ’.” (p. 64)

The progression in age of Minecraft and its players presents interesting opportunities for looking at nostalgia and reminiscence in relation to play (in quite a different to sense to nostalgia for unmediated, more valued play of previous generations that has been a feature of surrounding discourses of digital play as discussed in Chapter 2 and later in Chapter 11).

10.2.2 NPCs

Minecraft players share their play space, their worlds, with numerous kinds of NPCs. Giddings (2014) talks about NPCs as coded, artificial beings with a “sort-of” life who can be engaged with in a variety of ways through the course of play (p. 101). However, the examples of games described by Giddings (2014) all effectively *require* some kind of interaction with NPCs in a way that Minecraft does not. Even in non-competitive games such as Animal Crossing players must interact with the “sort-of” living inhabitants of the world they dip in and out of. From my Minecraft recordings, it is apparent that players have more freedom of agency in terms of how NPCs are incorporated into play in Minecraft.

In *Creative* mode NPCs, including animals, Villagers, and hostile creatures exist very much *in the background* of the world. However, in the recordings, even when play involved activities entirely independent of NPCs they would occasionally present themselves to players. For example, when Beth’s dad constructed a TNT structure to be exploded, a hapless sheep wandered into the area and thus prompted desperate verbal attempts from Beth and her father to warn of the impending explosion. The sheep did not survive. Its presence shaped play by triggering a shared sense of tension and anxiety in players that would not have been present otherwise.

Likewise, Villagers often got in the way of play. Players would verbalise instructions to rectify the interference. For example, Zane having access to his bed blocked by a group of Villagers milling around said “get out of my way everyone”, Linh told a particularly persistent Villager to “get off!” the ground where she needed to place blocks and Aashish told a Villager blocking his path to “get out of my face!” NPCs were not always a nuisance,

however. In some play sequences they were invited to be active participants in play by the children. For example, Deepti spent some time riding horses and shearing sheep; Brodie killed chickens for food in a *survival* world; and Linh attempted to trade with Villagers. In several cases NPCs were incorporated into play as victims, as described earlier in the *deep* play of Archie and Olivia (Chapter 8). In those examples the coded behaviour of moving away from harm was exploited by players and became part of play. At other times, NPCs were incorporated into *exploratory* play, for example as Archie tested the effects of varying weapons on Zombies.

From these examples it is clear that players incorporate, ignore or otherwise deal with the inhabitants of their Minecraft playworlds in fluid and agentic ways. This is a tangled agency. The coded behaviours of NPCs mean that they are not entirely passive features of the environment. They present themselves as possible co-creators of play scenarios but, at least in *Creative* mode, do not demand interaction in the way that, say, a resident NPC on an Animal Crossing island persists in attempts at conversation, or a neighbour in The Sims reacts emotionally to being rejected. NPCs in Minecraft shape play in a way that is unique to their coded selves and environments. These unique co-constructors to play need to be accounted for when describing Minecraft play, and other forms of digital play where child agency is of a different form to play on the school playground, where co-constructors have different forms of agency.

10.3 Conclusion

In this section I have expanded descriptions of children's Minecraft play to include the multitude of ways that player agency interacts with elements of the technical infrastructure in the production and flow of play. These descriptions have been focused on how technological elements *shape* play, rather than by summing up deficits (e.g. the lack of tactile involvement with digitally represented objects) or benefits (e.g. the way that play in digital space might increase digital literacy skills etc.).

This has brought into view a consideration of the relative roles of player agency and technological bounds. As Giddings (2007) writes “a key term to understanding children's play on and off-line is thus ‘agency’ (rather than subjectivity), an agency that cannot be

restricted to discussions only of the human participants” (p. 49). I have described how the technological infrastructure of Minecraft play, including both game software and hardware is interacted with by children in ways that indicate a shared agency or role in co-constructing a play space and play sequence. Players have a great degree of control over factors such as competitive elements, difficulty level and type of terrain. They cannot control every element of the environment however, such as the uninvited presence of NPCs. But while they cannot control the presence or absence of these co-inhabitants of their playworlds, they can choose to ignore or incorporate them into play.

Agency afforded to children in Minecraft is much more than claims of interactivity (in counter to media as passive) arguments portray. It is not just that children move a character across a screen, or problem solve or compete, or “break and place blocks”. Well beyond these things, players co-construct play worlds by actively configuring them through settings, and negotiate agency between themselves and artificially intelligent beings, as well as between each other. The digital does not dictate play, but it does provide parameters, in the same way that the availability of toys, props, rules and playmates in a home or playground do. What type of play happens is the result of a complex interplay between the technical infrastructure, the child (their emotional states, personality, histories, interests, desires), the day, who else is playing and so on. All of this of course nested within and actively woven in a bidirectional manner with family and broader cultural and technological contexts.

Digital gameplay as a form of ‘screen time’ is often contrasted with other types of media use in terms of how it is less passive than other activities such as watching TV (Greenfield, 2014; Mustola et al., 2016; Rideout, 2016). Greenfield (2014) for example comments that the interactive nature of videogames forces children to “create stimuli and information, not merely consume them” (p. 2). Mustola et al. (2016) interrogate the active versus passive dichotomy present in literature concerned with children’s digital play and suggest that, without appropriate depth of description and contextualisation, it is yet another unhelpful way of framing children’s digital play. By describing Minecraft as a play space that children wield agency over as they shape, exploit, reject and incorporate the digital environment into their own imaginaries, I have expanded on what is meant by ‘less passive’, in relation to free play in Minecraft.

Chapter 11 Minecraft play is play

11.1 Introduction

In the preceding chapters I have presented findings from an ethnographically informed study of children's everyday leisure time Minecraft play within family and social contexts. In this chapter I discuss the findings as a whole. I have described 15 of Hughes' (2002) play types as they appeared in recordings of Minecraft play sessions and tentatively defined a type of play that was present in these recordings but not easily accounted for by Hughes' play types, *satisfying* play. Detailing the tangled agency between player and technological infrastructure has shown how the production of Minecraft play involves both immediately present human and non-human actors and the social realities of family contexts. By also presenting a detailed case study of one child's Minecraft play with reference to child and parent interviews and play tour data, I have provided a thick description of Minecraft play as it is woven into James's broader playworlds, with the specific example of 'playing schools' being enacted in physical, social and digital space. The insights from James's parents around their attitudes toward 'screen time' leisure time and play (informed by their own childhoods and gaming histories) as well as descriptions of how the routines of everyday life fluidly interact with these attitudes and the mediation strategies they inform, illuminate how all of these elements come together to shape opportunities for James's Minecraft play. I showed how broader discourses of 'screen time' infiltrate parents individual decision making around mediation strategies, as Jasmine consciously referred to other parents having "arbitrary" 'screen time' rules. James's parents' explanation of their approach to Minecraft play in particular, echoed many of the responses to the survey presented in Chapter 6.

11.2 Contributions to the literature

This study contributes to existing literature by uniquely centring play rather than outcomes associated with play. Where other studies have briefly described play in digital settings, either for introducing broader findings (e.g. Anderson et al., 2017) or for relating play examples to particular outcomes (e.g. Burnett & Bailey, 2014; Danby, Evaldsson, Melander, & Aarsand, 2018b; Kafai & Giang, 2008), here, I have stayed and dwelled on moments of play themselves. The resulting detailed descriptions illuminate similarities with traditional, non-

digital free play. Because non-digital free play is highly valued and associated with romanticised ideals of childhood (Cowan, 2020; Weber & Dixon, 2007), these findings challenge assumptions about digital play only being valuable insofar as it produces learning or development outcomes.

This study also provides a methodological contribution to the literature because it captured the everyday play of children, in their homes, not in educational settings. This is not to say that play was not altered at all by the research setting. However, what I observed was not actively shaped play in the same way as, for example, Ito (2012) where certain kinds of play in researched workshops are “largely repressed” due to constant re-direction from researchers/educators back to “wholesome” forms of play (p. 134). I did not set limits on play such as turning monsters off or disallowing PvP play as those working within educational settings have had to (Bailey, 2017).

A further methodological contribution of this work is that I aimed to record both the onscreen activity and children’s bodies in physical space. While this presented technological and practical challenges, such as devices not being able to screen-record and tripods being enticingly hazardous to younger siblings, where it did work as intended the resulting data provides a richer view of digital play than captured in previous work (e.g. Aarsand, 2010; Björk-Willén & Aronsson, 2014; Kervin et al., 2015; Marsh et al., 2018; Stephen et al., 2013).

