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Exploring Minecraft as a pedagogical tool to motivate and enhance girls' literacy practices in the secondary English classroom

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Abstract

This study seeks greater understanding of how digital games can be implemented in English teaching, demonstrating the potential of *Minecraft* as a pedagogical tool to motivate and enhance literacy practices. With less research conducted into girls' gaming in comparison to that of boys, this study investigates *Minecraft's* capacity to extend girls' literacy practices. Digital games are accepted in gaming research as integral to contemporary youth culture and their use within the classroom continues to be explored, with this research adding weight to *Minecraft's* value for literacy learning. This small study, using practical action research, suggests that girls find *Minecraft* appealing for literacy learning in English classrooms. They chose to work collaboratively, while making personal connections with *Minecraft's* characters and actions, reflecting engagement and active learning. *Minecraft* allows students to engage in a myriad of literacy practices both as players and external to the game. The girls negotiated design elements, developing awareness of virtual landscape navigation and gaming strategies involving decoding, encoding and problem solving. Girls shared their *Minecraft* play in Instagram, creating multimodal texts for an authentic audience. I argue that using digital games in English classrooms can productively assist teachers to bridge the divide between students' outside- and inside-school literacy practices. Incorporating *Minecraft* as curriculum thus validates and draws from youth culture to enhance the formal learning process.

Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

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1. Background

1.1 Introduction

Digital game playing has become an integral part of young people's culture (Steinkuehler, 2010; Willett, Richards & Marsh, 2013) and many, both boys and girls, are choosing to invest significant amounts of their personal time playing games and acquiring and building complex cognitive skills while doing so. These skills are important in assisting young people navigate the dynamics of the contemporary world. Digital games, for the purpose of this study, primarily refer to commercial games, and games that can be played via a range of different electronic devices, including personal computers, mobile phones, iPods, and consoles. The widespread adoption of digital practices as building valuable knowledge and understanding in the 21st century has led to policy initiatives in education in Australia which now emphasise digital and multimodal literacies. The challenge, however, lies in the implementation of these documented initiatives and how best to integrate digital technologies effectively into English teaching practice to support student learning. Elliott (2013, p.98) poses a fundamental question faced by contemporary educators, as 'How do we engage 21st century learners using the texts of their historical moment?' Indeed, digital games can be seen as a text of this historical moment. An exciting body of research in support of using digital game playing in English teaching is rapidly emerging both in Australia and abroad, although most research is either focused on both genders or boys. For this reason, there is a need in educative research for a greater understanding of how gaming in English might be used with female students. This study aims to explore, from a gender perspective, how *Minecraft* can be used as a pedagogical tool to enhance girls' learning in the secondary English classroom.

Digital games have become integral to popular culture for young people today and, as such, their value in an educational context warrants attention. Many teenagers choose to spend significant periods of time outside of school engaging in various digital games (Stevens, Satwics, & McCarthy, 2008), and these games involve complex playing pleasures. In fact, brain scientist, Daphne Bavelier (2012), asserts that 90% of children play computer games and statistics by Dominguez (2012) finds that 94% of Australian children frequently play digital games. Computer games now demand a level of sophistication not seen in earlier games where players progressed through relatively regimented, segmented stages with limited potential to shape game spaces. While many games still involve stages, it is now also possible for users to shape and share game spaces, produce and publish content otherwise previously unimagined to online audiences, and interact with the digital world and its communities for a multitude of purposes and possibilities. As Gee and Hayes (2010, p.6)

highlight, ‘We live in an age of convergent media, production, participation, fluid group formation, and cognitive, social, and linguistic complexity all embedded in contemporary popular culture.’

With digital gaming having been established as part of popular culture, it must also be acknowledged that game play has historically been perceived as appealing more to boys than girls (Hayes, 2005; Kafai, Heeter & Denner, 2008; Sveningsson, 2012). Research by the Australian Bureau of Statistics (2011) supports this perception, indicating 78% of boys play digital games in comparison to 60% of girls. Socially constructed perceptions that digital gaming involves strong masculine associations has led some researchers to assert that gaming ‘positions women and girls unerringly as “less able,” “less competent,” and as “casual gameplayers”’ (Jenson & de Castell, 2010, p.54). Given this, it could be argued that the use of digital games is a more effective teaching tool in the classroom when geared towards male students. This research project however, aims to explore whether a particular digital game can also be used to motivate and enhance learning for female students.

Emerging research indicates that female students who participate in digital game playing can achieve digital competence equal to their male peers despite masculine associations with game play culture that potentially places female players at a disadvantage (Gee & Hayes, 2010). Gee and Hayes observed and documented girls and women playing digital games with passion and persistence to excel at the highest level of gaming, as do many of their male counterparts. It has been further argued that the circumstances surrounding digital game play are what influence girls’ decisions to play, rather than the content of the game itself, which may be male-oriented (Jenson & de Castell, 2010). In addition to situational context being seen as a deciding factor in girls’ choice of games, there is still evidence (Grodal, 2000 for instance) to suggest that girls shy from violent games towards more creative and collaborative game elements. With this distinction in mind, *Minecraft* has been chosen as the digital game to suit the literacy purposes of my project, with the ‘creative play’ mode as the option for virtual space design.

Minecraft is a digital game that was created in 2009 by a Swedish program designer named Markus Persson and presents as a virtual landscape ready to be shaped by the player. The game offers users the opportunity to shape and build constructions by moving and altering cube-shaped spaces using digital tools and enhancements. The game has three, arguably gendered categories of play: hard core, survival and creative. In the creative option, ‘players have an unlimited supply of resources, the ability to fly, and no health or hunger’ to maintain, as in other play modes (http://en.wikipedia.org/wiki/Minecraft). This study is interested in the ‘creative’ play mode because it allows students to build and create unique features or structures within its parameters. The game can be studied from a narratology perspective, exploring traditional literacy elements, such as narrative, character development and setting. It can also be used as a literacy prompt for creative

writing and multimodal forms of writing that are more reflective of contemporary literacy practices, such as associated paratext – text which accompanies gaming software and practices, such as text boxes found within games and FAQ (Frequently Asked Questions) sections. As Dezuanni, O'Mara and Beavis have recently highlighted (2015), 'players often produce paratexts around their *Minecraft* gameplay, and millions of these user-generated texts have been shared online' (p.149).

The learning principles underlying game play are valuable in a world characterised by rapid technological advancement and dynamic change. The many positive learning principles reflected in game play have been identified by James Gee. They involve a sense of identity, interactivity between the player and game, the potential for players to become producers, elements of risk-taking, learning differentiation, ownership of work, scaffolded problem solving, situated learning and the facilitation of team play and collaboration (Gee, 2003). Using digital games as learning tools to explore digital literacies and develop skills that will assist students to navigate the complexities of life in our contemporary society, is a burgeoning area of emerging research and practice.

Squire (2008) argues –

> As educational games leave the realm of abstraction and become reality, the field needs to move beyond rhetoric and towards grounded examples not just of good educational games, but effective game-based learning environments that leverage the critical aspects of the medium as they apply to the needs of the twenty-first century educational system (p.167).

A number of key researchers are leading investigations in this field both here and abroad. In Australia, Beavis, O'Mara and McNeice (2012) respond by defining two key avenues for digital use in the contemporary classroom: first, where students learn through actively participating in digital game play, and second, where writing 'about' digital games is the focus. More recently, Dezuanni, O'Mara and Beavis (2015, p.147) have explored girls' use of *Minecraft* and the 'ways in which the girls "bring themselves into being" through talk and digital production in the social spaces of the classroom and within the game's multi player online world.' In the USA, Gee has similarly investigated the application of video games in learning, using his 'Situated Learning Matrix' as an example of how to teach using the digital game *SWAT4*. Various other teachers have documented their use of digital games in the classroom in Australia, including Beilharz (2013) who used *Minecraft* with his Year 8 class in 2012 to teach students about the planet Mars, with students working on creating a colony on Mars. Further,

> Vincent Trundle, digital education producer at the Australian Centre for Moving Image (ACMI), says teachers are using video games to create diverse learning experiences: students playing video games at school are critiquing them as texts; sandbox learning games such as *Minecraft* are allowing students to create their own

> worlds within games; students are drawing on their analytical skills to review the experience of participating in games; and many are learning through the experience of advancing through obstacles commercial and educational games throw at them (Jennings, 2014).

In addition, digital games promise real potential to both enhance and motivate literacy learners, in the formalised school setting. Although digital gaming as a literacy tool is, according to the research, likely to appeal more to male members of the class who participate in this study, I speculate that *Minecraft*, with its creative play option, will also appeal to the female participants of the study. Moreover, the study will also aim to explore the nature of literacy practices that emerge for all students from using *Minecraft* in the English classroom. The Australian Curriculum: English (ACELY 1736) identifies 'digital elements' as an integral component of literacy practice, allowing for direct links to be drawn between digital game literacy and the formal curriculum.

While digital games have been used by English teachers as part of the teaching process, there is scope for further research to be carried out in this area, using a gender perspective particularly in relation to *Minecraft*. Beavis argues (in http://www.theage.com.au/national/education/teachers-reevaluate-value-of-video-games-20141130-11jw0i.html), 'we know games can be highly motivating … we know the ways they are organised can lead to deeper factual and conceptual understanding, but we need to find ways to use them that are consistent with the ways teachers teach.' As a practising teacher/researcher, I aim to respond to Beavis's call in conducting this study into how *Minecraft* can be used as a pedagogical tool to motivate and enhance girls' literacy practices in the secondary English classroom.

1.2 Main research question

The main research question in relation to gender, literacy learning and *Minecraft* is:

How can *Minecraft* be used as a pedagogical tool to motivate and enhance girls' literacy practices in the secondary English classroom?

1.3 Sub questions

How can *Minecraft* be mobilised in the classroom to appeal to girls?

What identifiable literacy practices emerge from using *Minecraft* in the secondary English classroom and how do they map onto more formal literacy practices?

1.4 Overview of thesis

Background information to the study provide an introduction to this thesis, leading into the identification of research questions. The research questions have been designed to address gaps in current research around the use of *Minecraft* in the secondary English classroom and to explore relationships between the game and girls' literacy practices. The Literature Review begins by exploring literacies in the 21st century, including youth culture and digital game skills, before moving to the use of digital games for literacy learning a and more focussed exploration of the girls' gaming and gender identity. The review also provides a discussion of how the Australian Curriculum: English positions digital and multimodal literacies. I offer a description of the game, *Minecraft*, along with the ways the game might be used as a teaching tool for both English teaching and in other disciplines.

I argue the merits of a qualitative methodology in relation to this study, focusing on the methodology's gathering rich and descriptive data for analysis. The strengths of choosing a practical action research design for this study are also explained, highlighting the advantages of engaging in research as a practising teacher/researcher. The research design involves participants from the teacher/researcher's school and is intentionally open-ended to allow for the possibility of new literacy practices to emerge as a result of playing *Minecraft* in English class. Apperley and Beavis's (2013), 'Model for Critical Games Literacy' has been chosen by me to frame the data analysis because it offers a framework in which to analyse both literacies associated with gaming actions and socio-cultural literacies outside the game.

2. Literature Review

2.1 Introduction

The use of digital technologies to support learning is now seen as a critical element in contemporary education. AusVELS, which is the Australian Curriculum in Victoria, specifically identifies the need for students to study a variety of texts, including digital texts, both individually and collaboratively, and for students to respond in sophisticated and creative ways that reflect multimodal literacy practices. The English component of the Australian Curriculum references technology's importance by specifying that the integration of such technologies is 'critical.' While the need for students to access such technologies is well documented in policy, the various ways in which digital technology can be specifically used within the English teaching context are still being explored. There are calls, (Beavis, Apperley, Bradford, O'Mara & Walsh, 2009, for instance), for further research on the integration of digital game play into formal learning environments.

2.2 Literacies in the 21st century

Literacies are broadly defined as social communications and interactions between people, in various forms, in different contexts, and for different purposes (Gee, 1996; Knobel & Lankshear, 2007; Kalantzis & Cope, 2012). Gee (1996) articulates literacy as a complex social construction that manifests in what he refers to as primary and secondary discourses, with 'mastery' of secondary discourses as the defining element of literacy. Reflecting Gee's metalanguage of 'discourses', Knobel & Lankshear (2007, p.14) define literacy as 'socially recognised ways of generating, communicating and negotiating meaningful content through the medium of encoded texts within contexts of participation in Discourses.'

Oral communication constitutes an important part of literacy where word choices, voice intonations and non-verbal cues, combine to create meaning-making. I expect that since participants will be playing *Minecraft* in collaboration, or certainly within close proximity, the game will act as a catalyst for students to engage in oral literacy practices based on their game play. The importance of oracy is also reflected in the AC: English, which identifies speaking as constituting a third of the documented curriculum. At Year 7 level, students develop their understanding of how language has evolved to reflect the 21st century context, building skills to communicate with new technologies (ACELA 1528); these new technologies include digital games, and in this study, the use of *Minecraft* is a focus. Students also develop their use of oral interaction skills when discussing and/or presenting information and ideas, using a combination of elements including sound and voice qualities for engagement and meaning (ACELY 1804). In addition, students should plan and deliver their presentations by selecting and sequencing ideas and appropriate content, including multimodal means, to communicate and potentially present a new way of seeing things (ACELY 1720).

The emergence of digital and online technologies as social tools for communication in new and ever-changing contexts is integral to definitions of new literacies, with a multiliteracies focus (Gee, 2010; Kalantzis & Cope, 2012). Digital literacies can now be defined as 'a shorthand for the myriad social practices and conceptions of engaging in meaning making mediated by texts that are produced, received, distributed, exchanged, etc., via digital codification' (Lankshear & Knobel, 2011 p.5). Emoticons – pictographs of illustrated facial expressions – have also become entrenched as part of social media communications and have recently been considered acceptable in work place communications (http://www.theatlantic.com/business/archive/2015/05/why-emoji-are-suddenly-acceptable-at-work/393191/). Further, abbreviated forms of words are also now commonly integrated into written text, often via social media, leading to changes in English literacy and language use. 'The limitation of characters on old handsets were a key factor in the rise of acronyms in text messaging such as TXT, GR8 and M8' (http://www.theaustralian.com.au/news/latest-news/social-media-leads-seismic-language-change/story-fn3dxix6-1227329841479). With this definition of digital literacy having been established, then digital game playing is included in this study as a new literacy.

Digital game literacy is now established as a new literacies practice (Beavis, et al., 2009; Gee, 2003; Steinkuehler, 2010). Players decode and encode game-related semiotics as they interact with the digital technology to create meaning, allowing players to progress through a game. In digital gaming, this interaction is multimodal, and includes visual images and representations, written text from the game to the player and from the player to the game, and a variety of other elements, all utilised by the player to effectively read and navigate game play. Beavis (2009) highlights digital games' uniqueness as a literacy text, since they 'do not exist as text until they are played' (p.8). Digital game literacy is a complex process, yet for game players, the challenges associated with gaming learning principles are rewarding (Gee, 2003).

In addition to the literacies associated with direct digital game play, players often engage in external digital literacy practices. Steinkuehler (2010) contends the communications among gamers in online communities presents a 'complex constellation of literacy practice,' ranging from collaborative user guide development to 'online discussion threads to fan sites, fan fiction, and digital fan art' (p.61). Kress (2012) contends that 'a revolution in the landscape of communication' is taking place, where it is 'no longer possible to understand language and its uses without understanding the effect of all modes of communication that are co–present in any text,' including images and other visual representations characteristic of multimodal texts, such as digital games (p.337). The scope of literacy practices associated with digital gaming is thus broad, involving direct interactions between

players and technology and external interactions among players in the broader community, which is often online.

2.3 The Australian Curriculum: English

The use of digital technologies in literacy teaching is now seen by many educational researchers as a critical element in contemporary education (Beavis et al., 2012; Gee, 2003; Kalantzis & Cope, 2012; Knobel & Lankshear, 2007). The Australian Curriculum: English reflects technology's importance by specifying that the integration of such technologies is 'critical', although the extent to which digital literacies have featured in the Australian Curriculum is minimal and not detailed. Faulkner (2012), for instance, highlights the 'collapse of traditionally-constructed boundaries in digital spaces offers significant reconceptions for English, reconceptions not evident in the Australian Curriculum' (p.53). These reconceptions should include digital game playing which is not explicitly referred to in any aspect of the new curriculum, despite numerous references to digital literacies, and the argument by Education academics that digital games are now a legitimate textual form for study.

Nevertheless, digital technology's value in education is recognised in the Australian Curriculum: English with numerous references to developing 'digital literacy.' At Year 10 level, for instance, the Australian Curriculum emphasises creating 'sustained' texts that may include 'digital' texts (ACELY 1756), although a broader definition of what constitutes 'digital texts' is not included. Thus, digital game literacy must certainly be included and digital gaming should be added to the documentation.

Supported, but not robustly by policy, this study will explore literacy practices that emerge from using *Minecraft* in English at Year 7 level. Innovative and multimodal texts will be developed by students in response to using *Minecraf*t as a literacy prompt. The Australian Curriculum: English Achievement Standards at Year 7 level state that students should engage with a variety of texts for enjoyment, including digital and multimodal texts; creating imaginative and informative types of text, as well as communicating in a range of face-to-face and online/virtual environments.

2.4 Youth culture & digital game skills

Digital gaming has become entrenched within contemporary youth culture (Beavis, et al., 2009; Dezuanni, et al., 2015; Willet et al., 2013) and many researchers now assert that playing digital games has positive effects on the gamer (Bavelier, 2012; Beavis et al., 2009; Gee, 2003). Apperley, Beavis, Bradford, O'Mara & Walsh (2008) identify digital games as an 'example of global, ICT-based popular culture, where meaning is built from multimodal elements, and where young players have to be actively learning and involved in order to play' (p.5). Playing digital games in moderation, and not

obsessively, positively affects emotional wellbeing, physical capabilities and cognitive development. Game-play involves 'the desire to learn the skills, the friendships which support it, the magazines consumed, identifications, defences, and the cultural and social practices which produce the successful game player are as much about skills as they are about any cognitive processes' (Walkerdine, 2004, p.29).

Gamers are developing sophisticated skills as a result of their interactions with gaming technologies. Bavelier (2012) reports that approximately 90% of school-aged children play computer games. To illustrate gaming's popularity in teen culture, Bavelier uses *Call of Duty* as an example. She asserts that *Call of Duty* has already been played over 600 million hours, equating to 68,000 years of playing time. The skills associated with digital gaming are emerging as beneficial to young people in today's society and it is increasingly becoming apparent that these skills can be leveraged to augment effective communications across an expansive range of life experiences and communications, including education.

Digital gaming has positive effects on the emotional wellbeing of players. A recent review of literature on gaming and health by Johnson, Jones, Scholes & Colder Carras (2013) found that players' emotional wellbeing improves as a result of digital gaming, along with development of positive relationships and overall self-esteem. This may be due to links between gamers' online reputations and identities and their non-gaming selves. Many gamers identify strongly with their gaming identities, seeing these as an extension or reflection of themselves, and carrying them over into their non-gaming lives (Steinkuehler, 2004; Yee, 2006). It is apparent that 'Games for many students are highly social and occasions for communication and representations of self with immediate friends and online partners' (Beavis et al., 2009, p.162).

In addition to identified emotional benefits, digital games have also been shown to improve physical capabilities. Bavelier (2012) argues that digital games have a positive effect on players' visual capabilities, improving players' vision in two main ways, by developing their ability to 'resolve small detail in the context of clutter' and to 'resolve different levels of grey' in visual stimuli. She also asserts that gaming develops players' ability to resolve visually conflicting stimuli, such as the word yellow written in red. Further, her research has found that game players are able to track multiple visual objects more adeptly than non-gamers. The aesthetic and visual elements associated with gaming are integral to game play.

Complicated cognitive processes that occur while gaming, and which work in conjunction with players' physical responses, are being developed by young people today as a result of gaming's cultural popularity. Digital game players use a range of sophisticated skills when navigating and

interacting with the chosen software. The cognitive processes are responsible for the physical, hand-eye coordination, as well as for 'reflexes, speedy pattern recognition, and spatial imagination' (Poole, 2000, p.56). Walkerdine (2004, p.29) defines cognitive processes as part of the skills necessary for game play, asserting that players exhibit 'skills in making moves, rational strategy and cognition.' I argue that players develop sophisticated interaction skills while playing digital games.