11.3 Contributions to the thesis

The findings from this study present detailed descriptions of Minecraft play and the family and technological contexts of this as representative of the innermost circle of my use of Bronfenbrenner’s model (**Figure 1**, p.83). Throughout the thesis, my overarching aim has been to shed light on children’s everyday Minecraft play practices as they occur within interconnecting layers of context. I have done this from a perspective that sees play as worthy of description and understanding in its own right. This third study has provided descriptions of moments of Minecraft play with a degree of acuity that allows for a greater understanding of what Minecraft play *is* than has been previously available.

11.4 Minecraft play is play

A significant finding from this study has been the sheer diversity of play that happens in Minecraft. This diversity contrasts existing conceptualisations in the literature about what Minecraft is and what it offers. By structuring observations in Study 3 around Hughes' play types I was able to demonstrate the *breadth* of play present in recorded Minecraft sessions. I found that all but one of Hughes' 16 play types were present in the 6-8-year-old participant's Minecraft play. This concurs with and extends Marsh et al.'s (2015) findings with younger children. They found 5 of Hughes' play types in Minecraft.

I have provided rich descriptions of moments of play, demonstrating practices well beyond the common portrayal of Minecraft, in media and academic discourse, as being a game “like virtual Lego”, where children “break and place blocks” (Hollett & Ehret, 2015; p. 1854). These findings also challenge assumptions of parents like Archie's mum who purchased Minecraft on the premise, informed by casual conversations with other parents and teachers, that it was “...more of an educational game...so problem solving, creating worlds, using his imagination, building” and was surprised when Archie spent much of his Minecraft time killing creatures or “wandering around”. In Archie's case, his mother's assumption about what Minecraft involves actively shaped play when in one session, where Archie explained how he was taking care of Villagers by killing Zombies, his mother redirected play by saying “aren't you supposed to be building stuff?” My findings also provide expansion on the notion that Minecraft fosters creativity. Parents in study 2 most often mentioned creativity as being a positive of Minecraft play (section 6.7) and media portrayals (e.g. Thompson, 2016) as well as parenting advice websites (Raising Children Network, 2020a) also home in on creativity when describing Minecraft. Using Hughes' category of *creative* play allowed for a detailing of at least some aspects of what ‘being creative’ in Minecraft actually involves.

Put simply, these findings demonstrate that Minecraft play is play. This seems a straightforward and common sense statement, but as I have persistently argued, play that occurs via a screen tends to be seen as something *not quite play* as various anxieties seem to get in the way of *seeing* the play (except where it is clearly associated with pedagogy or development). This research makes clear the ways that Minecraft play can be very similar to

non-digital play, specifically free play in alignment with the characteristics outlined by Cowan (2020).

11.5 Play beyond virtual versus real and embodied versus disembodied dichotomies

By highlighting the ways that traditionally valued play types occur in Minecraft, I have also added support to other scholar's claims that viewing children's play as either 'digital' or 'non-digital' is not useful or reflective of the nature of play. For example, Marsh (2010b) suggests that "we should view their [children's] experiences along a continuum in which children's online and offline experiences merge" (p. 25). Lemish (2013) goes so far as to say that distinctions between screen worlds and 'reality' are "artificial and meaningless" (p. 2). In relation to play specifically, Dixon and Weber (2007) recall their earlier field notes where children were seen to engage in play which flowed from the screen to physical play spaces and back again demonstrating the ways that play may be at once digital and non-digital. Burn (2013) applies Foucault's idea of heterotopia to describe the entangling of spaces involved in producing moments of play in and through digital *and* non-digital space. In my study, this permeability was most obvious in the case study of James playing 'schools' across the digital space of Minecraft and the physical space of his bedroom, both held together in a third space – the imaginary – and informed by his experience of 'real' school.

Relatedly, in addition to play narratives and scenarios existing in whatever space is at hand, when children in this study played Minecraft they were not 'sucked into' the screen, leaving only their physical presence in non-digital space. They were simultaneously occupying both spaces, as well as the imaginary overlay of their play, in what Martin et al. (2012) describe as a "multiplicity of presence" (p. 227). Play on-screen was not cut-off from the rhythms of household life (Apperley, 2009). Players may have been in a magic circle (Huizinga, 1955; cf. Consalvo, 2009) of play but were adept at moving fluidly in and out of it, just as occurs in children's imaginative play elsewhere. Children responded to social interaction from others outside the play, such as parents giving time warnings to finish play, shared laughter at the sound of the family dog snoring, siblings being helpful or annoying, the sound of dad's car arriving in the driveway or the need to increase screen brightness as sun streamed in the

living room window. They also engaged in the same kind of “flickering” between being *in* play and orchestrating play that is observed in other sites of pretend play (Fleer, 2014). For example, stepping out of character to discuss narrative, delegate roles or ensure continuity in symbolic use of objects (recall James and Brad’s implementation of a phone system). After all, as others have noted, there is a clear parallel in the porosity of boundaries between real and pretend and those of real and virtual/digital (Fleer, 2014; Giddings, 2014a).

As well as *being* in multiple spaces, children *co-constructed moments of play* via feedback loops between player, software and hardware which again complicates straightforward distinctions between ‘on-screen’ and ‘off-screen’, ‘digital’ and ‘non-digital’, ‘embodied’ and ‘disembodied’. Generally, this relationship with devices appeared to be fairly unconscious, but not always. For example, Caleb’s challenging parkour jumps involved a series of consciously coordinated movements, a tensing of his upper body and visual checks for the correct positioning of fingers on keyboard, in order that his avatar performed successfully. While I have not done an explicit analysis of play at this level, it is clear from the work of others who have (Apperley & Jayemane, 2012; Conway & Trevillian, 2015; Giddings, 2014a; Keogh, 2018; Taylor, 2009b), that there are multiple ways of conceiving of embodiment in digital play. These extend beyond the understanding typical in *children’s* education and play literature of children being embodied via their avatars (Marsh, 2010b) or disembodied from play through lack of tactile sensation (Given et al., 2016).

11.6 Decline of play?

The descriptions of children’s Minecraft play in the terms given by Hughes’ taxonomy, which are in turn informed by child development literature, also provide further evidence that children’s play is not necessarily in a general decline. The idea that children do not play anymore, or that they do not play properly (in line with notions of ‘good childhood’ and ‘good development’) is, as I mentioned in Chapter 2, a longstanding one. Given the discursive framing of ‘screen time’ and digitally mediated play as in many ways at odds with ‘good play’ (shown in studies 1 and 2 of this thesis), it is perhaps not surprising that such concerns persist. Dixon and Weber (2007) talk about the role of context, the kind I describe in study 1 and 2, and how this intersects with nostalgia, in shaping the way that we frame ‘good [old] play’. They point out that when we compare our own childhood play favourably in relation

to the perceived technology-heavy play of contemporary childhoods, this represents “not merely an individual yearning for one’s lost childhood but instead reflects a collective looking backward, possibly as an apprehensive response to a rapidly changing environment” (p. 18). I suggest that these contextual framings, which heavily focus on ‘the screen’, rather than the play, produce an opaqueness of play, a lack of visibility, in digital spaces like Minecraft which precludes view of the kinds of play practices described in the preceding three chapters.

11.7 Minecraft is a play environment

“It is most ironic that the type of play adults long for in their romanticised past has moved to the spaces we are most concerned about; our children are finding safe harbor in the spaces created by technology and media, where in many respects, they continue to play in ways not that different from generations past”
(Dixon & Weber, 2007; p. 31).

In addition to seeing Minecraft play as play, findings from my third study suggest that we can also see Minecraft as a play *space*, or a play environment. While Minecraft is talked about as a ‘digital game’ or ‘app’ (Kervin et al., 2015) my findings show that it offers opportunities for play that are less rule bound or narrative heavy than other game titles. In many ways Minecraft functions as more of a virtual world than a ‘game’ and while I want to avoid getting into the degree to which it is really a ‘game’ or a ‘virtual world’ (see Holloway et al., 2013; Merchant, 2015), it is important to note the ways that Minecraft can function as a play space. This is particularly interesting in light of restrictions in access to other sites of free play available to children.

Twenty two years ago Henry Jenkins (1998a) wrote about videogames offering children, boys specifically, “complete freedom of movement” (p. 262) of a similar kind to that which he experienced in the play of his own childhood, involving roaming far from home and far from parents. While it is important to avoid uncritical romanticised reminiscence of childhoods past, the kinds of play children in my study engaged in in Minecraft shared many similarities with Jenkins’ recollections. Indeed, other scholars have noted the way that digital games and virtual worlds can function as “play spaces” (Fields & Kafai, 2010), as “synthetic

and responsive playgrounds” (Giddings, 2014; p. 93), “as technologies for creating imagined worlds” (Merchant, 2015; p. 294).

A strong point of connection in Jenkins’ (1998) chapter between videogame worlds and physical play spaces is the degree to which both offer exploration. Hughes (2006) sees variation in landscape as a key component of quality play space: “The play environment must not only be navigable, it must also be a place worth navigating, a place of tests, surprises and challenges, reflecting the kind of space to which a child will naturally be drawn” (p. 45). Jenkins (1998) description of exploration in digital play spaces sounds very similar: “A child playing a video game, searching for the path around obstacles, or looking for an advantage over imaginary opponents, engages in many of the same ‘mapping’ activities as children searching for affordances in their real-world environments” (p. 267). Many of the descriptions of play I give throughout chapter 8 involve obstacles, challenges, adventure seeking and roaming across digitally represented landscapes.

Further, the naturalistic nature of Minecraft worlds fits well with Hughes’ (2002) description of what sorts of environments facilitate *exploratory* play. Children in my study traversed the procedurally generated landscape of Minecraft, either by flying or on foot, over waterways, snow-capped mountains, small wooden villages, food crops, forests, jungles and so on. Minecraft as a play space can go on, essentially infinitely, with new spaces revealed gradually as they are encountered. The parallel with Hughes’ (2002) writing about ‘good’ *exploratory* play spaces as those which are “landscaped, with peaks and valleys, trees and bushes, where it can’t all be seen or understood from one point, [containing] a number of unusual focal points, a small expanse of water or a garden” (p. 16) are clear.

While researchers find that concerns about an overall decline in play are unfounded (e.g. Darian-Smith, 2012; Giddings, 2014b; Richards & Burn, 2014; Willett et al., 2013) there is reason to conclude that the material, social and spatial conditions of free play have indeed changed. Concerns about safety (threats from traffic and strangers), reduction in green space, and increase in organised after-school activities mean reduced opportunities for children to have the kinds of play that adults are nostalgic for. A side-effect of this is that where provisions are made for children’s play in public spaces they tend to be “increasingly urban, constrained, planned, regulated and overseen” (Richards & Burn, 2014; p. 12). This is not

conducive to play away from the authority of adult gaze. This is a problem because absence of adults is seen as central to the affective pull, meaningfulness and fruitful nature of free play (Giddings, 2014b; Hughes, 2006; Jenkins, 1998a; Opie & Opie, 1969). There is a paradox, say Richards and Burn (2014) in the provision of modern playgrounds, in the sense that “children’s play often thrives in uncompromising contexts, in hidden nooks and crannies, in secret codes and languages. Too much planning, provision, regulation, oversight may constrain rather than enable play” (p. 12).

I argue, based on my findings, that Minecraft offers a possible antidote to the adultification of play spaces. While children in my study played in shared spaces of the house, Beth played with her dad, and Archie’s mum watched play for a while, most of the play observed was only visible to children (players and/or spectators). Further, while parents in their interviews spoke of their children ‘being creative’ in Minecraft, and ‘building stuff’, their descriptions were notably less detailed than what I observed in the recordings. This indicates that perhaps Minecraft functions as a site of play often free from the immediate gaze of adults in a very similar way to how Hughes (2002) talks about the adventure playgrounds that he operated as “the sovereign space of children” (p. 6), and Sutton-Smith (1992) refers to children’s play in terms of control over “their own little microcosm of the world” (cited in Brown, 2012; p. 68).

Minecraft is very different however to the kinds of games that Jenkins talked about in 1998. In many ways, Minecraft is more of a space for free play than the games he used as examples. Jenkins talks about games as “ruthlessly goal-driven” (p. 71) and involving “only prestructured forms of interactivity” (p. 272). More recently, Richards and Burn (2014) talk about digital games as being similar to playground games in terms of them both being to some degree “routinised, formulaic, rule-governed, finely balanced between accessibility and challenge” (p. 7). However, Minecraft, as I have shown, does not necessarily provide any goals or prescribed activity (beyond the modes of engagement required to navigate and interact with the digital environment, which are within the bounds of software and hardware). Certainly “ruthlessly goal-driven” (Jenkins, 1998; p. 71) play is possible, but the point is that Minecraft as a play space facilitates *more than* the kind of play previously associated with digital games. In this way Minecraft does not have the same limitations in terms of

opportunity for children to interact flexibly with the play environment and choice over which experiences to reproduce through play that other games do (Stephen & Plowman, 2014).

My findings in relation to how children were seen to manipulate the digital environment of play also demonstrate another point of similarity with non-digital playspaces in ways that perhaps the kinds of games Jenkins had in mind did not. Specifically, Iona Opie describes children in relationship to the play environment as “opportunists” who “exploit their environment” (Bishop & Curtis, 2001; p. xiii). For example “in bright sunlight they masquerade with their own shadows...in rain they experiment with the possibilities of puddles” and “sticks, stones, holes and pavements inspire fleeting games which may last only minutes” (Opie in Bishop & Curtis, 2001; p. xiii). Children in my study exploited the darkness of software imposed digital night for viewing of fireworks displays; they also exploited the digital environment by *changing it*, at their own direction, to alter the conditions of play, by for example, setting game time to day so that they could see better.

In many ways, as well as being a space to explore, free from immediate adult gaze, Minecraft is an environment of ‘loose parts’ (Nicholson, 1972). Variables can be manipulated, combined, explored, destroyed, and experimented with. Nicholson (1972) argues, quite urgently, that environments of ‘loose parts’ facilitate the formation of new things and new ideas and are therefore crucial to society. Critiquing the controlled, adult designed playgrounds of the time, Nicholson suggests that efforts to increase children’s access to environments of loose parts must be directed to “where the children are” (p. 10). He is referring to schools as opposed to playgrounds, but I argue that now “where the children are” includes digital play spaces like Minecraft. This means, that as Nicholson urges, adults should take care to not interfere in children’s tinkering but to ensure access to spaces that facilitate it.

However, even the free and open nature of Minecraft play is constructed by some as a drawback. The lack of ‘levels’ is seen as a negative because there are no natural end points to play (Bateman quoted in Cowan & Livingstone, 2020) and this feeds into discourses of compulsion. In contrast though, it is rare to see discussions about play in physical spaces turn to the often-difficult task of extracting a child from, say, a playground when they are engrossed in non-levelled play with no natural end. I do not worry that when I walk off

feigning abandonment of my child at a playground (in an effort to get them to leave) that I will be judged for the way that I have allowed my child to become ‘hooked on’ the swings. The tendency to make comparisons with other digital games rather than with arguably more apt examples of unstructured (non-digital) play is telling of the way that Minecraft is constructed even by play experts. There seems to be an assumption underlying these constructions that digital environments have a uniquely strong and probably sinister gravitational pull that sucks children in, in a way that is wholly different to what prevents them from wanting to stop other forms of play (i.e. because it is fun, meaningful, rewarding, engrossing etc.). My point here is not to dismiss concerns regarding commercially motivated manipulation of player engagement, but rather to highlight the ways that comparisons with non-digital play are often left out of discussions around children’s compulsion to play Minecraft and other digital games.

In sum, Minecraft functions as a dynamic, multi-dimensional, adaptable play environment that allows for ‘secret’ happenings away from parental/adult gaze, equally as well as it allows for aimless roaming across ‘natural’ landscape that we lament children no longer do ‘in real life’ (perhaps most obviously because we do not let them). Minecraft is a space for play that offers a kind of *social* freedom (away from immediate parental gaze; opportunities to try on different identities; be rambunctious; humorous; transgressive; to experiment) and a kind of *spatial* freedom in the sense that it is a vast ‘natural’ landscape to be explored in the way that Jenkins (1998) and Hughes (2002) talk about in reference to exploring physical space.

My findings on what leisure time Minecraft play is, show that it is essentially free play, within a digital environment of ‘loose parts’ (not only objects but the natural and social environment) that children manipulate, up to a point, according to their own desires and skills. The type of play that happens is not determined by the child or the technology in isolation from each other. These findings extend understandings of Minecraft as they are currently presented in literature, media, and popular discourse. Minecraft is *more than* “digital Lego” because it is more than construction, creativity, and imagination (acknowledging that Lego play can be more than these things too).

This challenges scholars and other adults involved in the provision of play opportunities (including via policy making) to actively see what children do in engaging with digital games

as *play*. It also challenges us to recognise that the authenticity and legitimacy of play in digital spaces is not inherently reduced because there is a screen involved. This does not preclude the need for ensuring children have a *range* of play experiences including those that promote physical and cognitive development. But it does mean that dismissal of digital play based on assumptions about what it is, potentially precludes adequate adult understanding of many types of, and places for, play. I discuss this more in the following chapter.

11.8 Limitations

This study has provided uniquely rich descriptions of children's play in Minecraft which addresses a significant gap in literature. However, the study has limitations. The participating families were all relatively financially well-off and while one Vietnamese and one Indian family participated, the sample lacks sociocultural diversity which limits the potential degree to which findings represent parenting and play practices across families. Existing literature suggests that there are differences along socioeconomic and cultural lines in the ways that families think about and mediate children's media use (Clark, 2013) and in the amounts of time children spend using various forms of media including digital games (Marsh et al., 2018; Ofcom, 2020; Rideout & Robb, 2019).