These emotional and physical capabilities have been developed as a result of young people's fascination with playing digital games and interacting with digital media content. Many young people demand involvement in the production of media content for online audiences (Gee & Hayes, 2010). Young people's engagement in digital media cannot be underestimated. Gee and Hayes (2010) state five years ago that over 50% of teenagers have engaged in the production of media content at some stage, and that approximately a third of these have shared their media content with others. Audiences include communities of players of a particular game, blog audiences for communications about game play, and even YouTube clips made to express ideas about aspects of digital game play. 'Today's popular culture allows both young and old people to gain wide audiences and become stars in their own domain' (Gee & Hayes, 2010, p.180).

Given the significance of digital gaming and media production in youth culture, it is important that digital culture is linked to and reflected in formal learning. Bringing digital game practice into teaching bridges the divide between home and school-based learning (Beavis et al., 2009). Apperley and Walsh (2012) argue that by using digital games in teaching, educators are implicitly validating and valuing these skill sets and cultural preferences (Apperley & Walsh, 2012). If teachers fail to embrace new forms of learning that incorporate digital technologies, they face alienating teenagers from the formal schooling context. Gee and Hayes (2010) argue that, 'many of them are learning more complex things, more important twenty-first-century skills, and more technical skills at home or in their communities than they are at school' (p.169). According to Jennings (2014) 'at many Victorian schools, kids are making games too; 64 Victorian students recently made video games they entered in ACMI's Screen It 2014 competition' – evidence that digital games are already being played in Victorian schools.

2.5 Digital games and literacy learning

A number of studies argue that digital games can be used in literacy teaching to effectively support student learning (Apperley & Beavis, 2011; Apperley & Walsh, 2012; Beavis, et al., 2009; Buckingham & Burn, 2007; Gee, 2003; Steinkuehler, 2007; Zimmerman, 2009). Digital games are seen as a part of 'foundational literacy' (Gee, 2003), and as a means to bridge the divide between home and school, harnessing students' 'existing understandings' of how games operate, and

thereby ‘capitalising on invisible but often extensive and sophisticated reading strategies’ (Beavis, 1999, p.4). Digital games can be read as a text distinct from other forms, or linked to more traditional forms, such as narrative writing.

Many educational researchers now see digital games as an authentic and powerful form of literacy, reflective of 21st century cultural practices, and distinct from other forms of traditional print literacy (Apperley & Beavis, 2013; Apperley & Walsh, 2012; Beavis, et al., 2012; Buckingham & Burn, 2007; Carr, Buckingham, Burn & Schott, 2006; Gee, 2003; Kalantzis & Cope, 2012; Knobel & Lankshear, 2007). Buckingham and Burn (2007, p.325) argue that ‘There is something special about this medium that distinguishes it from others – that we positively need game literacy as distinct from print literacy or television literacy, or even a broader notion like media literacy.’ In an age where technological aptitude is heavily relied on, it is essential that students develop digital literacies of all kinds, including communicative and problem-solving practices specific to digital games.

The intricacies of digital game play, referred to as ‘ludology,’ involves a deep knowledge of game play in order to understand the sophisticated interactions between player and game (Apperley & Beavis, 2011; Beavis, 2012; Fransca, 2003). A ‘narratology’ approach views digital games from a narrative perspective, where digital game play can be interpreted as a narrative and motivation for deeper literacy practices. Adopting a ‘narratology’ approach involves the exploration of setting, themes, characters, plot and issues (Beavis et al., 2009). In addition to the physical action of playing digital games, being digital-game literate also involves ‘Intertextual navigation, comparison and reading of the “official” and “unofficial” paratexts, and contextualising the information contained in light of the credibility of the particular sources’ (Apperley & Walsh, 2012, p.117). Gamers read the narrative of game, as well as influencing the narrative through their physical actions and choices within game play.

Paratexts are multimodal forms of informative and instructional text that assist players to navigate and operate digital games. They have been described as ‘the print and multimodal texts used and often developed by game players that circulate in the complex nexus of literacy practices that make up digital gaming cultures…(walkthroughs, video tutorials, fan fiction, fan art, for example’ (Apperley & Walsh, 2012, p.116). Paratext also involves text within digital games, such as instructions on how to play from a ‘Help Menu’ or text boxes prompting players to take action in a certain way. Alvermann (2011, p.544) refers to paratext as ‘peripheral literacies’, and describes such practices as involving script writing, ‘researching a backstory (the history behind the game’s plot), and walkthroughs (directions for playing the game), or, alternatively participating in chat rooms, discussion board, and online communities of amateur Do-It-Yourself (DIY) game developers.’ More specifically, Dezuanni et al. (2015) point out that in previous research (Beavis & O’Mara, 2010;

Apperley & Walsh, 2012), 'the co–production in digital games can be a site of literacy learning … and that paratexts can be a practical starting point for introducing digital gaming and gaming literacies into the literacy curriculum (p.149).

It has also been argued that 'by including the reading, writing and design of digital game paratexts in the literacy curriculum, teachers can actively and legitimately include digital games in their literacy instruction' (Apperley & Walsh, 2012, p.115). It has been argued that students who read and comprehend the complexities of paratext in gaming are using cognitively sophisticated literacy skills that exceed those tested for in traditional literacy testing (Apperley & Walsh, 2012; Steinkuehler, 2010) and therefore, paratext should be included within the curriculum as a challenging form of literacy text. In addition, paratext is a novel way of 'capitalising on pupils' existing gaming literacy by connecting their out-of-school gaming literacy practices to the literacy and English curriculum' (Apperley & Walsh, 2012, p.115).

By allowing students the opportunity to use digital games as part of literacy learning, teachers are bridging the divide between outside school digital gaming practice and inside school learning (Alvermann, 2011). In doing so, students are able to demonstrate their existing digital competencies and knowledge relating to digital and multimodal literacies. In Victoria recently, six schools have participated in the Australian Research Council's project titled 'Serious Play: Using Digital Games in School to Promote Literacy and Learning in the 21st century,' with the findings to be published some time in 2015 (Jennings, 2014). As part of the 'Serious Play' study, research by Dezuanni et al. (2015) emphasises the importance of specific language use within affinity groups associated with gaming, evident when girls 'plan, share ideas, problem solve and teach each other, both at school and outside of school (p.152).'

With regards to digital game theoretical frameworks, Apperley and Beavis (2013, p.2) present a digitally-focussed literacy model as a result of three years of research into digital literacy teaching in Victoria, advocating that 'literacy practices involved in playing digital games and reconceptualising curriculum to support the learning affordances offered by digital games have great potential to build strong bridges between students' out-of-school life-worlds and twenty-first-century curricula.' Their model, titled 'Model for Critical Games Literacy' will be used as my framework to analyse the data collected in this study. The model is similar to the Heuristic for Understanding Gaming (HUG) literacy model that is constructed by Apperley and Walsh (2012), although this earlier model was designed with digital paratext as its focus. The 'Model for Critical Games Literacy' acknowledges the actions taken by game players, in addition to viewing games as text, which makes it an ideal tool to analyse data in this study (see Chapter 3).

Digital games provide people with a creative outlet and this creativity involves deep thinking processes that involve elements of traditional language skills, such as targeting audience and purpose. Lankshear argues that digital games, as new forms of literacy, dislodge traditional author and reader boundaries by enabling readers to modify, or 'rearticulate', the original author's content and 'expression', especially via game 'modding', resulting in reinterpretation of these changes. Digital games' potential as pedagogical tools to motivate and enhance literacy learning is becoming increasingly more apparent. While the creative learning potential of using games is exciting to some educators, students' prior gaming experience must be taken into account. Research by Bourgonjon, Valcke, Soetaert & Schellens (2010), for instance, indicates that experience influences students' motivation to use digital games in the formal learning context.

Shifting from student knowledge and understanding to pedagogy, digital games can increase student engagement, allowing for collaborative work among students, and help lift underperforming students towards the expected standards (Beavis, 2001). Research has indicated that digital games increase student engagement (Beavis, 2001; Brom, Preuss & Klement, 2011; Eow, Ali, Mahmud & Baki, 2010; Jolley, 2008). However, a greater understanding of how the benefits of digital games in teaching can be translated from theory into practice needs to be done. Dr Catherine Beavis recently reasserted in The Age (http://www.theage.com.au/national/education/teachers-reevaluate-value-of-video-games-20141130-11jw0i.html) that 'we know games can be highly motivating' but 'schools still have a way to go before they can harness the full educational potential of video games.'

Digital games can also allow for differentiated and collaborative learning. Gee and Hayes (2010) conclude that 'We could imagine the day when students in school are working in all sorts of interest-driven groups, some of them passionate affinity groups, others more restricted (e.g., in terms of age), in and out of school' (p.182). Gee and Hayes (2010) clearly envision groups of students working together in interest groups, using digital games as a platform to inspire the creation of meaningful mulitimodal text. They continue, 'at a deeper level, we could use school to help [Alex] transfer her skills with multimodal design (graphics and words) to other settings that involve multimedia, graphic arts, design, and writing, and we could assess this transfer' (p.182*).*

2.6 Girls, digital games and gender identity

In order to better understand the interconnections between girls and digital gaming – relevant nuances or differences influencing girl gamers – and the implications for education, I want to explore the mixed findings of research that have emerged within this field of study, as well as what have been perceived as limiting factors in girls engaging with digital game technology. It is now clear that a large proportion of girls choose to play digital games during their leisure time outside of

school, both alone and in collaboration with others (Lenhart, Kahne, Middaugh, Macgil, Evans & Vitak, 2008), and the 'longstanding stereotype of the computer gamer as a solitary teenage boy is fading' (Robertson, 2012, p.387); although recent research by Vermeulen, Nunez Castellar and Van Looy (2014) suggests that persistent perception that gaming is a male activity continue to inhibit growth of female gaming numbers. The appeal of digital games to adolescents of both genders has drawn attention from researchers who continue to explore the potential use of digital games as pedagogical tools in both literacy teaching and across other learning areas (Armory, 2007; Beavis & Charles, 2005; Dezuanni et al., 2015). The acceptance of digital gaming as embedded deeply in contemporary youth culture has led to the assertion that digital games can be used as a valuable literacy tool to motivate and enhance students' learning (Beavis & Charles, 2005; Dezuanni et al., 2015; Gee, 2005).

The socially-perceived masculine elements associated with gaming have been well documented over the years in the field of computer gaming (Armory & Molomo, 2012; Jenson & de Castell 2010; Kiesler, Sproull & Eccles, 1985; Shaw, 2012; Taylor, 2006; Walkerdine, 2004). Earlier research characterised games' masculine elements as involving: an emphasis on winning and losing, triumphs over obstacles, players' battles involving killing and shooting, and narratives mirroring action movie plots, where heroes rise above defeats to ultimately win (Poole, 2000). Beato (1997) and De Witt (1997) found that most video games include some form of 'killing'; a violent feature many girls do not find appealing (Greenfield, 1996; Kafai, 1996) and indeed find boring (Kafai, 1996). Further, digital game narratives were likened to resembling Hollywood westerns, where the plots involve 'struggles for the achievement of masculinity,' and the 'action-heroic masculinity,' which, as an 'end point,' is not the type of goal that all girls are interested in achieving (Walkerdine, 2004, p.29). While male characters reinforced these masculinised perceptions, female characters were criticised for exacerbating sexual features and further alienating female players (Behm-Morawitz & Mastro, 2009; Dietz, 1998; Dill & Thill, 2007; Downs & Smith, 2010; Ivory, 2006; Stark & Buzawa, 2009). With regards to girls' gaming preferences, Schott and Horrell (2000, p.42) found that often 'girl gamers selected role-playing games that 'contain an animal or creature as its principal character, rather than a highly gendered male or female character.'

Leading from these perceptions, earlier research proposed that girls' digital gaming capabilities might be impeded by the complexity of adopting masculinised pursuits often linked with digital game play. It was argued that digital games were 'part of a set of technologies and practices for the production and management of contemporary masculinity.' Due to this, 'girls have to manage themselves as both masculine and feminine' if they are to taste success in digital game play (Walkerdine, 2004, p.30). The fact that recent research clearly indicates a comparable proportion of both girls and boys are engaging in computer game play suggests that girls are managing such a

challenge, and that perhaps they have been playing all along, although less visibly (Ulicsak, Wright & Cranmer, 2009). Further, Dawson, Cragg, Taylor and Coombs (2007, p.23) found that:

> Female players seem to see video games as an entertaining option for occasions when there is nothing more sociable or dynamic on offer. It does not seem that they make time to play as often as many male players do. Broadly, girls seem to fit gaming around other interests, whereas for many boys/men it is an important interest in itself.

Girls tend not to see game play performance, with its perceived masculine associations, as attributing, or negatively impacting on, their real life identities, unlike boys, who often do make this correlation (Jenson & de Castell, 2010). Jenson and de Castell's (2010) study found boys are more likely to attribute game play performance with their perceived sense of identity, making their play more serious and competitive, with more at stake in terms of losing as a result of poor performance. Walkerdine (2004, p.36) proposes some girls are better positioned, due to personal disposition, to demonstrate 'masculine subjects' in digital games for the purpose of achieving success, than others.

In-game identities are commonly constructed via creation of players' avatars. Games specifically designed and targeted for girls, such as Barbie Girls, continue to position female avatars as 'highly sexualised representations,' limiting how girl gamers can construct their online, gaming identities, and girl-games typically involve collection of items with aesthetic appeal, such as flowers and animals (Black, Korobkova & Epler, 2014, p.275). Even games with female protagonists, such as the popular Lara Croft in *Tomb Raider*, have been designed to appeal to male gamers rather than female gamers (Schott & Horrell, 2000). When the obviously male-targeted games are also taken into account, this does not leave much scope or freedom for girl gamers to creatively construct in-game identities beyond these confines.

Earlier work interrogated girls' gaming preferences in attempts to draw understandings about the types of games that appeal to girls (Cassell & Jenkins, 1998). One of the main motivations for doing so was to better inform game developers, so that in turn, they could create games that would directly address girls' perceived gaming needs (Jenson & de Castell, 2010). This approach has since been interpreted by researchers, as further marginalising girls, rather than acknowledging that girls already choose to engage in digital game play, and seeking to better understand the associated circumstances influencing decisions in relation to game play (Carr, 2005; Jenson & de Castell, 2010). Investigative work into gender preferences was also seen as resulting in stereotyping of girls, which in turn, limited exploration of non-stereotypical game play by girls (Carr, 2005; Jenson & de Castell, 2010; Ridgeway & Correll, 2004). Nevertheless, research has indicated

that girl gamers enjoy 'non-purposeful explorations' in games over competitive play (Schott & Horrell, 2000, p.43): games such as *Minecraft*, where players explore the virtual landscape without needing to 'win' anything. More recently, gaming preferences have instead been linked to factors other than gender. Armory and Molomo (2012, p.192), for instance, assert that 'attitudes to games are based on factors other than masculinity and gender and may be related to experience'; an assertion also supported by Carr (2005).

While research has consistently shown that context is a contributing factor in girls' decisions to play digital games, it is now considered a more significant determining factor than gender-related factors (Armory & Molomo, 2012; Beavis & Charles, 2005; Carr, 2007; Carr, et al., 2006). Many studies have reported girls' preference to engage in game play with their male relatives or friends in their leisure time, suggesting game play is a contextual opportunity for social interaction (Bryce & Rutter, 2003; Carr, 2005; Cockburn, 1992; Kafai, 2009; Ogletree & Drake, 2007; Taylor, 2006); in fact, Schott and Horrell (2000) assert that girls choose to engage in video gaming in the home context more than any other. Jenson and de Castell (2010, p.56) have reinforced this view, contending that, 'what and how [girls] play is always negotiable, context dependent, and usually not necessarily in the company of other girls or female players.' Prior experience and previous gained competencies also inform girl players' decisions to engage in game play (Carr, 2005). Research has also indicated that access to video gaming may also inhibit girls' opportunities to engage in digital gaming (Bryce, Rutter and Sullivan, 2006; Jenson & de Castell, 2006).

Leading from the assumption that game playing is an opportunity for social interaction, outside game play behaviour and interactions appear to differ more considerably between genders. Jenson and de Castell (2011), for instance, have suggested that boys are more likely to display overtly competitive behaviour that is highly critical of each other's game-playing capabilities in response to game performance, whereas girls appear more concerned with maintaining positive social status quos. These views are echoed by Williams, Consalvo, Caplan and Yee (2009) and Walkerdine (2004) who drew similar conclusions. Jenson and de Castell's (2010) slightly earlier work also found girls' conversations shifting back and forth frequently from in-game talk to outside-game talk, whereas boys' talk typically communicated around issued directly linked to game-play. This difference could prove useful for teachers in terms of planning how best to integrate digital games into teaching. Nevertheless, research indicates that young people's identity is influenced by digital texts that they engage with (Moje, Luke & Davies, 2009) and both in–game and outside–game literacies and social practices are often related (Dezuanni et al., 2015).

In addition to context, access to digital gaming technologies and parental guidance have also been identified as factors impacting on girls' decisions to play digital games. It has been suggested, for

instance, that some girls find access to digital game consoles only after their male counterparts or family members no longer have use for them or are willing to share game play in multi-player modes (Jenson & de Castell, 2010; Walkerdine, 2006). Ulicsak, Wright and Cranmer (2009, p.15) similarly assert that 'there is evidence that boys are more likely to own their own games consoles than girls, with figures showing this to be true in both the 8-11 and 12-15 year-old categories.' Schott and Horrell (2000, p.39) assert that female gamers choose to play in their homes, more than anywhere else and that, 'female identity as a gamer is contextually restricted in that gaming in male oriented environments is not socially rewarding for females.'

To be more specific in regards to gender differences in gaming preferences, Ulicsak et al., (2009, p.15) highlight that:

> Boys and girls are largely in agreement about popular genres in the 6-0 age category (puzzles/board games, action/adventure, popular characters/films and simulations), but they begin to diverge in the 11-15 age category, with boys tending to prefer first person shooters, racing, and action games, and girls largely sticking to puzzles and simulations.

Reflecting on Olsen's (2010) research on game design in teaching, Robertson (2012, p.386) concluded that, 'girls and boys seemed equally motivated to "create their own world" within the game.' This has significant implications for this study given students in this study will use the *Minecraft* to shape the virtual terrain within its program. It would suggest that the game will appeal equally to both girls and boys.

Walkerdine (2004) analyses female game players' duality in taking aggressive action in digital game play as a necessity in attaining gaming competency, while outwardly retaining their sense of real world femininity. Similarly, Buckingham and Burn (2007, p.332) found that 'there were predictable differences' in gender, with evidence that 'boys preferred action games, including shoot-em-ups, while girls preferred peaceful constructive games', such as *Minecraft*; although even *Minecraft* is not immune to violence, with 'killing' and blowing things up commonplace. Yet, their study found, 'some girls did want to pay and make 'violent' games, while some boys did play and make 'peaceful' games.' Even Gee (2005) asserts there are differences in the choices of digital games played by gender. As with many digital games, it is difficult to steer away from the presence of 'killing' or onscreen violence.

Faircloth (2012) provides a contemporary definition of identity as 'a pattern of practices and choices that emerge (and potentially shift) within the interaction of person and context. Identity can therefore

be seen as a type of ongoing negotiation of participation, shaped by – and shaping in response – the context(s) in which it occurs' (p.186). Regarding gender identity, children are aware of their gender from an early age and from this awareness stems the early shaping of one's identity. 'Both boys and girls scan their environments for gender-connected information, constructing gender stereotypes about the traits, abilities, and behaviours of boys' and girls' (Elmore & Oyserman, 2012, p.176). According to Martin and Ruble (2009), both genders prefer behaviours that are congruent with their identified gender. With regards to toys, research has shown that girls prefer playing with toys that are identified as reflective of their gender (Martin, Eisenbud & Rose, 1995). Elmore and Oyserman (2012) highlight that gender stereotypes continue to be influential in adolescence, asserting gender may be more pivotal in shaping identity and behaviour during adolescence than childhood. They provide three reasons to support this assertion: firstly, that physical changes associated with puberty render greater differences between genders, that behaviour reflective of gender is 'rewarded,' and thirdly, that gender-specific behaviour is often unconsciously driven (p.177).

2.7 *Minecraft* and *Minecraft* as a literacy teaching tool

Minecraft is a digital game that presents as a virtual world, or space, where users can create structures using the tools and objects of construction provided to shape the geography of the space. Crowcroft (2005) writes 'computing is its own virtual word, bound only by its practitioners' imagination and creativity.' The same ideology could be transferred to digital gaming where virtual worlds in games are commandeered by the player's responsiveness, imagination and creativity. Virtual worlds have been defined as 'Online immersive game-like environments where participants engage in socialization, entertainment, education and commerce' (Gupta, Jin, Sanders, Sherman & Simha, 2012, p.1). The educational aspect of virtual world interaction lends itself to more formal learning settings, where the understandings and knowledge acquired during game play can be articulated in both traditional and new literacy practices. In virtual worlds, players often work in collaboration to construct and move objects within a virtual landscape for both pleasure and practical motivations (Saunders, Rutkowski, Van Genuchten, Vogel, & Orrego, 2011). Dezuanni et al. (2015, p.148), assert virtual world games can provide players with 'a rich mix of social and literacy practices, with crossovers between on and offline experience' (p.148).