Also, the families self-selected for this study. It may be the case that these families therefore had a special interest in their children's digital play, and the time available to participate, which may mean that attitudes and practices are different to other families. Another consideration is that this study was focused on Minecraft play which means that findings cannot necessarily be generalised to other forms of digital play (see also Chapter 12). Related to the concern that children do not play properly anymore, and the implication that this is in part due to devices stealing time for play, are concerns about the commercialisation of childhood and play (Lewis, 2017; Messenger Davies, 2010; Willett, 2016). While I have not explicitly focused on commercial aspects of Minecraft in this study, Minecraft is a commodity and exists within a commercial transmedia context and its origins and business model make it a unique case for studying claims of the commercialisation of play. Future research could look more specifically at how the commercial setting of Minecraft shapes play.

PART IV

General Discussion and Concluding Remarks

Chapter 12 General discussion and concluding remarks

This thesis has presented three studies which address the overarching research questions:

RQ1: *What are the sociocultural, discursive, technological, and family level contexts of children's Minecraft play?*

RQ2: *How do children play with Minecraft as part of their everyday screen-based leisure activity?*

Each study looked at a different layer of context while acknowledging that these layers are not static or independent of each other. In this final chapter I tie together findings from each of the studies and present what I see as a disconnect between the ways that digital play is constructed by adults (in popular, media, academic and parent discourse) and the ways that children play in Minecraft.

12.1 Digital play within 'screen time' discourses

Study 1 (discourse study) looked at the broad cultural context of popular discourse around children's 'screen time'. While the focus of my thesis has been on digital play, the framing of this play as primarily a form of 'screen time' meant that it was important to present current, Australian-based knowledge of the ways that 'screen time' is constructed in popular discourse. These constructions form an important part of the context of everyday play involving a screen.

Study 1 provided evidence of a persistent polarised framing of children's relationship to technology in the Australian, post-iPad context. It found that three interpretive repertoires were drawn upon in discursively constructing children, technology, education, and the relationships between them. Most dominant, was what I called the *status quo* repertoire. Here children, childhoods, and basic education were constructed as at risk of harm from technology. In contrast, and much less prominent in the data, the *future focused* interpretive repertoire constructed children as more agentic, and as naturally learning to harness the

power of technology for positive societal ends. Finally, the *balance* repertoire, while largely involving similar constructions of children and technology found in the *status quo* repertoire, also presented both as compatible with each other *as long as* technology use is carefully monitored and controlled.

These findings echo previous work which has found similar polarisation both in popular and academic discourse (Drotner, 2005) as well as news media and political discourse (Selwyn, 2003). However, my approach in analysing a large number of social media comments, as representative of ‘everyday’ popular discourse is unique and serves to provide an updated account of one element of the sociocultural context that Australian children find themselves ‘playing digital’ in. While Buckingham and Jensen (2012) critique the attribution of discourses around children and technology as a straightforward ‘moral panic’, Drotner’s (2013) framing of these sets of discourse as media panics nevertheless helps situate the positioning of digital games in a historical trajectory of concern then, to varying degrees, acceptance of new forms of media. Blum-Rose and Livingstone (2017) sum up how these competing discourses may be experienced by *parents*, having to navigate everyday decisions around children’s technology use, as follows:

“many parents acutely feel the pressure of decisions over digital technologies – worrying, as they describe, not only that their children may become ‘addicted’ to screens or fall victim to (or perpetrate) ‘cyberbullying’, but also that if they fail to provide digital opportunities, their children will be ‘left behind’” (p. 6).

While I have not sought to establish concrete, measurable links between adult constructions and children’s everyday play practices, my findings reiterate the way that children are persistently a focal point for societal concerns about technological change. This has been well documented in existing literature. Children’s relationship with new technologies has long been emblematic in the process of forming new meanings and understandings of the role of ever advancing technologies in society at large (Dixon & Weber, 2007; Messenger Davies, 2010; Postman, 1982; Selwyn, 2003).

Findings from Study 1 (and 2b) also support previous work that has found that children are positioned *dynamically* in relation to technology. Alongside a dominant construction of childhoods at risk from technology, children are also seen as uniquely well suited to

harnessing technology for societal good. Adult discursive manoeuvrings around children's relationship to media and technology are, as Drotner (2013) writes "exercises in normative negotiations of what counts as proper childhood and, on a wider canvas, what counts as the proper directions society should take" (p. 20). Or put more evocatively by Jenkins (1998b), "the innocent child is caught somewhere over the rainbow - between nostalgia and utopian optimism" (p. 5).

12.2 Digital play as partially legitimate: The special case status of Minecraft

Study 2 (survey study) in this thesis moved from looking at broad 'screen time' discourses to focus on digital games in particular. Willett (2017) writes (in relation to online games) that "games enter homes embedded within powerful dominant discourses, and parents are subject to these discourses as they mediate their children's game play" (p. 148). Because parents shape opportunities for everyday play, it is important for a holistic account of children's digital play to consider parental attitudes towards individual game titles and note connections with broader societal discourses. In Study 2 I did this by asking parents what they thought about Minecraft play. This approach was unique because it asked for qualitative responses from a large number of parents. Previous research has gathered qualitative information from parents on a smaller scale (e.g. Kutner et al., 2008) or larger scale quantitative studies which restrict responses to a predetermined set of questions (e.g. Nikken & Jansz, 2006).

In Chapter 6 findings from the *qualitative* portion of Study 2 found that parents talk about Minecraft in ways that echo the broader constructions described above. That is, they had concerns about the effects of 'screen time' but also associated Minecraft with many positives. As mentioned in chapter 2 digital games as a group have an association with STEM skills but my findings provide evidence that Minecraft is seen as especially positive in this regard. Parents talked about Minecraft being useful for creativity, planning, spatial skills, learning science and mathematics concepts and digital literacy skills. This 'special case' status of Minecraft (in the sense that it attracts such positive parental appraisal) extends to media presentations of the game (Willet, 2015) and scholarly work too (Sefton-Green, 2020). Cultural anthropologist Professor Mimi Ito writes that "Minecraft rewrites the playbook for

learning” (Ito, 2015; n.p) and details several reasons for this, with much overlap with what parents in my study said. The significant amounts of published work seeking to develop ways to use Minecraft in school curricula (e.g. Beavis et al., 2017; Bebbington & Vellino, 2015; Bos et al., 2014; Overby & Jones, 2015) and the uptake of Minecraft Education Edition further solidify the positioning of Minecraft as a uniquely valued digital game. On the other hand, however, my findings demonstrate that Minecraft, despite being ‘good’ for learning and creativity, is still seen as ‘screen time’ which, in turn, is seen as problematic. Therefore, while associations with ‘good’ outcomes lend a sense of legitimacy to Minecraft, this is only a partial legitimacy. Minecraft is appropriate generally insofar as it offers opportunities for learning about construction, planning, and creativity.

As outlined in Chapter 2 this narrow framing of digital play in terms of what it offers for learning or development is also seen in research on other digital game titles and play in general. The “rhetoric of progress” is therefore dominant in both scholarly work and parental appraisal and decision making around digital gameplay (Sutton-Smith, 1997). As I discuss below it is also present in advice given to parents. When seen in light of findings from study 3, where I detail what play in Minecraft involves, the focus on *outcomes* potentially obscures a whole range of play practices from view. The ways that Minecraft play (and digital play in general) are constructed by parents and in wider discourse is also important to consider when noting that such play is so much a part of many children’s playworlds. This was highlighted by findings presented in chapter 5.

In Chapter 5, I presented findings from the *quantitative* portion of the survey conducted for Study 2. This provides a view of the technological context of Minecraft play, in terms of which children play, on what devices and with whom. This information, while different from other parts of the thesis, in the sense that it is provided in quantitative terms, is a meaningful addition to my holistic, layered account of children’s Minecraft play. The finding that almost half of the 753 children whose parents took the survey had played Minecraft in the week prior, and that Minecraft was mentioned three times as often as any other title, places the title in a position of dominance in children’s digital gaming landscape. This means that it is *known*, at least by children, and that it is a feature of the playworlds of many children.

This was known anecdotally before my study. We knew from Minecraft sales data (Warren, 2020) and from the amount of Minecraft YouTube videos and views (Bloom, 2020) that Minecraft was popular, but we did not know exactly which populations were playing. Other quantitative studies had pointed to Minecraft's popularity with children aged 9-14 (Beavis et al., 2015) and 3-5-year-old children (Marsh et al., 2015) as had smaller scale qualitative studies of 7-11-year-olds (Willett, 2017). But my large sample of parents of a wide age range of children, 3-12 years, provides a broader and more detailed account. In addition to further detailing part of the broader context of everyday Minecraft play, knowing this means that a more focused investigation of Minecraft is warranted. This more focused investigation into Minecraft practices was the aim of my third study.

12.3 Minecraft play is play – Applying a play-focused lens to Minecraft

In study 3 I sought to take a step back from the view of Minecraft in terms of what it *does*, what it *facilitates*, what it *displaces*, that is common in existing work, to look at what it *is*. This was achieved through an ethnographically informed study of 10 families and their children's play, particularly Minecraft play. As detailed extensively in Chapters 8-11, this study found a huge variety of play occurring in Minecraft, well beyond "breaking and placing blocks" (Hollett & Ehret, 2015; p. 1854). Crucially, given the applicability of Hughes' (2002; 2006) play types which were formulated based on observations of non-digital play, I found that Minecraft play has much in common with non-digital, or traditional free play (Cowan, 2020). I described how for one participant, James, there was clear fluidity between his interest in playing 'schools' between the digital and physical realms. I also noted that the digital environment is not inconsequential in Minecraft play. Play that happens in Minecraft is not a direct reproduction of play in other spaces. Children wield agency over the digital environment in order to produce moments of play that are informed and moulded by but not necessarily *directed* by the software or device. Taken together, these findings expand scholarly understandings of Minecraft as a contemporary space for children's play in ways that extend beyond its building, construction and survival elements and beyond points of similarity with Lego play (Gilbert, 2017; Overby & Jones, 2015; Rosenberg, 2019; Soper, 2014).

12.4 Rethinking children’s digitally mediated play as partially legitimate: Implications for children’s right to play

The above summary of the work produced through this project demonstrates that I have met the overarching research goal of describing Minecraft play within important elements of context. I now turn to addressing an important implication of this work. My findings, taken as a whole, present a disconnect. On the one hand, Minecraft exists in a context where it is popular and valued for the way it is thought to align with certain developmental and pedagogical goals, but also imbued with broader concerns about ‘screen time’ and a sense of inauthenticity. On the other hand, Minecraft operates as a site of free play of the kind that, if it happened sans screen, would no doubt attract unconditional positive appraisal and valuing.

This disconnect is important because it potentially means that children’s play is undermined when it happens in digital spaces because there it has only partial legitimacy and is seen primarily as ‘screen time’ rather than ‘play time’. This has ramifications for children’s right to play. As well as being strongly associated with ‘good childhoods’ in a nostalgic and in a utilitarian sense, children have the legal *right* to play, and to leisure time (see also section 2.5.2, p. 69). Article 31 of the UNCRC recognises “the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts” (Article 31, UNCRC, 1989; p. 10). General Comment 17 on the UNCRC is clear on the need for Article 31 to be interpreted as an interconnected whole – that means the provision of play opportunities needs to be done in a way that also values leisure, rest, and participation in culture (including the culture of childhood which includes digital worlds). General Comment 17 also clarifies that Article 31 is just as much about the here and now – about the “pleasure of childhood” as it is about “optimal health and development” (UNCRC, 2013; p. 6). It notes that children are allowed rest and respite from work and education; free time without obligations; activities done for immediate satisfaction; and to fill leisure time as actively or inactively as they choose. Recently, children’s rights in digital spaces have become a focus of academic (e.g. Livingstone & Third, 2017) and policy work (UNCRC, general comment 25, 2021).

It could be argued that children in the Global North are generally well catered for in relation to Article 31. No children in my study, for example, contributed to household income, all attended school and extracurricular activities, and had access to the internet and a range of cultural resources and activities. But, when we consider the way that leisure time of children in the Global North is so often steered toward educational and developmental productivity, and that play involving a screen occurs in the discursive contexts described in this thesis, there is need to consider the degree to which states such as Australia are really upholding children's right to play, in the spirit of the UNCRC which clearly demarcates play from education, development and health (while also recognising that play is key in those things too).

There are problems with a universal rights-based approach to childhood. Montgomery (2011) for example, notes that "the child envisaged by the Convention is an individual, autonomous being, an inheritor of the liberal, humanist ideals of the Enlightenment, a view which has caused problems for universal interpretation and implementation" (p. 8). Further, ensuring that all rights are upheld entails a complicated balancing act in situations where upholding one set of rights risks impinging on another. In the case of children's rights in digital spaces, there is the risk, for example, that upholding the right to play in these spaces involves exposure to other (privacy, safety etc.) risks (Livingstone & Third, 2017). But, for my purposes here, the framework of child rights is useful for demonstrating the ways in which digital play is sidelined by adult imposed hierarchies of play. These hierarchies of play are informed as much by the sets of discourse outlined in studies 1 and 2 of this thesis as they are by research findings which are, on the whole, inconclusive (Kardefelt-Winther, 2017; Kaye et al., 2020). Hierarchies of play are also shaped by the relative lack of adult knowledge of what children's play in digital spaces can involve.

While there is debate about the degree to which adults should be involved in children's play, adults are largely responsible for providing *permission* and *opportunities for* play to children (Cowan, 2020). It is this point which is crucial when examining the relationship between how adults construct and understand children's digital play and what it looks like and involves in everyday practice. I argue that the contexts for digital play including the instrumental valuing

of it and the discourses which construct digital play as primarily a form of ‘screen time’ (with associated baggage), are not overly conducive to upholding children’s right to play.

Looking to the language of organisations who present themselves as dedicated to upholding children’s right to play shows that *digital* play is actively sidelined not only in popular discourse but in official, directive discourse as well. For example, the organisation Play Australia describes itself as “the peak national advocacy organisation for PLAY” (Play Australia, n.d). In their strategic plan, Play Australia states that they “protect the human rights of all children to play, as recognised within Article 31 of the United Nations Convention on the Rights of the Child” (n.p). However, the organisation is primarily concerned with *outdoor* play specifically. On their website technology is listed as a constraint on time available for play, and this strongly suggests that in the construction of play used by this organisation, technology cannot provide opportunities for play. This is a clear example of a hierarchical valuing of play filtering through to organisations that have some power in shaping children’s playworlds.

Academic language, particularly from medical fields, also tends to discount or indeed denigrate play that happens via a screen. For example, in writing (for a public audience) about their findings regarding children’s physical activity levels during Covid-19 lockdowns, Reilly and Tremblay (2021) mention children’s right to play. But the piece couples together this right with outdoor play specifically and suggests that the alternative to playing outside is being “cooped up glued to a screen” (n.p). In the research report of this study the authors recommend parents “limit leisure screen time to 2 h per day and swap screen time for play time wherever possible” (p. 9). This clearly constructs ‘screen time’ as inherently *not* play time and sits in stark contrast to my findings in study 3 and also to how children themselves see play. Goodhall and Atkinson (2020) in their study of children’s own perspectives on play in England and Wales found that children themselves tended to “classify it [digital play] as play and sometimes preferred play” (p. 47). The differential *seeing* of play, between medicalised academic language and the perspectives and practices of children, presents a challenge to ensuring that children’s right to play is upheld.

Active gatekeeping of the concept of ‘play’ to exclude and/or devalue digitally mediated play is in opposition to the overall intent of the UNCRC Article 31 and General Comment 17

which take a holistic view of play and situate it within “evolving childhoods” (p. 4). It is also in opposition to the Article’s insistence that play is allowed to be an end in and of itself, and freely chosen by children. As Lewis (2017) explains, for children, play “is play as an end, in and of itself. Children do not enter play with learning in mind, that is something adults see embedded in their play and is generally speaking an artefact (a byproduct) of play, not an intention” (Lewis, 2017; p. 17). Wedding children’s right to play to their (equally important) right to physical and developmental health, and maligning play that happens via a screen represents what Sutton-Smith (1990) calls a “kind of benevolent colonial management” (p. 6) of play rather than an upholding of the right to it.

The findings presented throughout this thesis, when considered in light of children's right to play, demonstrate the ways that digital play is scrutinised and marginalised.¹³ The differential treatment of play that happens via screen without robust evidence justifying it (Kardefelt-Winther, 2017; Kaye et al., 2020) presents the risk of interference in children’s right to exercise Article 31. This is especially the case given my findings detailing the richness of free play opportunities in Minecraft. Future research needs to address the relationships between government advice, broader digital play discourses, parental mediation, and children’s actual play experiences (digital and otherwise). My thesis has detailed the discourses surrounding digital play and what that play itself can look like, but it has not been able to make claims of the direct impact of these discourses, the advice they inform and the degree to which this impacts individual children’s opportunities for play. Framing these issues within a rights perspective indicates an urgent need to tease apart these factors to ensure that by attempting to protect children from one set of harms, adults are not inadvertently introducing another¹⁴.