Minecraft consists of square digital blocks which can be altered and manipulated to build and create landscapes. Players use a variety of different cyber resources, such as timber or iron, with the capacity for multiple players to collaborate within the same spaces at the same time. Dezuanni et al. (2015, p.149) highlight that participation in 'virtual worlds requires complex transactions involving the children's skills, textual practices, performance and identity work.' In 2015, the gender diversity

of *Minecraft's* players was recognised when the creators introduced the first female character, Alex. In addition to the original male character, Steve, it is now possible for players to choose this new female character from set-up options at the beginning of a game. Essentially, '*Minecraft* has acknowledged that Steve did not represent player-base diversity, so it developed a more feminine character' (http://www.pocket-lint.com/news/133697-say-hello-to-alex-minecraft-s-first-female-character-you-can-play-for-free).

The game's surprising popularity amongst students is increasingly being recognised and harnessed as a teaching tool in the classroom context (Varley, 2012; Richardson, 2012). According to Xbox statistics sourced from the gaming site 'Geek', *Minecraft* surpassed the popularity of other top-selling games, such as *Call of Duty: Modern Warfare 3* and *Fifa 13* in 2012 (Varley, 2012), making it an attractive digital choice for motivating learning. Worth noting, 'the first *Minecraft* in Education Summit took place this year in Los Angeles. It illustrates the seriousness with which major international universities and the technology industry are treating the game' (http://theconversation.com/tapping-into-kids-passion-for-minecraft-in-the-classroom-43461).

*Minecraf*t is a rich text for use in the English classroom because, as a virtual world, it can be shaped by students, allowing for them to express their digital creativity and resourcefulness. The George Lucas Foundation (2012) asserts that *Minecraft* can be used to 'construct and manipulate an environment…something *Minecraf*t does exceptionally well' and that this makes it 'inviting' and 'compelling' as a teaching tool. Richardson (2012, p.3) documents that *Minecraft* is being used by numerous teachers in the United States, including teacher Kathleen Gerard from New York City School, who reported that using *Minecraft* in her teaching has been 'amazing' and that her students are 'frighteningly enthusiastic about *Minecraft*', leading them to engage in a range of literacy practices, such as 'watching *Minecraft* screencasts and reading *Minecraft* blogs and wikis', as well as students making their own books. Richardson (2012, p.3) also documents that 'English teachers have students collaborate to work out what characters' homes might look and feel like, according to literature they read.' He provides Mary Ann Reilly as an example, explaining how her students each chose a character and role from the text *Inherit the Wind* to translate into the world of *Minecraft*, thereby 'constructing what they were learning about the reading, coming to understand the text more fully because they were building scenes together' (p.3).

James Gee (2003) articulates the powerful literacy learning that can emerge from digital game play, focussing on the semiotic domains associated with gaming. Gee (2003, p.18) defines these semiotic domains as 'any set of practices that recruits one or more modalities (e.g. oral or written language, images, equations, symbols, sounds, gestures, graphs, artefacts, etc.) to communicate distinctive types of meanings.' *Minecraft* has specific language associated with the game, particularly with regards to resources sourced from the toolbox, the presence of figures that can 'kill' player's

characters, such as ‘creepers,’ and other semiotic-related language, such as ‘spawning.’ As articulated by Groff, Howells and Cranmer (2010, p.15), ‘The semiotic domain for a game is the world or culture it creates and is shared by those participating in the game together; in this world, participants share knowledge, skills, experiences and resources.’

2.8 *Minecraft* as a pedagogical tool in disciplines other than English

Minecraft is being utilised as a teaching tool to support traditional areas of study across a broad spectrum of discipline areas. ICT teacher Michael Beilharz from Knox Grammar School in NSW, for instance, used *Minecraft* with his Year 8 class in 2012 to teach students about the planet Mars. He ‘wanted students to think critically about the atmosphere, temperature and geography of Mars and apply this knowledge’ (Beilharz, 2013). Overall, Beilharz found that ‘*Minecraft* can be a great way to foster skills in collaboration, communication, problem solving and creativity’ (p.30). The same study also found that the project improved student engagement, particularly with students who were otherwise disengaged with traditional learning practices. The school also used *Minecraft* successfully to simulate rising sea levels of Manly Beach. Richardson (2012, p.3) notes that students in the United States have been using *Minecraft* ‘to build replicas of cities or simulations of historic events’, while Short (2012) describes *Minecraft* being used to teach scientific concepts. More recently, according to Jennings (2014), North Fitzroy Primary School students ‘are undertaking a term-long *Minecraft* project in which they will try to solve the problem of sustaining human life on another planet’ with teacher Rebecca Martin ‘assessing them on their 21st century learning skills such as collaboration, organisation, technology, communication and creativity and design.’

2.9 Conclusion

Literacies can be defined as socially-constructed communications involving reading, writing and oral forms, in a variety of different contexts and for varying purposes. Each of these three literacy forms is recognised within the Australian Curriculum: English strands under ‘reading and viewing,’ ‘writing,’ and ‘speaking and listening.’ Literacy in the 21st century also involves digital literacy: often involving a blend of different components and visual elements to present as multimodal. Digital literacies are also recognised in the Australian Curriculum: English, and include digital game literacy, where players decode and encode game-related semiotics to create meaning. Support for developing students’ 21st century literacy skills using digital technologies and digital games can be found in the Australian Curriculum: English.

The use of digital technologies as part of critical literacy skills is identified in the Australian Curriculum: English, and even though digital games are not explicitly named as a form of critical literacy text, acceptance of their validity in the educational context can still be supported by their legitimacy in research as a textual form. The AC: English makes many references to 'digital texts' and therefore supports *Minecraft'*s use as a literacy prompt for students' development of imaginative and informative texts, as well as interpersonal interactions and within the virtual environment.

Youth culture involves digital gaming and the active-learning nature of interacting with gaming technology is accepted as having positive emotional, physical and cognitive effects on players. In addition to playing the actual game, players are also taking part in the construction of new digital media content, interacting with live and authentic audiences, using a range of different adjunct mediums to the games themselves. Acknowledging this aspect of youth culture gives credence to the importance of integrating such an integral part of young people's lives – digital gaming - into the educational context; in effect, bridging the divide between out of school and inside school literacy practices.

Research suggests that digital games, presented as a distinct form of foundational literacy text, can be used in literacy teaching to effectively extend student learning and develop students' technological aptitude. Either a ludology or narratology approach to teaching with digital games can be adopted by teachers. Paratext, the auxiliary text associated with digital gaming, allows opportunities for students to develop cognitively sophisticated literacy skills and an opportunity for students to use their previous experience with paratext in out of school gaming within the formal learning context. Gaming's potential to nurture creativity and collaborative learning should also not be underestimated. In this light, Dezuanni et al. (2015) also recognise the importance associated with the production of paratext, asserting that 'gameplay is just one aspect of *Minecraft's* presence within digital culture' (p.149).

As McDonald (2012) concludes in his review of the literature, 'The current research leaves many reasons to be optimistic about the potential offered by using games as texts capable of critically engaging students within the subject of English' (p.20). *Minecraft* enables students the opportunity to shape the virtual landscape and in doing so, they are engaging in a rich array of literacy practices. Yet to conclude, 'although there's a large and growing body of evidence of the educational benefits of video games…finding out more about video games' educational worth is difficult' (Jennings, 2014) and therefore needs further investigation – which this study's findings will attempt to do.

3. Methodology

3.1 The case for qualitative methodology

According to Creswell (2012, p.16), 'qualitative research is best suited to address a research problem in which you do not know the variables and need to explore.' In this study, I aim to explore how *Minecraft* can be used as a pedagogical tool to motivate and enhance girls' literacy practices, and since the literacy practices that emerge from this study are of primary significance, and unknown prior to commencement of the study, they are by their nature variable; thus the study's aims align well with a qualitative approach. This epistemology's appeal allows for tuning of the study to take place as the design unfolds. Lincoln's (2003, p.12) views on qualitative research echo my sentiment that, as qualitative researchers, 'we will continue to loosen, tighten, and loosen again the knots that mark our conceptual problem. But we will always know that interesting problems – the hallmarks, the knots, of rich intellectual life- await our energies.' This is certainly the case in my study, since the original concept did not specifically focus on girls' literacy practices; although my study will be conducted in a co-educational setting which will allow for comparisons of engagement in literacy practices between both genders. It was only through realising while writing my Literature Review that research into using *Minecraft* to teach literacy with girls was lacking that I altered my focus.

More specifically, in order for me to investigate my main research question, students will use *Minecraft* in English class to build and shape a virtual landscape then blend game play with applications used in the out of school setting to create contemporary, and potentially new forms of, literacy artefacts involving *Minecraft*. In creating these artefacts, students will engage more broadly with the game by extending literacy practices beyond game play and into communications, and with online audiences. Students' engagement with technology in the construction of the resultant artefacts is not predictable, and should be characterised thus an unknown variable. A qualitative research approach will be used so that rich and descriptive analysis of students' interactions, motivations and literacy engagement can take place.

Creswell (2012, p.16) identifies qualitative research characteristics as:

- Exploring a problem and developing a detailed understanding of a central phenomenon
- Having the literature review play a minor role but justify the problem
- Stating the purpose and research question in a general and broad way so as to the participants' experiences

- Collecting data based on words from a small number of individuals so that the participants' views are obtained
- Analysing the data for description and themes using text analysis and interpreting the larger meaning of the findings

This qualitative approach will enable me to focus on the female participants' experience as they play the game. I will record transcripts of discussions with the girls as they explain their game play to me, including what they have built, how they have built it and why they have built it. The descriptions they provide will constitute data for analysis and enable me to identify themes that relate to previous research in my Literature Review and link to findings in my study. Clearly, these qualitative research characteristics, as outlined above, provide credence for using a qualitative epistemology to frame my study.

Delving deeper into qualitative research designs, I have chosen to base my study on a practical action research design which will enable me to leverage my experience as a teacher to further my investigations in this study as a researcher. This qualitative approach will enable me to collect rich data as part of my study, consisting of transcripts, observational notes, literacy artefacts, informal discussions and a survey.

3.2 Practical action research

I will adopt a practical action research design so that I, as the researcher/teacher, can use the existing educational setting of employment as a source for participants in the study, to form the basis of this small-scale research. Creswell's (2012, p.580) 'Educational Research' text highlights the key ideas underpinning practical action research and why this type of design has been chosen for this study. In it, he explains that furthering professional development and improving student learning outcomes are integral to practical action research aims. In this study, I aim to further my own professional practice, through practitioner inquiry, and to use the findings to influence my teaching in future to improve the learning outcomes of students. A practical action research design enables teachers to reflect on teaching practice in a rigorous and methodological way, in order to investigate a focus area that is pertinent and of interest to the researcher. In this study, I aim to investigate my areas of interest which are digital gaming, literacy and education, and girls' use of *Minecraft*.

Practical action research 'addresses a specific issue and seeks to obtain solutions to a problem' (Creswell, 2012, p.577). In this case, the problem is to investigate how *Minecraft* can be used to support girls' literacy practice in English classes. Practical action research enables this problem to be explored, analysed, documented and shared, with potential to ultimately create change and improvements in the teaching and learning practices at the site school. Creswell (2012, p.578)

asserts the significance of this type of design, writing that 'having teachers study their own classroom problems and issues has emerged as an important direction for school renewal today.'

Creswell (2012, p.579) distinguishes 'practical action research' from 'participatory action research,' defining practical action research as involving the following;

- Studying local practices
- Involving individual or team-based inquiry
- Focussing on teacher development and student learning
- Leading to the teacher-as-researcher

My research involves studying the participants' of the school where I am employed, involves an inquiry led by me as researcher, aims to explore how to teach with *Minecraft* as a pedagogical tool to improve my development and understanding of using this game in English class, explores the student literacy practices and learning, and ultimately has led to me becoming a teacher who is also a researcher. In contrast, the participatory action research design as outlined by Creswell (2012, p.579) involves 'studying social issues that constrain individual lives,' emphasises 'equal collaboration,' focusses on 'life-enhancing changes,' and ultimately results in the 'emancipated researcher;' evidently not in synergy with my study's aims.

Mills's (2011) 'Dialectic Action Research Spiral' model elaborates Creswell's (2012) practical action research design, further assisting teachers in implementing practical action research. The model begins with the development of an action plan, then identifies an area of focus, followed by data collection, and the ability to return to the focus area if need be, or continue onwards with analysing and interpreting data. The model allows for the researcher to return to the collection of data if need be, or continue onward to complete the cycle by returning to the development of an action plan. I have chosen to adopt this spiral model in my study because it is a simple, four-step design which enables me, the teacher/researcher, to switch to and fro between the collection of data and the research topic and the collection of data and the analysis and interpretation of it – if need be. This spiral and thinking process enables me to align the project from the identification of my research questions, through my literature review, through my data collection and analysis, to the findings of my study.

Through this model's process of refinement, I have determined that sensitivities must be taken into account to ensure that gendered stereotypes associated with game play are avoided, so that it is possible to explore how *Minecraft* can be used to enhance girls' literacy practices. As part of my literature reviews, I discovered that Jenson and de Castell (2010, p.64) urge future researchers to avoid 'operational misunderstandings' that 'all girls/women and all boys/men will have similar

approaches under similar conditions.' As a result, I will endeavour to avoid reinforcing gendered stereotypes associated with game play, focussing instead on critically documenting the variety of ways girls interact with *Minecraft* to better understand how their learning and motivations can be enhanced using digital game technology.

3.3 Research design

This study responds to calls from leading literacy academics (Beavis, et al., 2009, p.162) for more extensive 'action research' studies into how English teachers might use 'computer games' in literacy teaching. The study draws on digital gaming theory to frame research, using a qualitative approach, to investigate the literacy practices which emerge from playing the *Minecraft* game in English. I have designed a semi-structured unit of work so that these emergent literacy practices can be investigated and analysed as part of this study's findings. I aim to assess the nature of the literacy practices used by girls as they play the game and how these practices might connect to the Australian Curriculum: English.

Students' main learning objectives are closely linked to the aims of the Australian Curriculum: English. In this study, students will learn to 'read, view, speak, write, create and reflect on' *Minecraft* as a digital text 'with purpose' (AC: English Aims). Students will play *Minecraft* as a means to bridge outside school literacy practices with formal literacy practices at school. Any students who do not have prior experience with the game will learn how to read and view the game as they play. Students may be observed sharing their game-play strategies orally with their peers, thus articulating their digital literacy practice using *Minecraf*t. They will explore *Minecraft* as a tool to generate new, multimodal literacy practices in the formal learning context. Students will use their virtual world designs as a stimulus to develop different, and possibly new, literacy artefacts, which may reflect a blend of traditional and contemporary literacies, such as using Apple Applications, or written extensions of text associated with digital gaming. By doing this, students will engage in the creation of written, digital textual forms relating to *MInecraft* that take audience and purpose into account.

Minecraft resembles a digital Lego set where the purpose of play is to shape the virtual landscape by building structures. The appeal of the software is in its creative potential and the ability to share built content online with other users. To build these structures, players select from a range of available materials in the tool box, and can supplement this with additional materials collected along the way, through navigating around the space and interacting with the game. One of the aims of this study is to determine whether the aesthetic elements of the game have a bearing on student motivation and/or learning (see Chapter 1).

I have chosen students from a co-educational Year 7 English class to participate in my study because, consistent with my practical action design approach, I am a teacher/researcher, wanting to conduct action research with my Year 7 class. In this unit, students will draw on any past experiences from out of school digital literacy practices to shape the landscape of a virtual world within the sandbox game of *Minecraft*. A sandbox game 'basically means open-world game … A game where players can roam freely as per their will' (Borkar, 2013). Gee (2003) articulates digital gaming literacy as complex and self-directed in nature, involving textual, multimodal, and contextual meaning-making on the part of the player. Students in this study will draw on all three of these literacy elements.

After having obtained the students' consent, I will explain to them the purpose of this unit and the nature of their involvement with it. Any students who do not have consent will still be invited to participate in *Minecraft* play, but data from their participation will not be collected or included in this study. I will begin my study by asking participants to answer a survey designed to elicit information on previous gaming experience. Next, I will ask participants to create a new game in *Minecraft*, assisting students who need help in doing this. After generating a new game, I will instruct students to begin playing *Minecraft*. I will assist students who are unfamiliar with the game, so that they become familiar with the textual features and tools available in the game – developing an awareness of the game's design, such as use of symbols used to represent materials in the toolbox (AC: English – ACELY1745). Participants will construct whatever they want by shaping their virtual landscapes. Two periods will be designated to becoming familiar with the game – those already familiar will begin playing/shaping their landscapes – and four periods will be designated to construction within the game.

I will ask students to store screen shots of their play. I will also use field and observation notes collected while students play *MInecraft* as data. Students will be given the choice of either working individually or collaboratively as a group of two to four students. Students will discuss design ideas as they build, and if working in a group, the creation of the landscape will be designed as a group effort, involving all participants. If a student has not been given permission to take part in the study, he or she will still be encouraged to take part in the activities. If any student chooses not to use *Minecraft*, he or she can choose to write creatively, in a style of their choice.

In order to observe identifiable literacy practices which emerge from using *Minecraft* in the secondary English classroom, students will be asked to reflect on the technologies they use in and outside of school contexts. I will brainstorm these technologies in a whole class discussion and write these so that they are visible on the board. I will ask students to consider using their *Minecraft* game play in some way in conjunction with the technologies they use outside of school. My aim here is to encourage students to create potentially new, multimodal presentations of text, reflecting new

literacy practices. Students can choose to complete these literacy artefacts individually or as a group.

Student work will not be formally assessed. Homework will not be set but students may choose to work on this at home if they wish. It is expected that students will partake in this study for ten, 47 minute periods, over a five week period. I will conduct unstructured interviews with students about their learning at any given time. These discussions will last for approximately 15 minutes in duration.

3.3.1 Participants

This study will involve a Year 7 English class in a co-educational government secondary school in Melbourne's outer eastern suburbs. The class consists of 26 students in total, with 12 boys and 14 girls. The class is timetabled for English studies nine periods over a three week cycle, with each period lasting 72 minutes. This project is expected to run over a two week period, consisting of an initial week of set-up, familiarisation activities and game play using *Minecraft* software, and one week of artefact design and creation. All students in the class will be invited to participate, regardless of gender, so that fairness and equality within the classroom is maintained and to leverage data for comparison between genders, where appropriate and applicable.

3.3.2 Data Collection

Consistent with a practical action research design, this study will draw a variety of data collection methods from Mill's (2011) categories of 'Experiencing', 'Enquiring', and 'Examining' (in Creswell, 2012, p.590). This will consist specifically of observation notes, semi-structured interviews, a survey, and learning artefacts. The survey will determine students' prior levels of experience with the game of *Minecraft* and other digital games. Observation will record students' dialogue pertaining to *Minecraft* gameplay and investigate how girls interact with *Minecraft* for literacy purposes. I will use student artefacts, such as artefacts created in the form of Instagram or Facebook posts, to investigate the kinds of multiliteracies that emerge from using *Minecraft* with girls.

The questions in the survey (see Appendix 1) are segmented into three distinct sections and are designed to elicit information from students regarding their digital gaming experience, their experience with *Minecraft*, and their ideas on how *Minecraft* might be used in an English classroom context. All students will be asked to complete this survey at the commencement of the study to gain an understanding of students' previous gaming experience.

Section 1 begins by asking students whether they play digital games and for how long. This information will be significant in terms of interpreting data. It will assist in drawing correlations between previous digital gaming experience and observed engagement with *Minecraft*. This section also aims to identify which games students prefer to play. The types of games students choose to

play at home and with their friends are of interest because the nature of games differs. I want to see whether students choose to engage in games that allow them to shape virtual worlds, such as *Minecraft*, or whether they prefer to engage in other types of gaming, such as action-hero type games like *Call of Duty*. Given the masculine associations evident in many action-hero games, I expect to see some girls in the class steer away from such games, preferring instead to engage with games that involve less overt aggression and violence. Student motivation for choosing particular games is also being sought and will assist in drawing parallels between motivations to play other digital games and *Minecraft*. The survey ends by me asking students to consider the types of written communications they have previously engaged in, in relation to digital gaming. This is designed to encourage student reflection on literacy practices associated with digital gaming and will allow me as researcher to explore traditional and 'didactic' literacy practices – formal literacy learning with adherence to conventions – such as detailed by Kalantzis and Cope (2012, p.63), in relation to those elicited from participants in my study.