¹³ See also mention of the *pathologising* of play in the open debate paper by scholars cautioning against the WHO’s inclusion of Internet Gaming Disorder in its list of diseases (Aarseth et al., 2016).

¹⁴ The rights-based perspective also allows for concurrent focus on other understudied issues associate with digital gaming such as datafication, privacy, safety, and commercialisation. In the UK, the Digital Futures Commission is set to address these issues (Livingstone, 2021) and the 2020 Internet Governance Forum included a workshop aimed at generating policy initiatives in these areas (Su, 2020).

12.5 Limitations and further work

This thesis has focused on Minecraft play as an example of digitally mediated play. However, while Minecraft's uniqueness and place in contemporary playworlds make its study necessary, children play many other digital game titles. In the survey conducted for Study 2 of this thesis, parents listed many hundreds of different titles played by their 3-12-year-old children (see Mavoa, 2017). Lego digital game titles were second most popular after Minecraft and the remainder of titles listed included a mix of educational games; triple A titles such as FIFA and Call of Duty games; console stalwarts Mario, Sonic the Hedgehog, Pokémon and Super Smash Bros etc; and a very long tail of various kinds of mobile games. These games involve different forms of play and while many of them would appear to be less conducive to free play than Minecraft, without information about how children actually engage with varying titles, assumptions remain just that.

Roblox, for example, does seem to potentially offer free play opportunities as well as rule bound games. Roblox is a platform that provides a game design engine and hosts a plethora of games created by users. While Roblox was listed only 5 times in my survey conducted in 2015/16, it now appears to be much more popular. When it was recently listed on the New York Stock Exchange its value was estimated as \$45.3billion USD (Bursztynsky & Levy, 2021). Anecdotally, Roblox does not have the same positive associations with learning and creativity as Minecraft and media coverage has, until the NYSE listing, focused on problematic content incidents (Fitzsimmons, 2021) and general commentary about the risks associated with online play (Stonehouse, 2019).

What is also interesting though, is the way that Roblox appears to be taking a proactive approach to these concerns. The company has employed a 'Director of Digital Civility' (Roblox Corp., 2019); partnered with Abertay university and the Fair Play Alliance to research what is needed to make their playspaces safe (Higgins & Jayemanne, 2020); been granted 'Tier 1' social media company status by the Australian eSafety Commission, meaning that they agree to cooperate swiftly with take-down directives (Office of the eSafety Commissioner, 2018); and has met the US Children's Online Privacy Protection Act requirements (KidSafe, n.d.). Given these points of similarity and difference with Minecraft,

in terms of both play and context, there is a need for research that details how children play in Roblox.

There is also the need to describe digital play across age groups. This thesis has described the Minecraft play of children aged 6-8 and provided statistical information about 3-12-year-old children. However, the titles children play change with age as I have demonstrated elsewhere (Mavoa, 2017) and it is likely that the type of play engaged in changes as children get older. For example, Pellicone and Ahn's (2015) 14-year-old participant spent a lot of time “configging” the game, running a server and making YouTube videos (p. 10). While research has looked at the meta-gaming practices of youth (Jenkins et al., 2015) it would be fruitful to track across time how these practices emerge from or develop alongside the in-game play of children as they age. Describing play in digital spaces at different ages would also address many of the same gaps that this thesis does and would provide fruitful additions to knowledge about contemporary play practices.

Another area that I have not been able to cover in this thesis but that urgently requires more knowledge generation is the ways that digital play features in childhoods that vary along class, race, and SES lines. This is important because large scale quantitative studies indicate for example, differences in device ownership and rates of play across SES (Marsh et al., 2018; Ofcom, 2020; Rideout & Robb, 2019) and qualitative sociocultural research also points to a need to account for *a range of childhoods* in relation to which children play games, which do not and the social configuration of this play (Aarsand, 2013; Clark, 2013; Livingstone & Sefton-Green, 2016; Plowman et al., 2012). Qualitative work has also shown that Minecraft communities are overwhelmingly white and male (Anderson et al., 2017).

Taking a rights-based approach to play means ensuring that children from a diverse range of backgrounds have *equitable access* to play opportunities, including digital play. The UNCRC explicitly states that “every child must be afforded equal opportunities to enjoy his or her rights under article 31” (UNCRC, 1989). A clear example of how access to play may be impacted by SES is the recent ‘hard lockdown’ of 9 public housing towers in Melbourne, Australia due to a cluster of Covid-19 cases (Om, 2020). Without being able to go outside at all, let alone to play, and with a lack of devices and internet access in households with children (as reported via personal communication I had with residents), disparity in access to

opportunities to play became clear. While some families have found new opportunities for play and a sense of reframing of digital play during pandemic related lockdowns, others have struggled to keep children entertained without the luxury of multiple devices on hand (Great Ormond Street Hospital, 2020). This points to the need for further research addressing barriers to play, including digital play.

Equally important is the continued need for research that addresses the persistent gender differences in rates of and configuration of digital play (as reviewed in Chapter 2 and demonstrated in relation to Minecraft in Chapter 5). In the publication included in Chapter 5 I address these issues from an access to STEM skill development perspective. However, there is a continued need to expand knowledge around potential barriers to girls' opportunities to digital play spaces, for play's sake, as well as around issues to do with implications of digital gameplay for gender identity (e.g. Harkin, 2021) and other social negotiations and practices.

Online server-based Minecraft play is also in need of descriptive research given that popular Minecraft servers regularly have thousands of players online at any given time (Minecraft Servers, n.d). Only one of the participants in Study 3 played on a server, and this was a whitelisted 'kid friendly' server which may not be where the majority of children engage with server-based play. Including older Minecraft players would seem to be necessary in order to generate information about server-based play. Relatedly, the emerging research focus on children's rights in relation to digital gaming is sharply focused on online gaming (Su, 2020). This may be because children talk about digital play without clear distinction between online and offline (Pothong, 2021). It may also be because of the increasing proportion of children who do play digital games online (Ofcom, 2020; Rideout & Robb, 2019; see also section 2.3.3, p. 28). However, care needs to be taken in accurately describing what is the focus of research – is it digital play in general or online play specifically or both? Currently there is lack of clarity around this which risks some forms of play being sidelined or inappropriately lumped together with sets of risks and benefits that do not apply in practice. For example, there is an urgent need for illumination and examination of the data collection practices of online game sites, including Minecraft servers (both hosted by Microsoft and by other parties). However, this needs to be done in a way that clearly identifies

differences in data collection from *online* play and *offline* digital play (i.e. the kinds of play that made up the majority of what was observed in study 3 of the current project).

12.6 This thesis is *not* arguing

In this thesis I have argued for children's Minecraft play to be considered a form of legitimate, authentic play that exists in a discursive context where digital play is seen primarily in terms of what it *does* to children. I have avoided where possible seeing play as a means to an end and instead focused on describing play in its own right. Implicit in much of the work I have described and done is the reality that this a contentious space. Arguing for the legitimacy and authenticity of play involving digital devices which study 1 showed are popularly constructed as cold threats to 'good childhoods' risks being interpreted as arguing for children to do more of something that is damaging to their development and health.

Aside from the mixed evidence base supporting claims that digital play as a form of 'screen time' is potentially damaging, and while maintaining a critical stance on the types of ideas and histories that keep "discursive dichotomies" (Drotner, 2005; p. 40) circulating, I need to be clear that the conclusion I draw from this work is not that children need more 'screen time'. As Jenkins felt the need to say back in 1998 "let me be clear—I am not arguing that video games are as good for kids as the physical spaces of backyard play culture" (p. 266). In my case, I am in fact not making any claims about digital games being 'good' or 'bad' for children. Rather, the argument I have presented based on my research is that: children's play in digital spaces is surrounded by different discourses to play that happens in non-digital spaces; that Minecraft play can involve the same types of play that have been described in non-digital spaces and therefore can involve legitimate free play (produced in conjunction with the technical infrastructure); and that because of these two things digital play must not be excluded from discussions around children's play in general.

Furthermore, using the lens of 'play for play's sake' has been done in order to gain a richer understanding of Minecraft play. Where I have critiqued research that frames play in more utilitarian terms this has been primarily for the way this tends to restrict our understanding of what digital play *is*. As Sefton-Green (2020) writes, "learning is not the binary opposite of play" (p. 92). My aim has been to broaden knowledge bases not to imply that pedagogical,

developmental, and physical health outcomes related to play and digital play are unimportant. What is *lost* from seeing play *only* in terms of learning is room for documenting and understanding a significant part of children's lives as it occurs on their terms. While this lens on play centres the lives of children as "beings" not only "becomings", as Uprichard (2008) notes a big part of being a child is indeed looking to the future. The point is though that 'looking to the future' dominates research and there is room for more work that values what children do in the here and now. These lenses are not mutually exclusive.