Section 2 of the survey relates directly to *Minecraft* and has been designed to determine girls' previous experience with the game, as well as their motivations for playing. This section aims to identify the reasons why students have chosen to previously play *Minecraft*. In order to ascertain whether *Minecraft* can be used as a pedagogical tool to motivate girls' literacy practices, it is first essential to understand what motivates students to play the game. This study aims to document these motivations so that they may be taken into account in the findings. This is significant in terms of understanding why *Minecraft* might be used as an effective motivational tool in the English classroom.

Section 3 of the survey consists of two questions. The first is aimed at identifying female students' personal feelings on using *Minecraft* in English. Students' feelings on this may link to student motivations to play the game in class. Lastly, students are asked to consider how they might like to see *Minecraft* used in English. Students' thoughts on using *Minecraft* in English will be compared to its use in this study and may correlate in some way to student motivation. Student responses to this question may be used in this study's recommendations for future research and use of *Minecraft* as a pedagogical tool to motivate and enhance girls' future literacy practices. Students are active participants in this study and their voices are valued.

3.3.3 Analytical approach

Data in this study were analysed to discover whether *Minecraft* can be used as a pedagogical tool to motivate and enhance girls' literacy practices. I chose to analyse my data using Apperley and Beavis's (2013), 'Model for Critical Games Literacy', because it offers a framework in which to analyse both literacies associated with gaming actions and socio-cultural literacies outside the

game – linking to my sub-research question which is to determine what identifiable literacy practices emerge from using *Minecraft* (see Chapter 1). The authors of the model explain it has been designed 'for exploring digital literacies and games in the classroom context…providing a map for observing and analysing games and game play, and a template for curriculum planning and pedagogy concerned with critical games literacy, digital games and multimodal twenty-first-century literacies' (p.1). The model 'illustrates the connections between in-game actions and youth gaming culture' (Apperley & Beavis, 2013, p.1), thus fitting well with exploration of links between outside school digital literacy practices and more formal literacy practices in the secondary school setting. The model has two parts: the first examining 'Games as Action', and the second examining 'Games as Text.' These researchers explain that the two parts are 'permeable and overlapping' so that the model 'operates holistically' (Apperley & Beavis, 2013, p.2). The data in this study will be analysed to reflect these two parts of the model.

Apperley and Beavis (2013) have drawn on Gee's (2008) research into learning and literacy in the construction of their model, asserting that the interactivity between player and game makes gaming literacies different to other forms of digital media literacies. The Games as Action layer of the model allows Gee's (2005) 36 Learning Principles – learning principles associated with gaming literacy – to be explored in terms of design, actions and situations. I will analyse participants' digital game literacies in relation to Gee's (2005) 36 Learning Principles, using Apperley and Beavis's broader model of critical games literacy as the framework. The model's Games as Text layer allows for connections to be made between the socio-cultural aspects of gaming literacy which involve communications outside of the game itself. Apperley and Beavis (2013) have drawn on Gee's (Gee & Hayes, 2010) influence in asserting that 'the role of the games-as-text layer of the model is to situate digital games in wider contexts: the classroom, students' out-of-school experiences, even world events' (p.5). I aim to explore whether *Minecraft* can be used to bridge the divide between outside school literacy practices and formal learning, so the relationship between Gee's learning principles and Apperley and Beavis's model will succinctly frame my research findings.

The Model for Critical Games Literacy's 'Games as Action' framework, which constitutes half the model, 'addresses the experience of gameplay by examining the virtual worlds of digital games and the dynamic interplay between game and player' (Apperley & Beavis, 2013, p.2.). 'Games as Action' involves three main factors: action, design and situation. I will analyse data pertaining to literacy practices associated with action within the game of *Minecraft*, which involves participants engaging with *Minecraft's* software. Second, I will analyse data pertaining to literacy practices associated with visual design aspects within the game of *Minecraft,* which will involve students communicating about the aesthetic appeal of the game and choices they have made in shaping the digital terrain. Third, I

will analyse data reflecting situational context surrounding game play, including prior experience playing *Minecraft*, other digital games, and other applications outside of the school environment.

The model's 'Games as Text' theoretical framework 'examines the connection between the digital game and the life world of the player, where the game play is embedded, enacted and given meaning.' 'Games as Text' involves four main factors: world around the game, knowledge about the game, learning through games, and me as game player. This aspect of the model explores the wider situations around which the game is played and the environments in which games are played. This aspect of the model also encompasses the use of game-related social media. The importance of analysing the social dimensions surrounding game play is echoed by Buckingham and Burn (2007, p.328) who assert that 'any analysis of game literacy needs to take account of the social dimensions of gaming and not merely the textual or formal aspects of games per se.' The data collected as part of this study included students' use of Instagram to post screen shots and videos of their *Minecraft* game play to convey meaning to an authentic audience – Instagram users. This aspect of the data pertains to the use of social media around *Minecraft* game play and will be analysed under the 'Games as Text' element of the framework.

4. Background to data collection

I chose to conduct my study at my place of employment as English Domain Leader at a Victorian Secondary College. The school is situated in Melbourne's North East and is well regarded by the community as a high-achieving government school with a zoned area for admission. The school is large, with approximately 1500 students in total, three hundred of whom are in Year 7: the year level chosen to participate in this study. My 7J English class were the participants who took part in this study. The class consists of 26 students in total, with 14 girls and 12 boys, and all elected to participate in this study.

The school has a very strong focus on the use of Information Technology for learning and has adopted a policy where Microsoft One Note must be used as a platform to design units of work which are readily accessible by students and their teachers. This also ensures consistency of teaching resources across the school with the aim of students experiencing the same learning content regardless of individual teachers. Whilst advocating a strong IT focus, the school does not have iPads or other Apple devices, and blocks access to Instagram and Facebook to students while on the premises. It was clear from the data collected as part of this study that many students had access to Instagram and Facebook outside of school. The school was supportive of my call to introduce a *Minecraft* Club for Year 7 students in 2014, even allowing one of the IT technicians to create a secure school server for students to access and play on. I decided to create the club so that students could play the game at school for fun in their lunchtimes and to potentially make new friends in the process.

Melbourne University's ARCOTS reading comprehension test provides a snapshot of where participants' reading comprehension skills are located with reference to the Australian Curriculum: English. This online, multiple choice literacy test asks students to read particular passages then answer questions to determine whether they are able to utilise specific reading comprehension skills. With regards to the participants' literacy skills, there are 8 students whose ARCOTS results show they are capable of confidently inferring characters' motives from descriptions of actions within a text: a reading skill that maps onto the AC's Literacy strand at Year 7 Level (ACELY1722). Four of these students, of whom three are female, are also able, according to the claims of the test, to extend beyond this skill to infer the author's perspective from what has been written and implied in a text. A higher order literacy skill assessed in the test is the ability to link texts to relevant external knowledge and evaluate the relevance of information: a skill that maps to the AC's Literature strand at Year 8 level (ACELT1806). None of the students was able to demonstrate this skill in the ARCOTS testing, but some were able to do so in the data collected as part of this study.

The existing English curriculum at the school is firmly centred on units of work that are text-based, aiming to develop reading, writing and oral literacy skills. The units of work are loosely aligned with AusVELS and work is currently being done within the English faculty to more closely align skill development to the Australian Curriculum: English. The faculty has recently adopted a backwards by design approach to curriculum development, where gaps which emerged from curriculum auditing are being systematically addressed. The Year 7 students who participated in this study had just finished a unit on Tim Winton's novel *Blueback* previously and had written a text response essay as their summative assessment task; a very traditional unit of work with a conventional assessment task at the summation. It is also represents a typical English curriculum unit of work for teachers at this school.

In contrast to this traditional unit of work on *Blueback*, the *Minecraft* unit of work was an open-ended task, deviating in substantive ways from the traditional curriculum framework. Students initially seemed puzzled at being allowed to play *Minecraft* in class, evidenced by a number asking how it related to their English studies. This confusion was also evidenced in responses to the initial study survey. I explained that the purpose was to see whether *Minecraft* could be used to enhance literacy practice in the English classroom and to see whether they can use the game in conjunction with forums used in outside school literacy practices. Jenkins (2007) asserts that young people are creating, producing, writing, posting and blending digital games and media by 'taking their culture apart and remixing it … blurring the lines between media consumption and production' (p.9). Hoping to observe evidence of blended literacy practices in my data, the only direction I gave students was to ask them to consider how they might use their play in *Minecraft* to blend with other technologies or software that they are using in their outside school lives. Therefore, the *Minecraft* unit was not built around the development of literacy skills, but rather designed by me with the intention to observe which literacy skills emerge and how these might map onto the Australian Curriculum: English; a significant shift in teaching curriculum design practice.

With regards to the social dynamics of the class, the students' usual choice of seating arrangements indicates that there is a gender divide amongst friendships. Makenzee, Mia, Jemma and Sophie are the confident, popular, outspoken girls of the group who usually sit together in class. They often raise their hands to share their thoughts in class discussions and they were similarly enthusiastic in this study. Zoe and Areeya always sit apart from the other girls in the class, effectively isolating themselves together and rarely speaking to other members of the class. The remainder of the girls tend to sit together and mix socially with Makenzee, Mia, Jemma and Sophie. Of the boys, most are outspoken, popular, confident boys, especially Isaac, Rueben and Liam. I have had minor behavioural issues with all three of these boys, who at times, can be confrontational. Nathaniel and Matt are quiet, thoughtful and intelligent boys. Nathaniel was very enthusiastic during this study and

he was keen to show me what he had built. My overall impression of the class as their English teacher is that they were enthusiastic about participating in this study.

Of all the girls who participated in this study, three in particular stand out for the enthusiasm they displayed throughout the unit: Mia, Katie and Makenzee. Katie had played *Minecraft* before but neither Mia nor Makenzee had any previous experience with the game. All three girls are at the Year 7 standard for their reading, writing and speaking skills in English. All three girls have been observed reading for pleasure during Wide Reading sessions, with *The Fault in our Stars* by John Green being popular amongst them at this point in time. The title of this text was inspired by a quotation from Shakespeare's *Julius Caesar* and is a challenging text with an unpredictable plot in some respects. While Mia lacks confidence in her English ability, she is a bubbly student who is not shy in participating in class discussions. She also displayed the most enthusiasm of the three for using *Minecraft* in English class. Makenzee is popular and a bright, enthusiastic student in English. Katie is a quiet but popular student who, having had experience playing the game previously, naturally adopted a position of knowledge about the game in the initial stages of the study. All three girls feature prominently in the data collected as part of this study. Mia and Makenzee are friends and usually sit together in class, while Katie tends to sit with Laylah. No observable difference was noted in the class dynamics during the study: students were observed in the same friendship groups as previously established.

The study was conducted over a two week period in term 2, where four 72 minute periods in the first week enabled students who were unfamiliar with the game to play and become familiar with the functions and ways of building in the virtual world. No observable difference was noted in the class dynamics during the study: students were observed in the same friendship groups as previously established. The aim in this first week was to build a structure within the game – houses were the most popular structures built, with one boy choosing to build a roller coaster. The four 72 minute periods in the second week were designated to allowing students the opportunity to bridge this play with external forms of social media using digital technology or apps. There was no formal assessment of this short unit, and once completed, students reverted to their usual English curriculum.

4.1 Forms of data

A variety of different forms of data have been collected as part of this study. A survey was given to participants at the beginning of the study. In addition, there are three transcripts of verbal discussions that were originally recorded using video technology, where two female participants and one male participants of the study explained individually to me as teacher how they shaped their virtual landscapes in *Minecraft.* Other data sources include students' digital artefacts – multimodal in

presentation using Instagram and one using Facebook – and teacher observation notes. Since it was not practical to voice record every students' conversations and *Minecraft* play in English class, I was opportunistic in recording conversations that I could overhear. For this reason, Mia and Makenzee feature prominently in my data, since they often chose to sit at the front of the classroom near my desk. My positive rapport with both girls also enabled me to sit among them at times and to observe their play and interactions.

In order to study potentially new forms of digital literacy practices relating to gaming, I asked students to think of ways they can blend their *Minecraft* gaming with forms of digital media or apps used in the out of school context. As a result, five female participants chose to collaborate in creating digital artefacts in Instagram, posting videos of their *Minecraft* play, as well as screen shots. Mia and Makenzee asked me to video them individually as they explain their *Minecraft* play to me as their learning artefacts. One male participant chose to post twelve screen shots of his *Minecraft* play using Instagram, and a second male participant chose to post eighteen screen shots of his *Minecraft* play in an individual account also. These data are significant because in this way, the learning artefacts presented as student-led data: generated by the participants' ideas to blend their *Minecraft* game play with other familiar forms of digital/social media, namely Instagram, using images and written form. This echoes Kress's (2012) study findings where students 'transformed what had been presented to them via a range of modes – into a new sense, their sense, representing their interests in the world' (p.339).

	Data type	Sample number	Students involved
1	Initial survey	26	All
2	Instagram video clip posts	8	Janaya, Laylah, Katie
3	Instagram screen shot post	1	Janaya, Laylah, Katie
4	Instagram video clip posts	9	Shaylee, Naomi
5	Instagram screen shot posts	2	Shaylee, Naomi
6	Instagram screen shot posts	12	Trent

7	Transcript of Mackenzee explaining what she had built in *Minecraft* to me	1	Makenzee
8	Instagram screen shot posts	19	Nathaniel
9	Transcript of Mia explaining what she had built in *Minecraft* to me	1	Mia
10	Semi-structured interview with Mia	1	Mia
11	Transcript of conversation	1	Mia, Makenzee, Trent, Jemma
12	Teacher reflection – letter to Julie	1	Various
13	Facebook post	1	Seb

Table 1: Forms of data and student participants

5. Findings

5.1 Background to findings - survey

The rationale behind devising a survey for students at the commencement of my data collection can be found by referring to 'Data Collection Methods' (3.3.2). Consistent with the research design (3.3), students' prior experience with gaming and *Minecraft* is identified through use of a survey. From this survey's data, all students – fourteen girls and twelve boys – acknowledged that they play digital games and all of them admitted that they enjoy playing digital games, indicating that gaming appeals to both genders. This finding is in line with Steinkuehler (2010) who asserts that digital games have become an integral part of young people's culture. My survey data indicated a distinction between the genders in the amount of time each choose to play digital games, with girls choosing to play games for less time than their male counterparts. This supports Jenson & De Castell's (2010) research that girls are more likely to be casual gamers. Survey data also finds both genders had played *Minecraft* prior to this study, indicating its popularity as a game of choice. All of the girls surveyed believe that *Minecraft* would have either the same or more motivation to learn English, providing support for the game's use to enhance digital literacy practices in an educational context. More details on survey data findings can be found in the following, in order to reinforce findings.

5.2 Transformative design and digital literacy

Transcripts of girls' conversations as they were playing *Minecraft* captured evidence which illustrates their awareness of the design principles associated with playing *Minecraft*. According to Gee (2005), understanding and appreciating the design principles associated with a digital game is integral to learning, and this understanding of design ties in with Apperley and Beavis's (2013) 'Knowledge about the Game' aspect of the model. Apperley and Beavis (2013) also emphasise the importance of understanding design, explaining that 'players' actions are often informed by how well they observe and understand the actions that the software undertakes as their opponent' (p.3) – and this understanding informs how a player can interact with software through a character's actions in relation to design. In this study, female participants' awareness of design principles is evidenced by; demonstrating competency in navigating the *Minecraft* software to shape their virtual landscapes (Mia and Makenzee); describing how they shaped their virtual landscapes with use of the toolbox and choice of items and resources (Mia, Katie, Makenzee); writing paratext on virtual signs within the game of *Minecraft* as part of their design (Mia); and using paratext and online language conventions in multimedia posts on *Minecraft* (Janaya and Katie).

Enthusiasm for game design and an awareness of *Minecraft's* software limitations was observed. As students were playing *Minecraft*, I intentionally chose to record conversations with Mia in particular – both conversations between Mia and her friends, often Makenzee, and between Mia and me because my transcript data record her enthusiasm for playing *Minecraft;* previously not evident in more traditional English activities. My observations captured how Mia changed from having no experience of playing *Minecraft* at all, to playing the game competently and with conviction. Mia often vocalised her gaming actions, and in doing so, demonstrated her understanding of *Minecraft's* software possibilities and limitations. For example, Mia verbalises her character's predicament using the personal pronoun 'I' – demonstrating the personal nature of game play – with expressions such as, 'I'm boxed in', 'I just fell in a hole' and 'I'm making my house really, really, really big, like a mansion.' Mia moved her game's character to a corner position by pressing the up arrow, resulting in the expression of being 'boxed in.' Mia's expression of building a house like a mansion is evidence of her skill at choosing building items from the toolbox and then manoeuvring her character in the game, to place the chosen material in particular positions. The ability to use various tools and materials from the tool box to build something in the virtual space is an integral design feature of the game.

Seven girls demonstrated an understanding of how to use *Minecraft* tools to create design. This was evidenced in their competency in navigating the *Minecraft* software to shape their virtual landscapes with awareness of semiotic learning principles. Evidence of developing semiotic learning skills (Gee, 2005) is evident in Mia's building choices, and other girls (for example Makenzee and Katie) as they read the game, understanding the actions needed to manipulate and interact with the software (Apperley & Walsh, 2012); including use of the toolbox. Gee (2005) identifies semiotic learning principles in gaming as involving awareness of the interplay between various design elements, such as icons, images, symbols. These skills enhance literacy learning for students, since reading a digital game in this way is not usually evident in traditional English teaching. Specific evidence involved Mia explaining to me, 'Well, I've used these glass blocks, obviously to make the windows and like, these bricks, cream bricks.' Here, she is verbally referring to her choice of blocks and the visual representation of these blocks on the screen. Later, a second girl (Makenzee) explains, 'I'm going to fly up. I'm in the village.' Here, she presses the centre button twice to signal flying, then uses the arrows to navigate her avatar through the virtual air space to view her structure from an aerial view.

The girls' awareness of design features is demonstrated through conversations associated with using the toolbox in *Minecraft.* Gee (2005) considers understanding 'design' as one of the fundamental learning principles associated with digital gaming, defining it as, 'Learning about and coming to appreciate design and design principles is core to the learning experience' (p.49). My

transcript data captured girls describing what, how and why they shaped their virtual landscapes with use of the toolbox and choice of items and resources. The choice of these items within the game also reflects Gee's (2005) multimodal learning principle where players combine various physical elements in the game to create meaning – houses with familiar items that were appealing for the girls. Evidence includes one girl's (Makenzee) comments to her friend (Mia):

> This is my house. It's exactly perfect,' meaning she is satisfied with what she has built. Other explanations provided by girls orally on their choice of items included, 'I've just put a path and trees and flowers … I've got a bookshelf and a little couch and carpet … I've got a barn with pigs, chickens, cows, sheep and horses … I've got a bed and a rug and a chest … a fence and some lights and little flower pots.

As girls transformed their virtual *Minecraft* world through design and use of items from the toolbox, they articulated their choice of visual elements within the game – such as the bed and rug and chest - all familiar items associated with the real world context; even selecting a painting from the toolbox to represent a television, since the toolbox did not have a television. Reflecting Kress's (2012) assertions on transformation and design, the girls 'transformed what had been presented to them [in the game] … into a new sense, their sense, representing their interests in their world' (p.339). Mia continues to articulate the visual appeal of items, including, 'I think it's just how they look and stuff,' 'I've put some pipes and stuff just to make it look cool. It's for decoration', 'it 'looks cool' and 'it looks better.' It is clear that *Minecraft* stimulates dialogue between girls over design features in the game – dialogue that diverges markedly from typical English class dialogue around literature and media texts.

Aside from transcript data which captures girls' dialogue around gaming – as discussed above – my survey data indicate that both genders also speak about digital gaming in their outside communicative practices. The reasons for talking differed between genders, with girls in this study more interested in gaming scores than boys – suggesting girls' gaming competitiveness. The majority of girls, eleven in total, admitted to speaking about their digital game play. Similarly, ten out of the twelve boys also admitted to talking about their digital game playing. Yet whilst many of the girls speak about their scores in a game, the boys do not.