12.7 Concluding remarks

This thesis has provided a comprehensive, multiscalar understanding of one form of contemporary children's play – Minecraft play. It has shown how varying levels and forms of context make for an everyday play context that is very different to that of non-screen-based play. Minecraft is seen as less authentic, and less valued by adults than play not involving a digital device. However, this thesis has also shown how Minecraft *does* have a sense of legitimacy attached to it, but that this is a partial legitimacy. Minecraft is legitimate only insofar as it is seen to foster skills that adults value such as creativity, planning and spatial skills. This legitimacy is different, and more conditional, to that attached to other, non-screen based, forms of play. Non-screen-based play is also predominantly framed in utilitarian terms but, crucially, it has the additional positioning within collective adult value hierarchies as representative of 'good', wholesome, natural childhoods. Minecraft play though, as with digital play in general, is seen by adults, including parents, as ultimately a form of 'screen time with benefits', not as *play* time.

This set of findings regarding the contexts of Minecraft play sits in contrast with findings from study 3 which richly detail a diversity of free play in Minecraft within the framework of a taxonomy of play types originally developed for non-digital play. The detailing of Minecraft play *as play*, invites critical reflection on its positioning within adult value hierarchies as just 'screen time with benefits'. This reflection is especially important given that I also demonstrated, in a quantitative sense, just how prominent Minecraft is in contemporary childhoods.

The framing of digital games as demonstrated in this thesis presents an artificial but culturally situated demarcation between play that happens on screen and all other play. Play that happens on a screen is largely subsumed by discourses of ‘screen time’, safety and usefulness. Play for its own sake, as I describe in chapters 8-11, is hard to see through all of this. Digital play is ironically the focus of intense surveillance by adults and at the same time not very well understood by them. This situation is not ideal if we adults are truly dedicated to upholding children’s right to play. Through the work offered in this thesis I hope to have provided a provocation to researchers and other stakeholders involved in shaping children’s opportunities for play. This provocation is that we adults need to not let hopes and concerns about ‘screen time’ get in the way of our responsibility to let children play.

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Appendices

Appendix A: Study 2 survey questions

Confidential

Page 1

Children & Digital Games Survey

Please complete this survey for children:

- who live in Metro Melbourne
- who are aged 3 years to 12 years old

* If you have more than one child meeting these criteria please fill out separate surveys for each. Do this by returning to the survey link.

The survey will start with a consent form. Please read this carefully.

Thank you!

Informed Consent Form

Your participation in this research study is voluntary. You may withdraw at any time without prejudice.

Your responses will be treated as confidential and stored in a password protected electronic database.

Any personal, identifying information you choose to provide will not be connected to your survey responses in any analysis.

The results of this survey will be used for scholarly purposes only and all analyses will be at group level only and not about any individual.

If you have any questions about the research study, please contact Jane Mavoa (phone: 0451 001 475).

This research has been reviewed according to The University of Melbourne ethics approval procedures for research involving human subjects.

Should you have any concerns about the conduct of the project, you are welcome to contact the Executive Officer, Human Research Ethics, The University of Melbourne, on ph: 8344 2073, or fax: 9347 6739.

Please read the attached Plain Language Statement.

[Attachment: "PLS.pdf"]

ELECTRONIC CONSENT: Please select your choice below.

Clicking on the "agree" button below indicates that:

- you have read the above information and the Plain Language Statement
- you voluntarily agree to participate
- you are at least 18 years of age

☐ Agree ☐ Disagree

What is your child's gender:

- ☐ Male
☐ Female

How old is your child?

- ☐ 3 years old
- ☐ 4 years old
- ☐ 5 years old
- ☐ 6 years old
- ☐ 7 years old
- ☐ 8 years old
- ☐ 9 years old
- ☐ 10 years old
- ☐ 11 years old
- ☐ 12 years old

Thinking about all the children under age 18 who live with this child, is this child the youngest, the oldest, or a middle child?

- ☐ Youngest
 - ☐ Oldest
 - ☐ Middle
 - ☐ Only Child
 - ☐ Other (e.g twin; please specify in box)
-

What is your postcode?

Does your child ever play any digital games?

(By 'digital games' we mean any game played on a digital device including video games, computer games, game apps.)

- ☐ Yes
- ☐ No

Please write down the main reasons that your child does not play digital games?

What device or devices does your child play digital games on?

Please select ALL that apply.

- ☐ iPad or Android tablet
- ☐ PC/Mac computer
- ☐ Smartphone
- ☐ Xbox
- ☐ PlayStation
- ☐ Hand held game console
- ☐ Amazon Kindle Fire
- ☐ Wii, or Wii U
- ☐ Don't Know
- ☐ Other

What device or devices does your child play digital games on?

What device does your child MOST OFTEN play digital games on?

- ☐ iPad or Android tablet
- ☐ PC/Mac computer
- ☐ Smartphone
- ☐ Xbox
- ☐ PlayStation
- ☐ Hand held game console
- ☐ Amazon Kindle Fire
- ☐ Wii or Wii U
- ☐ Don't Know
- ☐ Other

What device does your child most often play digital games on?

Please list below up to THREE of your child's favourite digital games at the moment.

Please include game apps, computer games, video games, console games or any other game played on a screen.

DON'T include social media apps OR apps used only for watching TV or Movies.

Has your child played Minecraft in the last month?

- ☐ Yes
- ☐ No

Has your child ever played Minecraft in the past?

- ☐ Yes - has played before but not often
- ☐ Yes - used to play regularly but not recently
- ☐ No - never played
- ☐ Don't know

Please tell us how old your child was when he/she stopped playing Minecraft regularly and why that was.

About how OFTEN does your child usually play Minecraft?

- ☐ More than once a day
- ☐ Daily
- ☐ A few times per week
- ☐ Once a week
- ☐ A few times per month
- ☐ Rarely
- ☐ Has only played once or twice
- ☐ Don't know

How old was your child when he/she started playing Minecraft?

- ☐ Less than 2 years old
- ☐ 2 years old
- ☐ 3 years old
- ☐ 4 years old
- ☐ 5 years old
- ☐ 6 years old
- ☐ 7 years old
- ☐ 8 years old
- ☐ 9 years old
- ☐ 10 years old
- ☐ 11 years old
- ☐ 12 years old

What device or devices does [child_name] play Minecraft on?

Please select ALL that apply.

- ☐ iPad or Android tablet
- ☐ PC/Mac computer
- ☐ Smartphone
- ☐ Xbox
- ☐ PlayStation
- ☐ Hand held game console
- ☐ Amazon Kindle Fire
- ☐ Wii or Wii U
- ☐ Don't Know
- ☐ Other

What device does your child MOST OFTEN play Minecraft on?

Please choose ONE option.

- ☐ iPad or Android tablet
- ☐ PC/Mac computer
- ☐ Smartphone
- ☐ Xbox
- ☐ PlayStation
- ☐ Hand held game console
- ☐ Amazon Kindle Fire
- ☐ Wii or Wii U
- ☐ Don't Know
- ☐ Other

For HOW LONG does your child USUALLY play Minecraft on WEEKDAYS?
(total time per day)

- ☐ Less than 15 minutes
- ☐ From 15 minutes up to 1/2 an hour
- ☐ From 1/2 an hour up to 1 hour
- ☐ From 1 hour up to 2 hours
- ☐ From 2 up to 3 hours
- ☐ 3 hours or more

For HOW LONG does your child USUALLY play Minecraft on WEEKEND days?
(total time per day)

- ☐ Less than 15 minutes
- ☐ From 15 minutes up to 1/2 an hour
- ☐ From 1/2 an hour up to 1 hour
- ☐ From 1 hour up to 2 hours
- ☐ From 2 up to 3 hours
- ☐ 3 hours or more

What mode does your child USUALLY play Minecraft in?

- ☐ Creative
- ☐ Survival
- ☐ Other (please specify in box)
- ☐ Don't know

What mode does your child USUALLY play Minecraft in?

MODS are modifications to the game than can be downloaded or created.

Does the version of Minecraft that your child most often plays on have any MODS added?

- ☐ Yes
- ☐ No
- ☐ I don't know

Does your child USUALLY play Minecraft on

- ☐ Single Player mode (no other players in the game)
- ☐ Multi Player mode (other players in the same game)
- ☐ I don't know

Who does your child play Minecraft with?

Please select all that apply.

- ☐ On their own
- ☐ Siblings
- ☐ Friends
- ☐ Other people on the internet not known to child
- ☐ Parents
- ☐ Other relatives
- ☐ Other (please specify in box below)
- ☐ I don't know

Who does your child MOST OFTEN play Minecraft with?

Please select one option.

- ☐ On their own
 - ☐ Siblings
 - ☐ Friends
 - ☐ Other people on the internet not known to child
 - ☐ Parents
 - ☐ Other relatives
 - ☐ Other (please specify in box below)
 - ☐ I don't know
-

When on a Multi Player game, how does your child communicate with the other players in the game?

Please select all that apply.

- ☐ By talking out loud to them (when other players nearby)
 - ☐ By text chat in the game
 - ☐ By Skype
 - ☐ Other (please specify in box below)
 - ☐ They don't communicate
 - ☐ Don't know
-

Does your child play Minecraft more or less often than any other digital games?

- ☐ Does not play any other digital games
 - ☐ plays Minecraft more than other digital games
 - ☐ plays Minecraft less than other digital games
 - ☐ Plays Minecraft about the same amount of time as other digital games
 - ☐ Don't know
-

Do you worry about the amount of time your child spends using screens in general?



Do you worry about the amount of time your child spends playing Minecraft?



Do you think there are any good things about your child playing Minecraft?

- ☐ Yes
 - ☐ No
-

What sort of good things are there about your child playing Minecraft?

Do you have any concerns about your child playing Minecraft?

- ☐ Yes
☐ No

What concerns you about your child playing Minecraft?

Has your child watched any YouTube videos in the last week?

- ☐ Yes
☐ No
☐ I don't know

How often does your child watch YouTube videos?

- ☐ Every day or almost every day
☐ A few times a week
☐ About once or twice a week
☐ Less than once a week
☐ Don't know

What kind of YouTube videos does your child watch?

Please select all that apply

- ☐ Minecraft related videos
☐ Other digital game related videos
☐ Videos of people opening toy packaging or playing with toys
☐ Music Videos
☐ Educational songs or videos (e.g alphabet, colours, times tables videos)
☐ TV shows or movies
☐ TV shows or movies in child's first language (If first language not English)
☐ Sport related videos
☐ Other kinds of videos (please specify in box below)
☐ I don't know

Has your child watched any Minecraft videos on YouTube in the last week?

- ☐ Yes
☐ No
☐ I don't know

How often does your child USUALLY watch Minecraft videos on YouTube?

- ☐ Every day or almost every day
☐ A few times a week
☐ About once or twice a week
☐ Less than once a week
☐ Don't know

This question is about the amount of time your child uses screens for entertainment (NOT school work or homework).

We are talking about these activities on ANY device, connected to the INTERNET or NOT.

Would you say that your child spends MOST time:

- ☐ Watching TV shows or MOVIES
- ☐ Other screen activities
- ☐ Does not use screens for entertainment
- ☐ I don't know

What kind of screen activities does your child do?

Please select ALL that apply.

- ☐ Playing games that are 'just for fun'
- ☐ Playing games that are designed to teach something
- ☐ YouTube videos (that are not TV shows or Movies)
- ☐ Social Media
- ☐ Other screen activity (please specify in box)
- ☐ Don't know

What kind of screen activities does your child spend MOST time on?

Please choose ONE option.

- ☐ Playing games that are 'just for fun'
- ☐ Playing games that are designed to teach something
- ☐ YouTube videos (that are not TV shows or Movies)
- ☐ Social Media
- ☐ Communicating with friends/family/other people via Skype or similar
- ☐ Other screen activity (please specify in box)
- ☐ Don't know

When your child is using a screen, how often does he/she do more than one screen activity at the same time?

- ☐ Never or rarely
- ☐ Sometimes
- ☐ Most of the time
- ☐ Always
- ☐ Don't know

DEMOGRAPHIC QUESTIONS:

How many parents or caregivers live in the same house as this child most of the time?

- ☐ One
☐ Two
☐ More than two (please specify in box)
☐ Other (please specify in box)
-

What is your age?

- ☐ Less than 25 years
☐ 25 - 30
☐ 31 - 35
☐ 36 - 40
☐ 41 - 45
☐ 46 - 50
☐ 50 - 60
☐ More than 60
-

What is the highest level of education you have completed?

- ☐ Some secondary school or less
☐ Completed secondary school/ trade/technical certificate
☐ University qualification
☐ Other
-

What is the highest level of education the other parent or caregiver living with this child has completed?

- ☐ Some secondary school or less
☐ Completed secondary school/ trade/technical certificate
☐ University qualification
☐ Other
-

Please write the highest completed education level for each parent or caregiver living in the same house as this child:

- Some secondary school or less
- Completed secondary school/trade/technical certificate
- University Qualification
- Other

Appendix B:

Table B 1 *Study 3 Minecraft recording set-up*

Family	Device(s) used for Minecraft	View of Screen captured by	View of player(s) captured by	Number and length of recordings	Notes
1	An old* Xbox and old version of Minecraft	Camera on tripod to left of players, pointed at TV	Camera on tripod to left of TV, pointed at two players on couch	1 recording of 35 minutes	*the 'oldness' of device and software mentioned by parents as being desirable because of lack of online play possibility. Camera recording screen stopped at 30 minutes.
2	Xbox	Camera on tripod to right of player(s), behind couch	Camera on tripod to right of TV, pointed at player(s) on couch	3 recordings on different days (36, 42, and 26 minutes long)	Xbox used for Minecraft play was the family's "new" Xbox, connected to the TV in formal living area and used for gameplay; an "old" Xbox was used for watching DVDs in the playroom
3	iPad	First play session recorded with iPad screen record function; second session recording failed	In first recording camera in front of child sat on his bed; in second, camera in front of two players sat on the floor	2 recordings of 11 and 43 minutes (second recording paused at 31 minutes then restarted short time later)	Unable to synchronise two perspectives for first session because sound on iPad was not recorded. Screen recording was attempted in second session, but footage could not be located. Possibly due to iPad storage being full. Recording of children was adequate for analysis because of the frequent verbalisation of children which gave me a fair idea of what was happening.
4	iPad and iPhone	Screen recording of Dad's iPhone	Camera on tripod behind coffee table pointed at players on couch	2 recordings of 15 minutes and 24 minutes	Dad's iPhone had more recent iOS software and was able to screen record the play sessions from his avatar's perspective. Mother was present in the open plan living space and had to actively direct other two siblings away from camera.

5	iPad and PC	iPad sessions recorded with iPad screen record function; PC session recorded with screen recording software	iPad session 1: camera on tripod behind left shoulder of player on couch iPad session 2: camera on tripod behind coffee table pointed at both players sat on couch PC session: camera on tripod behind and to the right of player sat at computer	3 recordings, 18, 17 and 21 minutes long	The father in Family 5 installed screen recording software for the PC play although I did not request this, it was very helpful.
6	Laptop and Desktop PC	All recordings with one camera only, looking over shoulder of player, capturing screen, profile view of player's face and shoulders, arms and hands on keyboard		3 sessions of 34, 35, and 38 minutes	Desktop play happened in a room adjoined to Main living area and kitchen; Laptop play happened at dining table in dining room and was a co-play session with older brother whose avatar and text chat were visible in recording.
7	Mum's iPhone	iOS screen recorder function	Camera on tripod behind dining table; frontal view of player sat resting iPad on table and mother sat next to him when called	1 session of approximately 20 minutes recorded	Child usually plays on iPad, but screen recording was easier on Mum's iPhone. Child was familiar with using this device for play. Recording was interrupted by child becoming upset (see ethical issues section). Synchronisation between views was not possible due to external sound not being recorded on iPhone and frequent stopping and starting of recording. I edited all player view videos into a single clip with start times noted for each and did the same for screen recordings.
8	iPad	iOS screen recorder function	Camera on tripod in front of couch where player was sitting capturing frontal view of player and sister	3 sessions, 43, 14 and 18 minutes long	Screen recording and player view occurred with no difficulties and synchronisation of recordings worked well

9	Xbox	Camera on makeshift stand made of cake tins in corner behind right of couch	Camera on entertainment unit to right of TV pointed at players on couch	3 sessions, 7, 29, and 63 minutes long	Play occurred in closed off entertainment/playroom comprising TV, toys, Xbox, shelves of Xbox games and non-digital games and puzzles. Presence of toddler made use of tripod difficult and required placing camera out of reach of toddler. There was a space behind couch that toddler could not reach. Mum who was an amateur cake-maker arranged a tower of varying sized cake tins (this took some time to get the exact right height to capture TV screen) in this nook and camera was placed on top.
10	iPad	Camera on tripod behind and slightly to the side of player, pointing down towards screen on lap of player	Same camera captured hand movements across screen, sometimes player's face but not position of player's body in room	3 sessions (all on same afternoon) of 27, 14 and 23 minutes long	Screen recording iPad not possible due to either age of device or lack of time working out how to do it. The size of screen and relative position of screen to player's body, and tendency to change seated posture when using a mobile device meant that mother had to instruct child to sit still and be more aware of body position perhaps than other participants.