Five girls collaborated within their existing friendship groups to post their *Minecraft* play in Instagram accounts that had to be made voluntarily outside of school; although the girls filmed each other playing *Minecraft*, and took photos to post, during class time. Three girls (Janaya, Laylah and Katie) formed a joint Instagram account titled 'Minecraft_7J' and the other two (Shaylee and Naomi) formed another titled 'Minecraftyear7.' The girls' Instagram posts show evidence of uncommon experimentation within normal English classes with text structures and language features, and their

effects, in designing multimodal digital texts. The girls tried to access Instagram at school to launch their accounts but the school's network filters blocked access, forcing them to construct the posts at home. The students were not allowed to access Instagram at school due to concerns over potential inappropriate accessing of content. Voluntarily, these girls used paratext and online language conventions in posting their multimedia content based on their *Minecraft* play outside of school – evidence of combining forms of *Minecraft* digital gaming with Instagram in a way not normally prompted during traditional English class.

One boy worked individually (Nathaniel) to post on Instagram. The designs were varied, and included a maze, pool of virtual water, and roller coaster. Out of the 18 *Minecraft* screen shots posted by Nathaniel, 7 of them included paratext on virtual signs. The Maze he designed, for example, began with a sign above the door, reading 'Maze.' His blocks of water, placed to resemble a pool, included a wall sign, which read 'Swimming Pool.' Similarly, his roller coaster design included a sign reading 'The Giant Drop.' Drawing on Kress (2012) yet again, it is clear that this student chose to create signs using paratext as their mode of written communication within the game. Using the availability of signage within the game in this way is evidence of the student creating text as part of their gaming design.

A second male student (Sebastian) created a Facebook page devoted to his *Minecraft* play. This design involved the selection of a *Minecraft* image to represent the creator of the Facebook page, the selection of a *Minecraft* banner – a longer image which covers the entire top section of the page – and paratext as heading, reading 'Sebastians's *Minecraft*.' While simplistic, the student has still consciously engaged in the selection of multimodal elements to present in digital form.

Kalantzis and Cope (2012) discuss mode shifting and blending between modes, such as seen here, asserting their ever increasing commonality in everyday life, particularly in 'today's media environment' which is 'full of these kinds of hybrid, crossover forms' (p.314). In addition to using videos and screen shots of their *Minecraft* play, girls also use emoticons in conjunction with text posted with the video clips and photos for additional meaning. In one Minecraft_7J post titled 'Pig Babies,' the girls use emoticons to reinforce learning: three pig emoticons are visible to reiterate the topic of the post - baby pigs – and a blushing face emoticon is used after writing 'pig babies' to display an emotion of contentment. In the same comment trail, another female student (Katie) writes 'is a great life @adamown,' referring to the pigs having a 'great' life. The '@' symbol is also frequently used to show who the writers' responses are targeted towards: the recipient's Instagram account name is placed after the '@' symbol and then it is clear to Instagram users for whom the comment is meant. The girls' evident comfort with using Instagram, and its conventions, including emoticons, indicate that these are literacy practices used in an out-of-school context; and through this study, these five girls have been able to apply their conventions in the formal learning context.

Along with *Minecraft* videos, screen shots and emoticons used in Instagram posts, these five girls (Janaya, Laylah, Katie, Shaylee and Naomi) also constructed associated written text in the form of comment trails underneath each post – presenting a hybrid *Minecraft* text: a complex multimodal, digital text that is not commonly constructed in conventional English learning. Participants in this study wrote their own paratext in *Minecraft* (noted earlier in analysis), in the form on signage within the game, and by writing headings above their Instagram posts. In one example, students labelled a post, 'Katie's house tour,' to illustrate the point that in this video, Katie is showing Instagram viewers her *Minecraft* house. In constructing a label that is appropriate for the other content in a post, students have understood that coherence is needed in complex texts and relies on devices, such as labelled headings, to guide readers.

In creating their Instagram posts, two girls in particular (Janaya and Katie) also use abbreviations and unconventional punctuation marks for additional meaning making, reflective of 21st century, digital literacy practices, not accepted as part of traditional English teaching. These practices, clearly attained in an out-of-school context, can be seen as consolidating girls' contemporary, digital literacy practices. Gee (2005, p.24) asserts that 'words, symbols, images, and artefacts have meanings that are specific to particular semiotic domains and particular situations (contexts),' and these must be understood in order to be considered literate in a given semiotic domain. Bartlett (2005), too, positions symbols and images as being cultural artefacts. More precisely, the letters 'thxs' are used in place of 'thanks' (Janaya), 'defs' for 'definitely' (Janaya) and 'soz' for 'sorry' (Janaya). Combinations of punctuation marks are also used to present meaning, such as use of a colon and zero to signify a face with its mouth open in surprise (Janaya). The letters 'Hehehehe' and 'HAHAHA' are also used to symbolise laughter (Katie).

The use of Instagram as a means to share *Minecraft* game play acts as a powerful literacy stimulus where students voluntarily select visual and written material, including emoticons, to convey meaning. The World around the Game element of Apperley and Beavis's (2013) model includes use of paratext within the game and associated with the game, including text associated with Instagram posts. Being literate in the 'World around the Game', in using Instagram for instance, requires a 'competency in using that language…a competency that can, perhaps, be explicitly taught, and that can be transferred across to other media or forms of communication' (Buckingham & Burn, 2007, p.325). As part of my data collection, students were able to draw on knowledge of Instagram, from their outside school –'World around the Game' – communicative practices, to create posts about their *Minecraft* play.

After Mia had constructed her house in *Minecraft*, she asked to show it to me. I asked if I could video this, to include as data and she didn't mind. In Mia's explanation to me, it was evident that she had developed observable competence in manipulating aspects of *Minecraft's* design features, demonstrating the incremental learning principle (Gee, 2005), which is where the player learns to navigate and read the game by trial, error and hypothesising. More specifically, she explained her knowledge about the relationship between light and monsters in the game, hypothesising that the light keeps the monsters away. This supports Gee's (2005) assertions that gamers propose hypotheses as a means of constructing meaning, testing the hypothesis over time, then reassessing the hypotheses' accuracy. Mia explained that she chose special light blocks to give a brighter appearance in the room over other blocks because,

> They're like special lights, like crystals, and they just light up the room … Well, all of the monsters and stuff are drawn to the torches and that. If it's dark, all the creatures come in so you've got to put in a lot of light.

Here, Mia is demonstrating an ability to articulate her choice of blocks, having read the game sufficiently to propose that light is a valuable commodity within the game, acting as a deterrent to monsters.

Four girls in the study discussed space and time elements within the game of *Minecraft*, demonstrating their knowledge of both space and time in the context of *Minecraft*; reflecting the 'Knowledge about the Game' aspect of Apperley and Beavis's (2013) model. One Instagram post titled ''How you can change the time' (Shaylee and Naomi) is evidence of the girls' knowledge about changing time in the game and demonstrates their skill in completing the action required in the game to change the time, reflecting Gee's (2005) active learning principle. In the game, space is constructed in cube format and all physical elements in the space are consistent with this cubed dimension. Female participants were observed discussing the size of the virtual spaces in the game as they played, with comments such as, 'Look how small this is … is this house too big?' (Mia). Three girls (Mia, Makenzee and Katie) selected language which included, 'small,' 'big,' and 'massive,' and 'high' to describe the physical dimensions of spaces within which they were playing in the game. Reference is also made to the sense of visibility within the game, with comments made including, 'Ooh, it's dark' (Makenzee). Girls demonstrate their ability to switch from night to day with ease, using digital code. One girl is observed saying, 'hang on, it's night time …I'm just setting it to day time' (Mia) and 'I just change it back to day when it goes to night so I can see' (Makenzee).

Female participants demonstrated an awareness of the design principles associated with playing *Minecraft* and were observed speaking about the aesthetic and visual elements of the game in gender-specific language ways. Four girls (Katie, Laylah, Mia and Makenzee) all demonstrated

competency in navigating the *Minecraft* software to shape their virtual landscapes with awareness of semiotic learning principles, and they described how they shaped their virtual landscapes with use of the toolbox and choice of items and resources – often for visual appeal. The girls' developing competency with design features in the game, and their use of appropriate language, helped establish them amongst their classroom affinity group – a finding also evidenced in research by Dezuanni et al. (2015). External to the game, girls clearly experimented with text structures and language features and their effects through their Instagram design. As a teacher researcher, drawing on a practical action research model, understanding how girls can use *Minecraft* and Instagram's design features for digital literacies will assist me in creating future learning tasks for my students in my own practice.

5.3 Motivation to learn with *Minecraft*

Student motivation is a critical factor in providing optimal learning environments where students are keen to engage in literacy practice; and it is apparent that digital games increase student engagement in formal learning (Beavis, 2001; Brom, et al., 2011; Eow, et al., 2010; Jolley, 2008). In my research, five girls made evident personal connections with *Minecraft* which prompted motivation to learn, as evidenced by; expressing connections between themselves as gamers and their characters; discussing their character's actions during the game; planning how they will shape their virtual landscapes; persisting in play despite Trent, a male's attempts to position them as novices (Mia and Makenzee); and further, through expressions of wonder (Shaylee and Naomi). Flum and Kaplan's (2006) research links personal connection with learning content, linked again to their learner identities, producing more engaged, active learners. The practical action research model, which underpins this research, allows me to see how using gaming in English class can utilise this aspect of popular culture, so that it is reflected in the formal learning context to increase girls' motivation to engage in meaning making through gaming in English classes.

Despite gaming being historically perceived as more appealing to boys more than girls (Hayes, 2005; Sveningsson, 2012), all the girls in this study admitted to playing games to varying degrees, indicating that gaming appeals to both genders. More specifically, four girls (Antoinette, Areeya, Janaya and Sophie) identified as spending less than one hour playing digital games per week, seven played between one to three hours per week, and three (Shaylee, Naomi and Paige) as playing between three and six hours per week. None of the girls indicated that they play more than 7 hours per week, unlike two of the boys (Trent and Blake). In comparison with the girls, 50% of the boys identified as playing digital games over three hours per week, with the other 50% playing one to three hours per week. None of the boys chose the least option of less than one hour per week, as was the most popular choice for the girls. While gaming is evidently an important part of popular

culture, girls choosing to play games for less time than the boys supports Jenson & de Castell's (2010) research that girls are more likely to be casual gamers.

From the survey data, half of the girls identified *Minecraft's* purpose as involving fun and creativity. Half of the girls surveyed admitted enjoying *Minecraft* – evidence that girls find *Minecraft* appealing and five of the girls explained that they like playing the game because of its creative element, with one girl responding 'it keeps me thinking' (Daniella), and because 'it's different' (Katie). In contrast, the majority of boys, nine out of twelve, admitted enjoying *Minecraft*. The reasons the boys gave for enjoying the game all revolved around it being 'fun,' with one writing 'because you can create stuff.' Of the girls who play *Minecraft,* three identified the purpose as being to 'build' things, with one writing 'there is no purpose' (Katie). Similarly, four of the boys identified a creative purpose to the game, three wrote to have fun, one that 'there's no purpose,' and four did not know the purpose of the game. Not being able to articulate the game's purpose did not prevent students from playing the game in their outside school gaming practices.

The survey data also showed overwhelmingly positive feelings from the girls (Mia, Katie and Naomi in particular) towards using *Minecraf*t in English, indicating that the game can be used as a motivational factor. Six of the girls expressed feeling 'excited' in their responses and a further three wrote it would be 'fun.' 'Enthusiastic' was another key words used to describe very positive attitudes towards the game. In addition, one girls wrote she feels 'fine' about it, and both Daniella and Laylah wrote 'okay.' Only two girls expressed less than positive feelings, writing 'I'm not sure' (Shaylee) and 'confused with how this has anything to do with English' (Makenzee) – suggesting she did not see how using *Minecraft* in English as part of this study could be educational.

All of the girls believed that by using *Minecraft* in English, they would have either the same or more motivation to learn English. Eight of the girls actually wrote they believed they would have more motivation to learn by using *Minecraft* in English because it would be 'fun' (Naomi), because 'we're not doing real work and *Minecraft's* better' (Katie), and because 'if they bring it [*Minecraft*] into school that's exciting' (Paige). The key motivations alluded to here are that it is fun and it is not real school work. The girls' references to gaming fun and not doing 'real' work reflect the 'Quest to Learn' (Q2L) teaching philosophy which focuses on the 'play' aspect of game-based learning, where engaging in game design supports learning. Similarly, Q2L student Mete Metioglu states on The Institute of Play website, 'You're actually having fun and you realise it, and then you realise that you're learning while you're doing it' (http://www.instituteofplay.org/about/).

The transcript data captured as participants play *Minecraft* show gaming in English class – bringing familiar outside school gaming practices into the formal learning context – prompts girls to form connections with *Minecraft*. Consistent with my research design, as outlined in 3.3, I began by

allowing students time to play *Minecraft* and to become familiar with its features and functions, even though according to my survey data, the majority of girls had played *Minecraft* prior to the study, indicating that it is a popular game of choice in outside school gaming practices.

More specifically, nine of the girls had played *Minecraft* prior to using it in class for this study, including Katie and Laylah. Makenzee, Mia, Janaya, Zoe and Shaylee had never played it before. Five girls had played *Minecraft* more than 20 times and this included Naomi, Paige, Katie, Laylah and Daniella. The other four had had minimal exposure to the game – all fewer than ten times – with three of them indicating that they do not enjoy playing *Minecraft.* Of all the girls who have experience in some way playing *Minecraft* before, only Katie identifies herself as being an 'expert *Minecraft* gamer.' In comparison, all of the boys had played *Minecraft* prior to the study, and only one had played it fewer than five times. This would suggest that *Minecraft,* whilst popular with both genders, is typically more popular with boys. Mia and Makenzee had never played *Minecraft* before, yet they feature prominently in the data as enthusiastic players. This suggests that, even when no prior experience with *Minecraft* has been encountered by girls, it can still be used as a motivational tool in the secondary English classroom.

It became apparent early on, that despite friends Mia and Makenzee having never played *Minecraft* before, along with Naomi, Katie and Shaylee who had, the girls personally engaged with the game. Consistent with Faircloth's (2012) research, defining 'genuine interest in learning as actually an identification of the self with a concept or object, an identification that leads to self-initiated exploration of that concept or object' (p.186), these five girls refer to their characters' actions as their own, linking the character to themselves.

Use of first person pronouns suggest that the avatars and the girls who create them are one. Specific comments include: 'I'm going to jump in the water' (Shaylee), 'They're [pigs] all staring at me' (Katie), 'It's going to kill me' (Naomi), 'I'm going to fly up' (Makenzee) and 'They're her pet rats' (Laylah). Thus, active interactions within the game have an influence on the players' characters, often drawing emotional responses and personal connections – which are reflective of the 'Me as Game Player' dimension of the Apperley and Beavis (2013) model.

Survey data revealed that girls speak about their gaming in outside school communicative practices, and by using *Minecraft* in class, girls were able to engage in gaming dialogue – within their existing friendship groups – bridging some of the divide between both contexts. In the four lessons students played *Minecraft*, transcript data shows the game stimulated discussions between two girls (Mia and Makenzee) who had never previously played *Minecraft*, together with two girls who had (Shaylee and Naomi), suggesting evidence of metacognitive skills and motivation. Gee (2005) refers to learning involving metacognition as metalevel thinking about semiotic domains where players are

able to communicate in a critical way about their gaming action, and more broadly, across multiple semiotic domains, and these four girls articulated gaming interactions into speech, or forms of metacognition. Consistent with speech characteristics observed by Kalantzis and Cope (2012) the girls were observed speaking in 'the here and now' (p.309). In the transcripts, Shaylee and Naomi converse about the presence of a zombie, prompting them to flee for fear of being killed. Strategic and collaborative planning is reflected as they discuss the best course of action under the circumstances.

Even though close friends Mia and Makenzee had never previously played *Minecraft* before, together with Jemma, Laylah and Naomi who had, the girls' motivation to play proved evident in their customisation of their virtual landscapes; allowing them to actively construct the context of their play. Consistent with my research design as outlined in 3.3, I encouraged students to construct whatever they liked by shaping their virtual landscapes. These five girls all demonstrated an ability to plan how they would proceed in building their structures creatively in *Minecraft,* customising their virtual spaces.

Comments within friendship groups included: 'And then over here, I've got a couch and I'm going to build an upstairs and I'm going to put a pool up there … I've used these glass blocks obviously to make the windows' (Mia), 'So this is my house I originally started building' (Makenzee), 'I'm having a pool in here' (Katie), 'This is going to be my big village house' (Laylah) and 'There's my little house' (Naomi). One student (Jemma) remarks, 'I'm not making my house out of wool again because last time it caught fire.' In the game, wool is flammable and can burn if struck by lightning or is near a hot object, such as lava. It is possible to put the fire out with water in the game or by hitting it with an avatar's hand. While the transcript data did not capture how the student learnt this, this reference by Jemma shows that she has experienced wool burning in previous play, or has learnt this from another player, since there are no prompts within the game to teach players this – it is trial and error. Nevertheless, it is clear that Jemma learnt that wool is flammable, and consciously decided not to use wool again to build a home. Jemma's evident learning about wool's flammability within the game reflects Gee's (2005) incremental learning principle – discussed further in 'Transformative design and digital literacy' (5.2) – where players alter their actions within a game to reflect prior learning. 'The ability of players to shape their landscapes in *Minecraft* – and in these instances the shaping of the girls' houses – contributes to their engagement in playing the game in class.

Katie's previous *Minecraft* gaming experience acts as a motivator for her to engage with the game in class, thus allowing her to consolidate her skills gained outside of school in this formal learning context. Katie is the only female participant to identify herself in the survey data as a *Minecraft* expert who has played the game more than 20 times. She makes direct reference in oral communication to her friend, Laylah, about playing *Minecraft* with a young family member outside of

school. Katie makes the comment in the context of discussing virtual zombies, saying ‘my cousin showed me and she’s six!’ When responding to question question 32 in the survey data, which asks ‘How do you feel about using *Minecraft* in English?’ Katie responds ‘excited’ and indicates this would make her more motivated to learn.

Consistent with my research design (3.3), I gave students the choice of either working individually or collaboratively, and Katie chose to work collaboratively with Laylah and Janaya by videoing each other playing *Minecraf*t and then posting these on a collective Instagram page. Instagram is a social-networking program that allows users to publish written posts, add photos, and comment on other users’ posts. Katie’s familiarity with *Minecraft* proved a motivation to post five videos of play in Instagram, showing how to make virtual pigs have babies (by feeding them carrots), introducing her pet rats, her ‘cake room’ and underground lounge room. Katie was able to replicate her use of Instagram in class by posting about her *Minecraft* play; collaboratively with her friends.

As initially novice *Minecraft* gamers with confident personalities, two girls (Mia and Makenzee) continue playing the game, even when one of the male students (Trent) attempts to assert himself as an expert gamer, positioning his skill levels as higher than theirs. Returning to gender research, Schott and Horrell (2000, p.44) indicate that girls are aware of gaming as being a male realm, believing ‘gaming is strongly biased in favour of males.’ The same research ‘exemplified the pseudo-communication found between girl gamers and male counterparts, as well as actions that subvert female progress and maintain male status as the “expert” (p.48). Transcript conversations between popular girls Mia and Makenzee, and Trent, capture Trent asking the girls four separate rhetorical questions. The girls were seated incidentally near often isolated Trent in this instance. The first, ‘do you know what the rarest ore is?’ is ignored by the girls and he does not provide the answer. In the second, he asks ‘do you even know how to set the time?’ inferring that it is unlikely, yet Makenzee answers in the affirmative. Then he asks, ‘do you know what the compass is for?’ and when Makenzee answers ‘No,’ he again does not provide the answer. He does not offer an explanation to further her understanding of the game, simply saying ‘okay.’ In the last, he asks, ‘Hey, did you know spiders can see through walls?’ Again, Trent does not provide the answers to his questions. In these instances where girls’ lack of knowledge about the game is highlighted by a male player, the girls’ confidence to play did not diminish, as suggested in their continued engagement, and enriched learning, with the game.

Using *Minecraft* in class allows students with prior experience the opportunity of showcasing their skills and knowledge in the formal school environment. Otherwise socially awkward student Trent appears to engage in more conversation than usual in class, and uncharacteristically, with popular and assertive girls Mia and Makenzee. He offers suggestions and asks questions, seemingly to ascertain their level of understanding. He is observed making comments such as, ‘the over world is

better to play in', prompting the Makenzee to ask 'What's that?' He then comments that he will have to show her, although he does not proceed to do so. He has highlighted her inadequacy in not knowing what the 'over world' is, but then fails to proceed in telling her. In another instance, Trent overhears Mia explaining to Makenzee what 'weather clear' means. Without being invited into the conversation, he asserts, 'to get rid of the rain, you could always toggle weather.' In this instance, toggle refers to turning the rain on or off by using commands in the chat box: the chat box is a bar at the bottom of the screen that enables players to type into it to talk with other players online in a form of live chat or to execute commands. To toggle the weather, you would type in '/toggledownfall' and this will switch the weather to rain if it is clear, or to clear if it is raining (but it snows if you are in a snowy landscape). Again, Trent is not observed demonstrating this action to the girls. This suggests his remarks have been chosen to position him as a more competent player than the girls. According to Jenson & de Castell (2010), male players' perception of gaming competency and gaming identity is important to male gamers and this student's utterances might appear to reflect dimensions of such an identity. Schott and Horrell's (2000, p.41) also, assert that there is a 'common perception [amongst gamers] … that males are "the experts" when it comes to knowing what is required and how it is achieved' in gaming.'

However, Mia and Makenzee's growing confidence playing *Minecraft* gives rise to articulation of motivation to play, as agency – taking control – and enhances their learning in the formal classroom context. Makenzee comments, 'I want to be a fast *Minecraft* builder' and Mia expresses a desire to build a 'weird' room, saying, 'I'm going to make this the weirdest room ever. I'm just going all out.' I asked whether the house she is building is one she would want to live in, and she replied in the affirmative, saying, 'yep, probably. Definitely!' Makenzee explains that she felt the game was nerdy before she'd played it –linking to gender research by Robertson (2012) – but after she began playing it, she said 'it's really fun.' Experienced *Minecraft* gamer Katie is observed singing 'It's raining men' – an allusion to a song of the same title. The girls' enjoyment echoes Gee's (2003) belief that developing digital game literacies is a complex process, yet for some game players, the challenge associated with gaming learning principles is rewarding. In this case, enjoyment is achieved through agency in *Minecraft*; given Makenzee and Mia were experiencing the game for the first time.

Girls in this study used typical teenage expressions of surprise, such as 'oh my god,' to demonstrate their enthusiasm while playing *Minecraft.* One video post in Instagram is titled, 'OMG we found this underground part 1', which shows the (Shaylee and Naomi's) excitement at the action taking place within the game, where a zombie's house and lava are found underground. In this title, the girls have used narrative conventions, flagging the post as 'part 1,' indicating a conventional series of related communications. These posts diverge dramatically from conventional inside school literacy

practices which focus on print text. In one video post by these girls, Instagram viewers hear Shaylee say, ‘Oh my god. Lava. Oh my god look! See? It’s a zombie’s house. I didn’t make that!’ Again, the girls have used language choices to express their surprise and level of emotion at finding a zombie’s house within the game. I have never heard the expression, ‘Oh my god’ used by male students, suggesting this is a gendered expression which is repeated by the girls in my data. The video ends with, ‘Look what the zombie has built. Oh my god. It’s oh my god!’ Linguistically, this is using a phrase as a noun phrase which is inventive and an identity/gender marker. This data support research by Dezuanni et al. (2015) who found that girls ‘repeat and vary *Minecraft* norms through spoken language, digital creation and curation,’ in order to gain acceptance (p.153). Shaylee and Naomi’s choice of language reflects Year 7 dialect, identifying participants as students, and captures their enthusiasm to use *Minecraft* in English classes.

5.3.1 Girls and gaming identity

Girls’ identities and the personal connections they make with the game are a motivating factor in playing *Minecraf*t. Research (Bergin, 1999; Brophy, 2008; Faircloth, 2012) shows links between identity and motivation, highlighting that when an experience or subject resonates with a person’s identity, individuals are more likely to be engaged and motivated (Bergin, 1999). The transcript data of conversations between friends as they play the game captured three girls forging connections between their personal identities and *Minecraft.* This correlation between students’ personal selves and gaming in the secondary English classroom diverges from conventional English learning, which does not involve digital gaming. Girls’ personal connections through gaming with *Minecraft* in class is evidenced when they choose everyday items to furnish their homes (Mia and Makenzee), use gender congruent language (Mia and Makenzee), and frame themselves as *Minecraft* gamers (Katie, Mia and Makenzee).

In addition, one girl (Mia) wrote paratext – subsidiary text used within a game – to write on virtual signs within the game of *Minecraft* as part of her design, reflecting Gee’s (2005) multimodal learning principle. As researchers such as Steinkuehler (2010), and Apperley and Walsh (2012), point out, students who read and comprehend the complexities of paratext in gaming are using cognitively sophisticated literacy skills that exceed those tested for in traditional testing. Apperley and Walsh (2012, p.115) define paratext associated with digital gaming, as the ‘ancillary print and multimodal texts about digital games,’ and consider it an emerging form of literacy linked to digital gaming; which can include participating in chat rooms, discussion boards, and online communities (Alvermann, 2011). Mia chose to write, ‘Door Here’ on one of the signs in her house in the game, explaining to me that it helped her to remember where she’d put the door in the structure she had built, since it appeared camouflaged. She reflected on the visual representation of this labelling, interpreting it as, ‘like another entrance.’

While playing *Minecraft*, girls made some language choices ('pretty' and 'cute', for instance) which are reflective of typically female orientation to the way design is valued. Channelling this feminine orientation, Black, et al. (2013, p.275) highlight how Matel designed *Barbie Girls* 'with stereotypically feminine colours and a well-manicured, urban aesthetic' to appeal directly to female gamers. Towards the end of my data collection, and realising that a large amount of transcript data involved Mia, I asked her to explain what she had built in *Minecraft* while I video recorded our conversation. In this transcript, Mia made five references to female orientation. She explained she chose flowers to put outside her home because they, 'just looked pretty,' that she chose to put pigs and other animals in her barn because, 'they're cute,' and that she enjoys watching the virtual sunset in the game because, 'it's really pretty.'

In a broader sense, eleven references to 'pretty' or 'cute' visual features in the game were made between female participants captured in my data. Dialogue of this nature included; 'Oh that's so pretty', referring to a house being made in the sky; 'Ah, that looks pretty', referring to the sunset as the time changed within the game; and 'look how pretty this is.' While the definition of what constitutes 'pretty' has not been explored, it is clear that the aesthetic appeal of the visual features are significant to the two girls in this study. This is also evidenced in Mia's articulation that colour is an appealing factor to the girls, explaining 'I always use red, orange, yellow, green, purple and pink' out of a full palette of coloured blocks which are available. This data suggests that typically female-orientated language is used within girls' communicative practices while articulating visual design choices in *Minecraft* gaming. Girls also reflected speech consistent with their affinity group (Gee, 2005, p.192) in an Instagram post titled 'How u can change the time sometimes it doesn't work but yeah.' The video opens with one female participant (Naomi) saying, 'Now look at the screen. Set the time to 2400. You're going to be in the dark soon.' This finding supports research by Dezuanni et al. (2015) which suggests girls communicate their *Minecraft* knowledge and skills 'to be socially recognisable' (p.149).

Transcript data of conversations between participants captured three girls (Mia, Makenzee and Katie) demonstrating a socially gendered affinity with building aspects of the game. Mia advises a male student (Karan): 'You need furniture or something. You need a bed. Two singles put together.' Beds are available to access via the toolbox in the game. In this instance, Mia feels Karan's house is sparse and in need of furniture. Another female student (Katie) is observed remarking on the visual elements in the game, asserting, 'too much grass in the world is boring.' Here, she is complaining that the use of too many glass blocks is not visually appealing and is plain. Cassell and Jenkins (1998, p.57) argue that, 'when computer games involve familiar settings with goals related to real-world tasks, girls do become interested in them.' These three girls have accessed the tool box to utilise these resources in the design aspect of their play and their assertions about the need

for furniture and suggest a socially gendered affinity. Girls used every day content, including bookshelves, beds and flower pots explaining why they chose particular items from the toolbox for visual appeal to include in their design. This practice of choosing everyday items further supports Kafai's (1996) assertion that girls find games relating to everyday settings in their design appealing and engaging, possibly due to a level of familiarity they provide.

Girls demonstrated self-awareness principles as a result of interactions with *Minecraft* software which enhanced their learning experience in the formal school context, since gaming is not normally used to develop self-awareness principles in traditional teaching of secondary English. The transcripts of conversations captured students using oral literacy skills to verbalise self-perceptions of identifying themselves as novice or expert gamers. This correlates to the 'Me' as Game Player' aspect of Apperley and Beavis's (2013) model which involves students reflecting on themselves as players of the game. Awareness of self-perception in gaming was evident in the initial survey data when one girl (Katie) identified herself as an expert *Minecraft*. Two other girls (Mia and Makenzee), who had never played the game previously, expressed perceptions of themselves as *Minecraft* gamers in the transcript data of their conversations recorded towards the end of the study, which reflects a shift in identity as a result of interaction between the individual and game, as outlined by Faircloth (2012) More specifically, the girls' comments included: 'We are the ultimate Masters,' 'we are the most interesting *Minecraft* girl Minecrafters,' 'Oh yeah … I'm a pro at this,' and 'I'm a *Minecraft* babe!' One girl (Makenzee) also mentions that she plays *Sim City* at home, saying, 'I'm really good at it. I play it on the holidays.' This ties in with Gee's (2005) self-knowledge learning principle which suggests that virtual worlds in digital games assist players to develop understandings about their personal selves and their gaming abilities.

5.4 Girls' gaming strategies

My data captures girls using gaming strategies, including problem solving, while playing *Minecraft* in English class. Gee (2008, p.259) points out, 'in a game, the virtual character's powers and limitations mesh with the way in which the virtual world is designed in quite specific ways.' Girls in my study demonstrated an understanding of the powers and limitations of the game to develop successful gaming strategies of play. This is evidenced when; girls use problem solving skills to navigate obstacles in the game (Mia and Makenzee); when selecting appropriate language consistent with actions used within the game of *Minecraf*t (Mia, Makenzee and Katie) and when understanding the situation of play at any given time by decoding and encoding information (Katie). It is also embedded when Katie and Mia use appropriate words for this semiotic domain when describing gaming strategy of killing virtual characters and when illustrating problem solving in the game by asking each other how to proceed in certain situations (Mia, Makenzee, Jemma, Shaylee and Laylah).

Mia and Makenzee who had never played *Minecraft* previously – as evidenced in the survey data – used problem solving skills to navigate around obstacles in the game. Both girls requested to show me what they had built towards the end of the study, which enabled me to see how they navigated the game to shape their houses in the virtual spaces. Problem solving included working out how to open trunks (Makenzee) and find doors that would fit into floors (Mia). Mia explained to me that she searched the toolbox for a door to go in her floor, and finding none, settled on a trap door, since it was the only door that could be inserted into the floor and subsequently opened. In this instance, Mia learnt to search the toolbox for a substitute door, settling on the trap door. This strategy is reflective of Gee's (2005) discovery learning principle, which suggests that gamers learn new strategies within a game by exploring and 'discovering' new ways of doing things that they did not know previously. The girls' persistence in solving obstacles reflects the degree of their motivation to play *Minecraft* in class, and since both girls have played digital games in their outside school lives, their experience provides them with an opportunity to draw on previous problem solving strategies in gaming in the formal learning context.

While all the students were playing *Minecraft* in class, I chose to sit with one student (Makenzee) to see how her gaming was progressing. This student interested me because I knew she had not played *Minecraft* before and she is best friends with Mia, who was consistently enthusiastic about playing the game. Makenzee explained her *Minecraft* play to me, showing she has used problem solving strategies in two instances.

Three female participants in my study demonstrated situated learning principles as they played *Minecraft*, selecting appropriate language consistent with strategies used within the game of *Minecraf*t. Gee (2005) emphasises the significance of situated learning principles associated with gaming, explaining that understanding of elements within a game is tied directly with the embodied gaming experience. This strategy of killing creepers, zombies, spiders etc. enables players to stay active/alive within the game and not be killed by these software-driven characters who harbour an ability to 'kill' players' characters. Three girls (Mia, Makenzee and Katie) all reference killing spiders, witches and creepers within their gaming as a gaming survival strategy. For girls who have played *Minecraft* before (such as Katie), playing the game in class enables her to consolidate her existing skills, while other girls who have not played it before are provided the opportunity to draw on previous outside school gaming knowledge.

One student (Katie) drew on her previous *Minecraft* gaming experience to understand the situation of play at any given time by decoding and encoding information. This skill is evidenced in her 'How to Kill a Lamb' Instagram post, where she explains via video as she is playing to share her knowledge with other players who might not know, 'so this is how you make more lambs. And this is how you kill a lamb. You just keep hitting it until it dies.' The student decodes the presence of the

lamb and draws on an understanding that it is possible to 'kill' it, after which she strategises by taking action to eradicate the lamb within the game. This situated meaning of decoding and encoding is recognised as a form of new literacy practice (Beavis et al., 2009; Gee, 2003; Steinkuehler, 2010) and using *Minecraft* in class consolidates Katie's understanding of gaming.

Continuing with the appropriateness of gaming language choices, Katie and Mia use appropriate words for this semiotic domain when describing their gaming strategy of killing virtual characters to either avoid being 'killed' by them or for fun. Gee (2005, p.24) articulates that, 'words...have meaning that are specific to particular semiotic domains,' such as digital gaming, and using *Minecraft* in class enables students to develop their understanding of appropriate *Minecraft* gaming language. Katie creates a title reflecting this understanding, writing 'How to kill a lamb.' In the video associated with this title, the player hits a lamb until it dies. Lambs cannot kill in the game, so this killing is not motivated by a desire to survive in the game, but rather to collect mutton to eat (by right clicking) which restores the hunger bar or for wool which can be used as a building material.

In the transcripts of conversations between girls as they were playing *Minecraft,* five girls (Jemma, Mia, Makenzee, Laylah and Shaylee) illustrate problem solving in the game by asking each other how to proceed in certain circumstances. Questions asked include, 'Can you make a house out of melon?' (Jemma), 'This is frustrating me, so how do I save it? (Makenzee), 'How do you spell clear? (Mia), 'Can you make pigs fall in love?' (Laylah) and 'Is that a zombie? It's going to kill me. I need to run' (Shaylee). The girls' shared communication in relation to overcoming obstacles in the game provides a collective learning experience in an unconventional English teaching context.

Understanding *Minecraft* gaming strategies, particularly problem solving, and vocalising actions taken within the game as part of this, are evident in my data; reflective of the 'Knowledge about Games' dimension of Apperley and Beavis's (2013) model. The recorded transcripts capture girls taking action as players within the game of *Minecraft* in order to negotiate obstacles they have faced in the game. Reflecting on girls' evident gaming strategies, through this practical action research design, enabled me to understand how cognitive awareness of the centrality of actions within the game is integral to developing competency in digital game literacy.

5.5 Collaborative Learning

Girls' choice to learn collaboratively while playing *Minecraft* as part of this study is indicative of their motivation and engagement with the game in English. More specifically, girls worked collaboratively in a number of ways. First, girls used expressive language skills to seek help from each other (Mia and Makenzee) and one novice player mentored another as her competency grew (Mia). This mentoring supports research by Dezuanni et al. (2015) who found through 'social displays of Minecraft knowledge', girls can be positioned as expert gamers within affinity groups (p.154). My

data also found girls drew on understanding of both virtual and real-world contexts to communicate meaning amongst themselves (Naomi and Shaylee) and explained their actions within the game without specific contextual references as they collaborated together to create shared *Minecraft* videos. Second, they used oral interaction skills to discuss the concept of digitally killing animate objects in *Minecraft (*Mia, Makenzee, Shaylee, Naomi and Katie) and verbalised thoughts on actions and risks, including 'killing' actions, within the game (Shaylee and Naomi). Third, the girls also created videos together (Shaylee, Naomi, Janaya, Laylah and Katie) and used actions within the game of *Minecraft* as a basis to collaboratively blend videos and screen shots of their play with use of Instagram (Shaylee, Naomi, Janaya, Katie, Laylah).

Once, not long after data collection had commenced, while the students played *Minecraft* in class, I took field notes of their conversations from my position in front of the class at my desk. I later transcribed these field notes into transcripts. The transcripts captures a female participant (Mia) verbalising her lack of confidence at times, using expressive language, and seeking help from others. Dialogue around confidence demonstrates that seeking help is important to Mia and is considered worthy of verbalising. The types of comments include, 'I suck at this' and, 'I don't know how to do this.' Mia clearly positions herself as a novice *Minecraft* gamer in these early instances, and this contrasts with her evident competency towards the end of the data collection, where she answers Makenzee's question about switching from night to day. On numerous occasions, girls (Mia and Makenzee) directly ask each other for assistance, including switching off the rain and clearing the weather, and navigating away from ice.

Continuing with one novice player (Mia) gaining competency, her willingness to learn collectively is evident when she mentors her friend (Makenzee). I recorded one conversation where a student Makenzee asks Mia: 'I can't place anything.' Mia advises, 'Make sure you click right in the corner. You have to do that or you'll have to start again.' Mia is giving Makenzee a simple, specific instruction to maximise her understanding. Then, she elaborates by explaining how she learnt to do this, saying 'I had to start my house again three times because I kept losing it.' Mia then advises Makenzee what specific action needs to occur next, saying 'You have to go to s*ave to quit title*.' I also recorded Mia advising a student to 'Press this one. Escape' to exit, and 'You go slash … and then you have to make sure it's lower case. It can't be in upper cases and then you go time, set, space and then zero. Or you can do one or two of any number' to save the time. While my data does not capture Mia learning how to use these moves, the initial survey data identifies her as a participant who has never played the game before, so it is clear that she learnt this in class while playing amongst her friends. Using *Minecraft* in class is a transformative experience for Mia, evident as she moves from novice *Minecraft* gamer to mentor: a significant shift in capability and self-perception.

Transcript data that I recorded while students were playing *Minecraft* show that at times, girls (Naomi and Shaylee) draw on understanding of both virtual and real-world contexts to communicate meaning amongst themselves. This suggests girls developed a contextual understanding of actions taking place within the virtual world, as well as contextual understanding in the real world classroom context; reflecting the 'World around the Game' dimension of Apperley and Beavis's (2013) model. Thus, discussions in the real world context about actions taken within *Minecraft* involved understanding of both semiotic domains: real and virtual. Gee (2005) refers to a contextual understanding in gaming terms as a semiotic learning principle where the interrelationship between various complex signs is integral to establishing gaming competence. In literacy terms, a contextual understanding is essential in effective verbal communication where 'things do not have to be explicitly named because they are an integral part of the multimodal meaning event' (Kalantzis & Cope, 2012, p.309).

This contextual understanding among girls in my study is evidenced in the transcript data from the Instagram post titled 'Near death experience 1' by Naomi and Shaylee, where they have collaboratively produced a video post. Naomi states to Shaylee that she is 'going to jump in the water,' meaning the virtual water in the game. After the former's character 'dies,' she says 'No, no!' In response, Shaylee shifts reference from an in game context to the real world context, admonishing 'You're so serious about this!' This blended communication, alternating between discussions within the game context and outside the game, is also evidenced between these girls in other collaborative clips posted, including 'We found a zombie and almost died,' where Naomi refers to her real-world cousin amidst dialogue around virtual zombies. These dialogue shifts between contexts is evidence of the girls' facility in being both immersed and distant from the action, decentring themselves as players.

Girls were observed communicating their thoughts on violent actions within the game using short, sharp exclamations for clarity. These included: 'Oh my god, look, it's a witch! Oh my gosh! Look at it … I'm going to kill her!' (Shaylee); 'Don't die! Oh my god, you died!' (Shaylee); and 'It's [a zombie] going to kill me. I need to run!' (Naomi). This data is consistent with research by Walkerdine (2004) who asserts that female players will take aggressive action within a game when necessary, even though gender differences indicate that female players prefer non-violent, constructive games (Buckingham & Burn, 2007, p.332). Similarly, research by Ulicsak and Cranmer (2009) found that girls negotiate gaming violence and play along.

Students demonstrated Gee's (2005) distributed learning principle by sharing their game play with an authentic audience outside of the game using Instagram; often using transitional words to assist viewers of the videos they collaboratively created. This is evidenced in the transcripts of videos created by four participants (Naomi, Shaylee, Katie and Laylah). These girls orally conveyed ideas

pertaining to their *Minecraft* constructions. They used transitional language to assist viewers of the videos they made, or listeners to explanations of what they had made, follow logically from one point to the next. More specifically, in 'Katie's underground' transcript, Katie uses the transitional word 'then' twice, saying 'and then it's my lounge room and then there's a door and you walk through.' 'So' is evidenced in the transcript of 'How to Kill a Lamb' where Naomi begins, 'so this is how you make more lambs.' In doing so, the girls use these transitional words to communicate to the viewer the direction of their game play on screen, drawing on narrative and instructional genres of speech.

Janaya, Laylah and Katie articulated their understanding of *Minecraft* gaming to choose appropriate language in their collaborative videos for communicating about the game. One video shows a number of virtual pigs being fed carrots and then producing virtual babies. There are many animal characters in the game, and with the pigs, it is possible for players to make the pigs, or indeed any animal, reproduce by right clicking on the animal with the required food item selected from the hot bar: the hot bar is a row of nine boxes at the bottom of the screen in the toolbar that enables players to interact with those items by selecting them using the corresponding key. The numbers 1 to 9 correspond to the boxes in the hot bar. Number 1 is to select the first box and so on. In this instance, the girls devised the title 'Pig Babies' to show that the post revolves around this aspect of *Minecraf*t play. More specifically, Katie shares more about what they have discovered, saying 'You give them carrots and then ready, watch, they'll have a baby.'

Eight participants in the study selected and chose appropriate sequencing of content to present in a multimodal way via Instagram. In one post, the content was selected to illustrate how *Minecraft* pigs can be made to have 'babies' by feeding them carrots. Steinkuehler (2010) points out, communications between gamers in online communities presents a 'constellations of literacy practice' (p.61). The participants in this study used a combination of text and visual icons – emoticons – to engage with an authentic Instagram audience about their *Minecraft* posts. Underneath the video titled 'Pig Babies', for instance, is a digital comment trail, where the girls have engaged in texting-type communication with other Instagram users around the *Minecraft* videos and screen shots that they have posted. The comment posts are a combination of abbreviated forms of vocabulary, consistent with texting, in conjunction with use of emoticons as visual representations for further emphasis and meaning in conveying thoughts about the posts.

5.6.1 Learning literacy in *Minecraft*

The AC: English descriptor ACELY1722 deems that students should read a variety of texts, where they hypothesise and draw conclusions. This was evidenced in my study when Makenzee admitted she did not comprehend how to open the chest. She figured it out, saying 'oh, there you go,' and

whilst the strategy she has used to open the chest is not recorded, it is evident that she formulated a hypothesis on how to open the chest then tried it, finding that it worked. Reading *Minecraft* as a digital text in this way – being able to hypothesise and draw conclusions – develops students' abilities to read a range of different text types, not just through traditional print mode.

One participant (Mia) demonstrated her understanding of how language features can be combined with the other visual features to influence audiences and viewers of the game when she created a *Minecraft* sign with writing on it. This relates directly relates to ACELY1724 where language features are combined with other visual features to influence audiences.

Young people in the 21st century demand involvement in the production of media content for online audiences (Gee & Hayes, 2010), and according to Gee (Gee & Hayes, 2010), 50% of teenagers have engaged in the production of media content at some stage, and the girls of this study certainly provided evidence of their keenness to engage in such production. Five out of 14 girls in total chose to post screen shots or videos of their *Minecraft* play on Instagram, along with associated explanatory text underneath and written comments interacting with other Instagram users. The skills of creating content for Instagram posts – editing and then publishing written and multimodal text – closely relates to AusVELS (ACELY 1728 & 1741).

Girls wrote paratext as headings in Instagram, as well as explanatory statements underneath each *Minecraft*-related post. This is evidence that the students are developing literacy skills of being able to 'plan, draft and publish imaginative, informative and persuasive texts, selecting aspects of subject matter and particular language, visual, and audio features to convey information and ideas' – as outlined in AusVELS at Year 7.

The Instagram posts on *Minecraft* also relate to the literacy skills ACELY1720 and 1725 where students plan, rehearse and publish presentations in the form of Instagram posts using video technology, by selecting and sequencing appropriate content and multimodal elements to promote a point of view or enable a new way of seeing. In Shaylee and Naomi's post titled 'OMG we found this underground part 1,' the girls find a zombie house in the game that they had not created. The girls' conversation in the video clip runs:

> Oh my god, Lava. Oh my god look. Look, see? It's a zombie house. I didn't make that! (Shaylee)
>
> Isn't that good! (Naomi)
>
> Look what the zombie has built! Oh my god! It's…Oh my god! (Shaylee)

In this clip, the girls are seeing a virtual zombie build a house for the first time and they have filmed it to post and share on Instagram, evidence of a new way of seeing something in *Minecraft* for the girls. This is evidence of the girls using a range of software, including *Minecraft*, video technology and Instagram to confidently create, edit and publish written and multimodal texts (ACELY1728). In this example, the girls used specific *Minecraft* language, such as 'zombie,' to inform the Instagram post audience about the zombies making their own houses, relating directly to ACELY1736, which involves deliberate choice of vocabulary, including digital metalanguage, in the creation of an informative text. By actively constructing content and sharing it with an authentic online audience, the girls developed their understanding of audience and purpose, mobilising audio elements for additional effect (ACELY1811).

Girls used interactive skills when discussing and presenting ideas and information about *Minecraft* game play in collaborative Instagram posts. Naomi and Shaylee created and posted nine separate videos of their *Minecraft* game play on Instagram, selecting elements of their play to film while verbally explaining what it is viewers are seeing on the screen. The post titled 'How to kill a lamb' is a good example of this.' In this post, the girls speak clearly, explaining clearly 'this is how you kill a lamb. You just keep hitting it.' On the screen, a lamb being hit is visible. Three other girls (Janaya, Katie and Laylah) also worked collaboratively to post nine separate videos in the same way. By selecting and editing video images, incorporating voice and titles, the girls have developed skills relating to ACELY1804 students select voice qualities, sound, music and other elements to add interest and meaning to a multimodal text.

5.6.2 *Minecraft* and language learning

According to The Australian (http://www.theaustralian.com.au/news/latest-news/social-media-leads-seismic-language-change/story-fn3dxix6-1227329841479), 'the English language is evolving at a faster rate now than at any other time in history because of social media and instant messaging.' Girls in my study used specific language that has evolved and is used when discussing digital game play in *Minecraft,* such as use of the 'fly up' (Makenzee), 'making a village' (Janaya), 'weather clear' (Mia), 'lava' (Shaylee) and 'it's a zombie' (Naomi). Using appropriate language that has evolved in game play relates to ACELA1537, where students develop an understanding of 'the way language evolves to reflect a changing world, particularly in response to the use of new technology for presenting texts and communicating.' These students clearly understand the language that has evolved around digital gaming, in particular *Minecraft*, as a result of this new technology, and are able to utilise this knowledge in their communication, reflecting code switching as defined by Nilep (2006).

In addition to developing an awareness of specific *Minecraft* language, girls in my study manipulated images in the production of the game. This skill is identified in the Australian Curriculum Achievement Standard at Year 9 level where students should be producing 'innovative texts' by 'manipulating language features and images' (p.29): students' manipulation of the virtual *Minecraft* world produced innovative and unique landscapes, which in a digital game literacy sense, translates to an innovative digital text.

Girls also manipulated images in the production of Instagram posts which related to their *Minecraft* game play. In doing this, the girls demonstrated an awareness of the text structure and language features associated with Instagram posts, reflecting ACELA1543, where students develop an awareness and understanding of how text structures and language features vary depending on the mode and medium of communication. Girls created headings for their posts, attached videos and screen shots of their *Minecraft* play, and communicated in comments with other Instagram users about the posts they had shared.

5.6.3 *Minecraft* as a literary text

Using evidence from my study, links can be made to the Literature strand of the Australian Curriculum: English. When girls discuss features of *Minecraft* characters, their actions, or the setting, they are recognising and even analysing the ways characterisation, settings and events are combined in narratives, including the game's purpose and appeal, linking directly to the Australian Curriculum's literature strand (ACELT1622). Students play *Minecraft* with a character, referring to their characters in the first person. Makenzee for instance, says 'I killed it.' Here, she acknowledges the character. When Mia asks what she had killed, the first replies 'A spider.' This is evidence of recognition of both her game's character and its action of killing another character, the spider. In the same transcript, there is evidence that Mia recognises the significance of the *Minecraft* setting when she says 'I'm going to make this the weirdest room ever.' Such recognition of the way, events (action), and setting (virtual landscape) combine to create a narrative relates to ACELT1622, which requires students to recognise how characterisation and settings are combined in narratives.

Discussing visual aspects and items in *Minecraft* for their aesthetic and social value using relevant and appropriate metalanguage directly links to the AC: English (ACELT1803). This is evidenced in Mia's articulation that colour is an appealing factor, explaining 'I always use red, orange, yellow, green, purple and pink,' when constructing her house or choosing items to place within the house.

While playing the game and interacting with the *Minecraft* software, two female participants in this study (Mia and Makenzee) were also observed speaking about the aesthetic and visual elements of the game in what could be argued as gender-specific language. This study found the word 'pretty' was used on numerous occasions by the female playing participants. Discuss aspects of texts, for

example their aesthetic and social value, using relevant and appropriate metalanguage (ACELT1803).

When six of the study's participants (five girls and one boy) experimented with text structures and language features and their effects in designing multimodal literary texts for an online audience using Instagram, they were developing skill ACELT1805 where students use sound, monologue, layout, navigation and colour in designing literary texts. The students who posted in Instagram, used sound via videos that they had filmed of each other playing *Minecraft,* verbal explanations of what they were doing in the video (monologues), used awareness of how to layout multimodal posts in Instagram with videos and screen shots, as well as text, awareness of how to navigate both the *Minecraft* and Instagram software to produce these Instagram posts, and colourful items from the game as evidenced in Naomi and Shaylee's clip titled 'Pet Wolves' where the colourful tool box is used to choose the 'spawn wolf' option (to produce wolves).

5.7 Summary

Using a practical action research design to frame this research, this study's findings shed light on how *Minecraft* can be used to motivate and enhance girls' literacy practices, linking learning to outside literacy practices, in the secondary English classroom. The design of this study also showed how it is possible to link knowledge, skills and understandings outlined in the Australian Curriculum: English to facilitate defensible curriculum around *Minecraft* in the formal learning context. In this study, previous gaming experience playing *Minecraft* did not impinge upon girls' enthusiasm to use the game. When using *Minecraft* in English, female students' identities shaped their personal connections with the game. Girls' identities and the personal connections they make with the game are a motivating factor in playing *Minecraf*t. When playing *Minecraft*, girls used expressive language skills to seek help from each other, mentor each other, and draw understanding of both virtual and real-world contexts to communicate meaning amongst themselves in a collaborative manner.

In this study, girls demonstrated skills and understandings similar to their male counterparts. Both genders demonstrated understanding of the design principles associated with playing *Minecraft* as they constructed structures within the virtual world. Students of both genders in this study integrated use of paratext into their gaming without prompting, supporting the assertion by Dezuanni et al. (2015) that 'gameplay and the production and use of paratexts, including talk around the games, are entwined aspects of the pleasures of playing games and the ongoing formation of learner identities (p.140). Girls demonstrated problem solving when developing their understanding of the powers and limitations of the game as they experiment with gaming strategies to navigate around *Minecraft* and manipulate the virtual landscape. While playing, students learned to select appropriate language consistent with strategies used within the game of *Minecraf*t. *Minecraft* can be used by

teachers to facilitate collaborative learning. Students filmed each other on their phones as they played *Minecraft,* then shared their game play action with an authentic audience – Instagram users – in a strongly multimodal way, using paratext for headings of their posts, the inclusion of videos, and with written comments at the bottom of the posts.

6. Implications and conclusion

6.1 The study design

Minecraft is increasingly being used by teachers for its educational value and it has recently been touted as 'the hot new videogame among teachers and parents' (http://www.wired.com/2014/10/video-game-literacy/). To explore *Minecraft's* educational potential, I designed my study to investigate the types of literacy practices girls engage in as part of playing the game. My design also recognised the importance of both inside- and outside-game literacy practices, including paratexts. This reflects a similar call from Dezuanni et al. (2015) who assert 'it is vital to understand the practices that occur in the social spaces between making and sharing because these are key sites of identity construction and learning, and therefore central aspects of girls' learning lives' (p.160).

The qualitative methodology effectively enabled me to collect rich and descriptive data for analysis. This epistemology allowed me to fine-tune the study as it unfolded, allowing for participants to use Instagram and Facebook, for instance, even though these social media applications were not originally specifically accounted for in the methodology. This qualitative approach also enabled me to focus on the female participants' experience as they played *Minecraft*. The transcripts of communications between girls as they played *Minecraft,* in particular, provided detailed insight into their motivations and growing capabilities associated with the game. The data enable me to identify themes that relate to previous research in my Literature Review and links to findings in my study. The qualitative research characteristics, allowing for contextual analysis of data and themes, as outlined in 3.1, provided credence for using a qualitative epistemology to frame my study.

I adopted a practical action research design so that I, as the researcher/teacher, could use my existing educational setting of employment as a source for participants in the study, to form the basis of this small-scale research. Having an existing understanding of students' literacy capabilities and social interactions enabled me to consider these factors in analysing my data. The practical action research design enabled me to reflect on my teaching practice in a rigorous and methodological way, in order to investigate how *Minecraft* can be used to motivate girls' literacy practices in the secondary English classroom. By conducting this research, I have strengthened my own professional practice by gaining a deeper understanding of how the game develops particular literacy skills, which can then be mapped onto relevant elements of the Australian Curriculum. The literacy practices associated with *Minecraft* play can also be transferred across domains, into Humanities for instance, where students can recreate building of an Egyptian pyramid, allowing for breadth of use in the curriculum.

I have also developed a greater awareness of the need to merge outside and inside school practices, realising how this might be achieved via use of *Minecraft* and popular teenage social media applications. As English Domain Leader, I also plan to integrate these digital literacy aspects into the wider school curriculum.

Part of the appeal of using a practical action research design –as outlined by Creswell (2012, p.578) is the desire to address a classroom problem which can result in 'school renewal.' In this study, the problem consisted of how best to integrate *Minecraft* to motivate and enhance girls' literacy practices, and to investigate how the game might be blended with popular forms of social media applications to link informal and formal literacy practices. The practical action research design enabled me to effectively achieve this understanding by providing a framework from which to construct my research design.

6.2 Girls' learning in the *Minecraft* virtual environment

This study responds to academic calls for greater understanding of how digital games can be integrated with English curriculum (Beavis et al., 2009; Squire, 2008) extending students' existing literacy practices to reflect contemporary learning. As highlighted by Beavis et al. (2009), more action research into teachers' use of digital games in English is needed to add to understanding of how games can be practically applied in the classroom. Adding to digital game research from both in Australia and abroad, and especially recent research by Dezuanni et al. (2015, p.147) around girls' communications and 'digital production' while using *Minecraft*, this study explores use of *Minecraft,* providing an example of how the game can be used in the secondary English classroom to motivate and enhance girls' literacy practices. I, and other 'educators have a great interest in *Minecraft* because children and young people seem to be driven to learn new knowledge and skills to play with a passion that they often lack for their everyday schooling' (http://theconversation.com/tapping-into-kids-passion-for-minecraft-in-the-classroom-43461). Developing an understanding of how digital games might be used in education is important, since gaming has become entrenched within contemporary youth culture (Beavis et al., 2009) and is now viewed as an authentic, powerful form of literacy (Gee, 2003; Kalantzis & Cope, 2012).

In the background to this study, I identified an English educators' challenge as lying in the implementation of documented initiatives which emphasise digital and multimodal literacies for 21st century learning. The Australian Curriculum: English, for instance, identifies in the Year 7 Level Description that students should use a range of face-to-face and online/virtual environments' (http://www.australiancurriculum.edu.au/english/curriculum/f-10?layout=1#level7), yet no further explanation is provided to English teachers on which online/virtual environment could be used or how teachers might use specific online/virtual environments as pedagogical tools in the secondary

classroom. My study illustrates that it is possible for educators to use *Minecraft's* virtual world for teaching to develop skills which can be mapped directly to the Australian Curriculum: English.

Another example illustrating the difficulty English educators face in translating documented curriculum into practice can be similarly found in the Australian Curriculum: English Year 7 Level Description which states that students should 'engage with a variety of texts for enjoyment,' including digital and 'multimodal texts in which the primary purpose is aesthetic' (http://www.australiancurriculum.edu.au/english/curriculum/f-10?layout=1#level7). My study's findings indicate that *Minecraft* is a digital text in which the aesthetic elements of the game are valued by players, providing English educators with an example of an enjoyable digital text which can be used to translate the aesthetic value of digital texts as outlined in the Australian Curriculum into practice. Indeed, as Dezuanni et al. (2015) point out, '*Minecraft* is, in many ways, an exemplary instance of a digital game that promotes and enables complex practices of digital participation. (p.148).

This study's findings support existing educative research that improvements in student motivation result from engaging in digital technology in the classroom. Elliott observes that after using digital technology in teaching practice, teachers can find 'The sense of rejuvenation within their classrooms leave[s] a powerful impression' (2013, p.98). This study supports the use of *Minecraft* as a tool to motivate and reanimate literacy learning with observable student engagement.

It can be acknowledged that '*Minecraft* is surrounded by a culture of literacy' (http://www.wired.com/2014/10/video-game-literacy/) and this cultural of literacy can be mapped to formal, documented curriculum. This study shows that while playing *Minecraft* in the formal learning setting, students develop a myriad of literacy skills, which both link to AusVELS, and reflect learning principles as identified by Gee's (2003). This builds on the view held by Beavis et al. (2009, p.163):

> Among literacy educators and researchers there is increasing interest in young people's engagement with texts, the opportunities for representation, creativity and engagement, the "new literacies" generated there, and the implications of these literacies and forms of engagement for literacy education and the curriculum in school.

Minecraft is a popular digital game in contemporary youth culture, appealing to both genders, which teachers can utilise to facilitate girls' literacy practice in English.

6.3 Learning by stealth with *Minecraft*

Minecraft's design encourages players – both males and females – to learn by stealth, where they are rewarded for how they utilise, combine and create in the game, using available resources. To

achieve this, players engage in a myriad of literacy practices. This situated learning is driven by players' motivation to gain the knowledge they require to enact desired actions within the game. Steinkuehler (http://www.wired.com/2014/10/video-game-literacy/) explains that when young people engage in digital gaming, there are often words that they do not know, but they persevere because they 'care' about their gaming actions and they 'figure it out.' My study discovered that often figuring it out involves asking another player, listening to other players, and discussing options and choices.

This practice reflects the Quest to Learn model, where students are encouraged to learn through game-based experiences. The philosophy associated with Q2L is that learning must be relevant 'to the technologies that shape our kids' lives, the passions that fuel their ambitions, and the demands of the 21st century' (www.instituteofplay.org/about). Knowledge about the game is also valued by young people who play *Minecraft,* as highlighted by Dezuanni (2015):

> The eagerness Minecraft players have for learning about the game is an eagerness to be involved in an immersive digital culture. They aim to communicate within, through and about the game. They are rewarded for knowing how to achieve things in the game and for sharing this knowledge with others.

Minecraft's virtual world provides students with a space within which they can be creative and literate for 21st century learning in the secondary English classroom.

6.4 Bridging the divide between outside and inside school literacy practices

The study recognises the need for English to reflect the changing learning needs of students in the 21st century to ensure that literacy studies reflect literacy practices outside of school, as called for by Apperley & Walsh (2012). I chose a qualitative research methodology to explore the practical applications of using *Minecraft*, allowing students to engage broadly with the game*,* then extending students' literacy practices beyond the game to the outside-school context. Asking students to think of ways they can blend *Minecraft* play in school to their outside school literacy practices resulted in students communicating with online audiences via social media platforms which were not accessible at school due to internet blocks. This turned out to be a fruitful research question in retrospect, since it led to students engaging in literacy practices via Instagram and Facebook that were not foreseen in the planning stages of this study. This is supported by Dezuanni et al. (2015), who also found girls 'demonstrating their *Minecraft* knowledge by using *Minecraft* language, recounting *Minecraft* play and through displaying their work to other girls' (p.160).

The study illustrates how *Minecraft* play can be blended with social media applications, such as Instagram and Facebook, to create multimodal communications reflective of students' outside school communicative practices. This supports Steinkuehler's (2010) assertion that students are

engaging in a 'constellation of literacy practices' (p.61) external to digital game play. The integration of multiple digital technologies in this study – *Minecraft*, video, Instagram and Facebook – and its focus particularly on digital game literacy, highlights its potential significance and value in adding to understandings about how digital technologies can be implemented practically in the English teaching context. Barriers to using social media platforms during class time must also be overcome.

It was surprising and pleasing to see that some girls chose to use their outside school familiarity with Instagram as a means of communicating about their *Minecraft* play in school. Posting screen shots and videos, titles and comments, provides a tangible example of how students can merge outside school literacy practices with inside school literacy practices. Girls' use of Instagram in this study supports Steinkuehler's (http://www.wired.com/2014/10/video-game-literacy/) assertion that gaming passion sparks writing, where 'suddenly, being a writer is sexy and hip and cool. They have an audience that knows their stuff, and they expect you to be knowledgeable.'

Hip and cool literacy in my study consisted of girls' use of multimodal elements posted in Instagram to communicate with their peers about their *Minecraft* play. Girls posted videos and screen shots of their *Minecraft* play during school time then returned home to post these in Instagram. For one of the male students, this involved use of Facebook. Students' use of paratext to write headings for their posts and communicating with other users of the apps in the form of comment trails underneath posts was also satisfying to observe. Surprisingly, students used a mix of letters and emoticons in their communications, representative of their literacy practices on social media outside of school. With emoticons now explicitly mentioned in AusVELS as being an element of literacy worth developing, students' actions within this study provide an example of how teachers might design learning tasks for students to reflect their use in the classroom: by posting in Instagram or Facebook. Students construct hybrid text, not commonly constructed in conventional English learning, by combining written and visual devices, including emoticons, to guide digital, 21st century readers – all of which may be interpreted as fancy in comparison to a traditional teaching context.

Inviting students' external literacy use into the classroom is a way of validating and valuing students' cultural preferences (Apperley & Walsh, 2012; Alvermann, 2011). This is important when considering Gee's (2010) opinion that many students engage in more complex, technology–based literacy practices at home than in school – a factor which risks alienating teenagers from more formal literacy learning. English educators must be familiar with these communication features and reflect them in teaching.

It is not educators alone who must keep-up with newly emerging forms of digital literacy. According to The Australian, a 'study into common social media and 'text speak' terms found that most parents were baffled by the language used by their children, with 86 per cent of parents saying their children

spoke an entirely different language on social media sites' (http://www.theaustralian.com.au/news/latest-news/social-media-leads-seismic-language-change/story-fn3dxix6-1227329841479). With this in mind, allowing students to use their usual communicative practices on social media in the classroom also, at least allows English teachers to understand how language is being used by students outside of school – even if not understood by many parents. This understanding is paramount if teachers are to design learning tasks which link students' social media communications with more formal learning in a contemporary English learning setting.

The importance of integrating gaming into literacy teaching has been highlighted as follows: 'John Dewey instructed us a century ago: To get kids reading and writing, give them a real-world task they care about. These days that's games' (http://www.wired.com/2014/10/video-game-literacy/).

6.5 Masculine perceptions of gaming do not hinder girls' enthusiasm for *Minecraft*

Although many girls choose to play digital games during their leisure time (Lenhart et al., 2008), including *Minecraft* (Dezuanni et al., 2015), findings by Vermeulen et al. (2014) that female gaming numbers are hindered by ongoing perceptions of gaming as being a male domain, led me to be surprised by my finding that all students had previous digital gaming experience. Since all participants had prior knowledge and experience of gaming, the study was not able to establish whether no prior gaming knowledge or experience influences digital gaming literacy practices. This was a research sub question which became less important as the study proceeded.

However, exploring this research from a gender perspective highlights an underdeveloped dimension in existing research on the use of *Minecraft* in English. While my study found some evidence to support the perception of digital gaming as involving strong masculine elements, positioning women and girls as less competent gamers, this perception did not influence girls' willingness or enthusiasm to play *Minecraft* in English class – a surprising, yet pleasing finding, since it implies *Minecraft* can be used effectively as a pedagogical tool to motivate both genders. This supports Gee and Hayes (2010) observation that girls play digital games with persistence and passion. The masculine perceptions of gaming do not hinder girls' enthusiasm for playing *Minecraft*. Girls' enthusiasm for playing *Minecraft* has also driven the makers of the game to introduce a female character in 2015 – recognition that the game appeals to both genders. As such, *Minecraft* presents as a suitable and worthy digital game text for 21st century literacy learning – a view shared by Dezuanni et al. (2015).

6.6 Overcoming obstacles in using *Minecraft* for learning

It is difficult to link informal communication practices with more formal practices when schools' intranets prevent students from accessing popular social media platforms and digital games. Students use a range of social media applications that are not accessible at school, hindering potential use of 21st century communications in the secondary English classroom. Students in this study chose to use Instagram and Facebook, both of which were both blocked from use on the school premises and had to be accessed via their home networks. While school's internet permissions prevent students from using popular social media platforms in the school environment, there is little teachers can do, aside from assigning tasks using these social media platforms to be completed outside classrooms. Other barriers to using social media platforms during class time, include inaccessibility to Application (App) – supporting hardware and software, such as iPads and the Instagram App, cost, and school leadership approval.

I was fortunate to have helpful technical support from the school's Information Technology specialists, who set up a school server for students to access and play on. If school networks block *Minecraft* servers, and teachers do not possess the necessary skills to create their own secure server, then it is impossible to use *Minecraft* in the classroom. Access to the game must be accounted for prior to embarking on its use in the classroom.

The financial costs associated with purchasing *Minecraft* software also need to be taken into account. Teachers must account for any costs associated with accessing the software, prior to using the game in class: either students who do not already have the game need to purchase it, students can access demonstration versions (which have very limited play options but do offer a taste of the game), or the school needs to pay for the costs.

Even though the school's network blocked the students' access to popular social media applications they use outside of school – Instagram and Facebook – students in my study were keen enough to use these applications to communicate about their *Minecraft* play to access it via their homes. Students' enthusiasm to showcase their familiarity with Instagram and Facebook for school – related purposes was evident.

In addition to access and cost issues, teachers need a basic understanding of how to play *Minecraft*, including how to create a new game, how to access the tool box, and how to manoeuvre around the virtual world. This has implications for teacher professional learning: teachers must learn how to navigate the basic design elements of the game in order to teach with it. Beyond this understanding, it is possible to use students who consider themselves to be expert *Minecraft* gamers as mentors to others who have less experience or confidence with the game. The level of

peer collaboration was productive, thus minimising the amount of direction I needed to provide as teacher-researcher.

Teachers should be mindful that schools may block use of *Minecraft,* Instagram and Facebook, even though it could be argued that limiting access to these digital software in schools inhibits students' access to 'rich communication channels and opportunities to engage in creative and sophisticated textual practices … presumably in deference to safety concerns' (Black et al., 2013, p.18). With careful planning and school support, teachers can use and access *Minecraft* in English for literacy purposes.

6.7 Conclusion

A qualitative methodology collected rich data, leading to analysis of literacy aspects associated with playing *Minecraft and* tangible ways the game can be integrated into a formal learning context to enhance girls' literacy learning. Like many other digital games, *Minecraft's* educational appeal lies in its ability to capture students' attention to learn informally whilst within the formal school environment. It can also provide a springboard for game-based communications via social media platforms, such as Instagram or Facebook. If technological obstacles can be overcome, using digital games in the formal learning context assists teachers to bridge the divide between students' outside and inside school literacy practices, thus validating youth culture as part of the formal learning process. As Dezuanni highlights, 'Young *Minecraft* players have a passion for acquiring knowledge and skills in new and complex ways that teachers should not ignore' (http://theconversation.com/tapping-into-kids-passion-for-minecraft-in-the-classroom-43461). In this study, *Minecraft* is positioned as powerful in terms of a literacy teaching tool in the secondary English classroom. Through this study, it is possible to realise *Minecraft's* potential educational appeal in enhancing girls' literacy learning!

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Appendices

I. Appendix: Student survey on *Minecraft* and digital game play

Section 1: Digital game play

1. Do you play digital games? Yes No (Cont. to Qu19)

2. Do you enjoy playing digital games Yes No (Cont. to Qu20)

3. How much time per week do you spend playing these games?

   Less than 1 hour 1-3 hours over 3 – 6 hours More than 7 hours

4. Do you **write** about game play? Yes No (Cont. to Qu 8)

5. What forms of **writing** have you used? Eg. Blog, letter etc.

6. Why have you **written** about game play?

7. Who has been the audience of this **writing**?

8. Do you **talk** about game play? Yes No (Cont. to Qu.12)

9. Why do you **talk** about game play?

10. Who do you **talk** with?

11. What do you usually **talk** about?

12. Do you **read** about game play? Yes No (Cont. to Qu 16)

13. What types of text do you **read**?

14. Why do you **read** about game play?

15. What do you usually **read** about?

16. Do you **listen** to material about game play? Yes No (Cont. to Qu. 22)

17. Who does the talking?

18. How do you access this spoken material?

19. Explain why you choose not to play digital games. (Cont. to Qu.32)

20. Why don't you enjoy playing digital games? (Cont. to Qu.3)

21. Why do you play digital games if you don't enjoy them?

Section 2: Minecraft

22. Have you ever played *Minecraft*? Yes No (Cont. to Qu32)

23. How many times have you played *Minecraft* before?

Less than 5 times 5-10 times 11-19 times More than 20 times

24. Do you consider yourself to be an expert *Minecraft* gamer? Yes No

25. Do you enjoy playing this game? Yes No (Cont. to Qu31)

26. Explain why you like playing this game.

27. Do you prefer survival or creative?

28. Why you prefer this play option?

29. What do you think is the purpose of the game?

30. If you play this game with others, who do you usually play it with?

31. Why don’t you like playing this game? (Cont. to Qu.27)

Section 3: Minecraft and English

32. How do you feel about using *Minecraft* in English?

33. With regards to using MInecraft in English, do you think you have:

    a. Less motivation to learn
    b. About the same motivation to learn
    c. More motivation to learn

34. Please explain your answer to the previous question in greater detail.

35. How would you like to see *Minecraft* used in English?

36. What types of writing associated with digital gaming would you like to do at school?

II. Appendix: Transcript of conversation between me and Mia from 18th March, 2014

NM: Okay, go slow. Do you want to explain the features of what you've put there?

Mia: Well, I haven't put much. Outside, I've just put a path and trees and flowers – that's about it.

NM: Okay, do you want to explain what you've used?

Mia: Well, I've used these glass blocks, obviously to make the windows and like, these bricks, cream bricks.

NM: And what made you put the flowers out there?

Mia: I don't know. It just looked pretty.

NM: It does look pretty.

Mia: So, this is the first floor.

NM: Yep. It's quite big.

Mia: Yeah, and I put those there because they are special light blocks. That's the first bedroom that I made. These things light up the room too.

NM: So what are they?

Mia: They're like special lights, like crystals, and they just light up the room.

NM: And what made you choose them?

Mia: Well, all of the monsters and stuff are drawn to the torches and that. If it's dark, all the creatures come in, so you've got to put in a lot of light.

NM: So if it's light, you're less likely to get creatures in there.

Mia: Yep.

NM: Okay.

Mia: And then, in here, I've got a barn with pigs, chickens, cows, sheep and horses. So that's just an extended bit I did.

NM: So, what made you choose to put animals in there?

Mia: I don't know. They're just really cute. And I wanted them.

NM: So, if this is someone watching who hasn't played this before, would you recommend they put animals in their building?

Mia: Well, yeah, because they don't do anything. They just stay there.

NM: And they're cute.

Mia: Yeah. They are really cute. Okay, so if we go upstairs, I've got an extended room that I haven't done anything in yet.

NM: Do you have any plans to do anything in there?

Mia: I don't know. I just wanted to make it because it's on top of the roof. It looks better anyway.

NM: That's a dark room compared to some of your other rooms.

Mia: Yeah, it's because of the wood and there's no glass in there. It's all closed in and there are no windows or anything.

NM: What will you put in there?

Mia: I'm not sure. I'll just find random objects and stuff and put them in there. So, this is the second floor.

NM: Show me the book shelf.

Mia: So yeah, I've got a bookshelf and a little couch and carpet.

NM: I like that. Do you like reading?

Mia: Yeah. And I've got two rooms. I've put a bed in this one. I've got a bed and a rug and a chest.

NM: So, when you're building, what makes you choose these things?

Mia: I don't know. I think it's just how they look and stuff. I haven't done anything in this one yet.

NM: Is this a house you would enjoy living in?

Mia: Yep, probably. Definitely.

NM: So, do you reckon that's a motivation? To build a house you would enjoy living in?

Mia: Yeah. This is the third floor.

NM: Is that a pool?

Mia: Yeah. I've got a spider in here.

NM: Did you put that spider in there?

Mia: No, it's just come. So yeah, this is the pool.

NM: Do you like swimming?

Mia: Yeah. Oh no! The spider's in here (kills the spider). So this is the third one, and then I've got … I haven't really done anything up here yet. I've just got a fence and some lights and little flower pots.

NM: What made you choose flower pots?

Mia: They look pretty.

NM: They do look pretty.

Mia: So, I'll finish off there and then I've got more, somewhere. I always love watching the sunset (sun sets in *Minecraft*). It's really pretty.

NM: It is pretty.

Mia: And then down here, I've got like a little underground basement. So, I've used trap doors to get in.

NM: What made you choose the trap doors?

Mia: I don't know. So there were no doors to go in the floor. They were the only doors. So, this is the basement.

NM: Oh I love this room. This is my favourite room.

Mia: Yeah, I like it. It's really colourful with all the flowers. And then in here, I've got a secret little tunnel, so no one would know it's in there.

NM: Hang on, can I have a look at that sign?

Mia: Yeah, it just says, 'Door Here,' so I remember where I put where the door was. And then, there's another door. So that's like another entrance. So this is the first room. I've put some pipes and stuff just to make it look cool. It's just for decoration. So then I've got monster heads.

NM: Did you put those monster heads there?

Mia: Yeah.

NM: They're creeper heads aren't they?

Mia: Yeah, creepers, zombies and then like a person.

NM: So, you can actually place them there can you?

Mia: Yep. So that's the first room and this is the second room. I've decorated it with mines and there's a bed. I originally only put two mushrooms there and then all these grew.

NM: Oh really?

Mia: Yeah.

NM: Interesting. Do you like the way they've grown nearby?

Mia: Yeah. So, this is my long corridor and then I have a little room here.

NM: How do you remember where everything is?

Mia: I don't know. This is my colourful room.

NM: I love this room.

Mia: It took me a while. I don't know, I didn't know what to do in it and then I saw all these colourful things.

NM: Explain how you've made it.

Mia: I originally just put up the walls and roof and everything. They're special tiles that just light up, so you don't have to put any torches or anything. So, like, I've only got two torches. They're special light blocks.

NM: What are they called?

Mia: I'm not sure. So, I always use colours in everything I do. I always use red, orange, yellow, green, purple and pink. So, I found these tile things in the place thingy.

NM: Tool box?

Mia: Yeah, so I just put them on the walls and stuff.

NM: Did you have to do each of those colours individually?

Mia: Yeah, so it took me a long time.

NM: Are they actually the colours of the rainbow? Are they in the right order?

Mia: No, they're not. I think it goes purple and red or something. I'm not sure. And then keep going down the corridor…

NM: You've done heaps Mia.

Mia: I know. I've got, like, a little room and you can change the painting, but I don't want to change it because it looks cool.

NM: So, what's this painting of?

Mia: I pretend it's like a TV, because they don't have a TV in the tool box.

NM: You'd think they would.

NM: And you'd never played *Minecraft* before this had you?

Mia: Nuh. This is the first time.

NM: I can't believe you've just created all this!

Mia: And that's another room. And that's the end. I've also got outside, hang on, oh It's night time.

NM: Hang on, tell me what you're doing there?

Mia: I'm just setting it to day time.

NM: Are they command blocks?

Mia: Yeah.

Another student to Mia: How do you change the time?

Mia: You go slash, wait down there, and then you have to make sure it's in lower case. It can't be in upper case, and then you go time, space, set, space and then zero. Or you can do one or two or any number. So this is the, because I built up, this is the coloured room (viewing house from outside now).

NM: Are you happy that you've used *Minecraft*?

Mia: Yeah, it's really good. I thought it was kind of a nerdy game, but then when I started playing it, it's really fun.

III. Appendix: Field notes from 13th March, 2014

Today, students started *Minecraft* and began to play.

I began recording one of my student's conversations (Mia's) as she played the game for the first time – in the order down below:

- 'I'm in the lava'
- 'I suck at this'
- 'We're not happy – we can't hold torches'
- 'Am I flying?'
- 'I can't save it!'
- 'It keeps going up there a long way' (character)
- 'Can you swim in it?' (water)
- 'We're going to the bottom of the earth!'
- 'I'm so interested in this'
- 'It's like another room'
- 'I've never played this before'
- 'She's falling into a black hole' (referring to a friend's game play)
- 'Can we build a new home? I'm your helper' (to a friend)
- 'We're making a diamond home'

This student is a popular student in the class. She admitted that she has never played *Minecraft* before. She can be a bit reserved and reluctant at times in her learning, so I wasn't sure how she would embrace playing *Minecraft* in class. I was surprised to see she was so excited to be playing. She was really enthusiastic. It was interesting to see her say that she wasn't any good at this, but then continue to play and speak positively. It was clear that this was all new to her – this was evident in her wonder at swimming in the water and her reference to the lava. She began watching a friend next to her play and then left her own game to join in with her friend. The girls were talking together about the play and Mia actually began suggesting that they play together and that they build things together – she meant verbally help her friend with ideas in the game.

IV. Appendix: Instagram transcripts from account ‘Minecraft_7J’ by Laylah, Katie and Janaya

Clip 4 – Pig babies and blushing face emoticon

Video:

Can you make pigs fall in love?

Oh, look at them, they’re all staring at me.

Look, you give them carrots and then ready, watch, they’ll have a baby.

Baby. The baby pops out. Look. (Laughs)

Comments underneath:

Minecraft7J: I like this way better thxs

Katie: It’s a great life

Minecraft7J: defs @

Minecraft7J: 3 pig emoticons @

Clip 8 – Making a village

Video:

So guys, what are you making?

Me and Katie are making things in two different worlds

Comments underneath:

Minecraft7J: Making a village!

Minecraft7J:Soz still learning @

Minecraft7J: Wow you know my voice :o @

Minecraft7J: What’s a quartz? @

Minecraft7J: good job and I have no idea what that is I’m not a *Minecraft* master yet

Minecraft7J: Hahaa @

V. Appendix: Semi-structured interviews for students towards the end of the study

The following questions are divided into two main parts. Part 1 explores students' work while engaging with *Minecraft* as a digital text. Part 2 explores students' engagement with literacy work aside from playing the game of *Minecraft*.

Part 1: Engagement *with Minecraft*

Operational/Action Literacy:

1. What skills do you think players need to develop in order to learn how to ***play*** the game? Creative you need to be creative. Need to get the hang of playing the game without a mouse. Can get frustrated so you need patience. And if you do something big, you need to patience to build it. How to build things – need to know where to click. Weather. How to fly. Pressing E to get tool box and putting things in selection box.
2. How would you describe your ability to ***play*** the game play? I think I'm pretty good. I got the hang of it pretty fast.
3. Explain why you described your ability in this way.
4. When ***viewing*** the game, do you think you developed an awareness of the 'visual choices' and features used in this game's design, such as the symbols? Katie showed me and then I just got it
5. Explain your character's movements throughout the game and the purpose these movements. Sometimes it's lagging.
6. What main ***resources*** did you use from the tool box and why? Swords – because there are always slimes that get into my house, torches – for light to see, grass blocks – because I'm always breaking things and it fills the holes made
7. What ***resources*** did you collect along the way? How did you collect them? You can't in creative
8. Were these ***resources*** useful? If so, how?
9. Do you have a favourite ***resource***? If so, what is it and why? Sword

Cultural/Situation Literacy:

10. How would you describe your ***feelings*** about using *Minecraft* in class? Really fun. Good I guess.
11. Explain why you described your ***feelings*** in this way. Building things.
12. Do you think *Minecraft* is **engaging**? Yes its something id do if I have nothing to do because its fun
13. Explain why or why not.
14. Do you think *Minecraft* has ***motivated*** you to participate more than usual in English class activities? Yes – can't explain
15. Explain why or why not.
16. Why did you choose to work alone or collaboratively? Alone because I want my ideas in it and no one elses
17. Do you think using *Minecraft* in class allows you to use skills you have developed outside of school? Explain your reasoning. A bit. Being familiar with the technology helped.

18. What benefits do you see in using *Minecraft* in class? Getting to know computers better. Patience.

Design literacy:

19. How did you ***shape/create*** your virtual landscape to create a structure? Made a house
20. Why did you ***shape/create*** your virtual landscape in this way?Everyone else was building houses

Part 2: External game literacy practices

21. What type of text/s did you create as a part of your Minecraft work? Video
22. Why did you create the text/s in this way? I was always going to do a 'how to' video
23. Did you take audience in to account when choosing this form? People who are starting off on Minecraft – although even if you've been playing it a logn time, you can still search how to do something if you're not sure.
24. Why did you choose this audience?
25. What do you hope to achieve by sharing/publishing this text to your audience? To help other learn how to play

Questions for me

26. When ***viewing*** the game, how did you learn to recognise and use these visual features?
27. Were there any aspects of the game that hampered your ***awareness*** of the '*visual choices*' and features used in the game's design? No, you have to use the tool box. I can't see how you could use it otherwise.